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Anatomy of an Amadas Self Propelled Peanut Combine

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- Peanut Basket
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Anatomy of an Amadas Self Propelled Peanut Combine

John Deere Supplied

- Steering System
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- Major Drive Train System
- Engine Platform
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- Electrical System
Differences in the John Deere Supplied Systems as used in the SP Peanut Combine

- **Steering System:** Some hose lengths are specific to Amadas. The rear axles with two steering cylinders are identical to a Deere CWS combine. Rear axles with a single steering cylinder use an Amadas center and Deere STS components.

- **Cab:** The cab is a Deere production cab with minor changes. These are: 10% engine speed control, Amadas labeling for certain switches or displays, and a switch for header reversing either internal (9970) or external (all other models).

- **Major Drive Train System:** These components, such as the hydrostat, transmissions, final drives, etc., are completely Deere items. Hose, cables, and steel lines that support these are custom for Amadas. The shafts that connect the final drives to the transmission are also specific to Amadas combines.

- **Engine Platform:** Includes the engine, main gear case, coolant system, and the platform they are mounted on. Through the 9960 model combines these were CWS (Walker) combine units.

The 9970 uses a Deere engine platform and the 9970(s) uses a S550 engine platform but retains the 9570 engine harness and separator engage valve. In addition, the STS rotor drive is not used. *All engines use an Amadas specific ECU program.*
Differences in the John Deere Supplied Systems as used in the SP Peanut Combine

- **Main Hydraulic System**: The hydrostat system is identical to Deere although most hose lengths are specific to Amadas. The main pump stack is the same as a grain combine. Up through the 9960 combines, the pumps were used as the same function as the grain combine. The 9970 uses the HillMaster version header lift pump to power the OCS conveyor (if equipped). The valve stack pump is flow divided and used to power both the valve stack and header lift. All other pumps on the 9970 are used for the original Deere purpose. The main valve stacks are Deere supplied on combines up to 9960s. Beginning with the 9970 combines, the valve stack is Amadas specific.

- **HVAC System**: Except for some hose lengths, the system is the same as a Deere combine.

- **Electrical System**: All Amadas SP combines use the Deere electrical system from the equivalent Deere combine. All major components such as relay boards, controllers and engine harness panels are Deere products. Main harnesses are Amadas specific. The controls are all Deere, although some circuits are used to control different items on the Amadas combine. All controllers on the 9960 use Deere 9560 STS programs. The 9970 payloads are all Deere 9570 STS payloads except the ADU, which is specific for Amadas.
Amadas Self Propelled Diagnostics and Repair

- Amadas/John Deere Comparable Machines
- Available Information and How to Access it
- Diagnosing Electrical Problems
- Hydraulic Diagnostics
- Basic Mechanical Repairs
## Amadas/John Deere Comparable Machines

<table>
<thead>
<tr>
<th>Amadas Model Number</th>
<th>John Deere Grain Combine Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>9970(S)</td>
<td>9570 STS (6.8L) *</td>
</tr>
<tr>
<td>9970</td>
<td>9570 STS (6.8L)</td>
</tr>
<tr>
<td>9960</td>
<td>9560 CWS (6.8L)</td>
</tr>
<tr>
<td>9900</td>
<td>9510 CWS (8.1L)</td>
</tr>
<tr>
<td>9865</td>
<td>9500 CWS (7.6L)</td>
</tr>
<tr>
<td>9665</td>
<td>9500 CWS (7.6L)</td>
</tr>
</tbody>
</table>

**NOTE:** The 9970 (S) uses a Deere S550 Engine platform but the engine harness and separator valve are 9570 components.
Available Information and How to Access it

- Parts Catalogs
  - Front pages identifies the equivalent Deere combine
  - Hydraulic hose routing
  - Combine shaft speeds
  - Listing of John Deere Filters

- Operators Manuals
  - General Operation instructions
  - Basic DTC’s

- Electrical Manuals
  - Function cross reference
  - Circuit code listings
  - Connector Information
  - Schematics
  - Machine Settings

- Operators Quick Reference

- Technical Information
  - Information on specific topics
  - 9970 Payloads

- Access: www.amadas.com
NOTE: The Amadas website is being updated, the content in the Catalogs and Manuals section will not change but the access may vary from what is illustrated here.
CATALOGS & OPERATOR MANUALS

TIP: If accessing Catalogs & Manuals via the Amadas Web Site use the "Save Target As..." feature in your browser to save the file to your local PC for faster viewing.

Select “Agricultural Technical Information” for additional information

Select “Amadas Agricultural Equipment Catalogs” for parts catalogs or manuals

Suffolk Plant
1100 Holland Rd.
Suffolk, VA 23434
(757) 539-0231
Fax (757) 934-3264

Albany Plant
1701 South Slappey Blvd.
Albany, GA 31706
(229) 439-2217
Fax (229) 439-9343

http://www.amadas.com/index.html
Agricultural Equipment Catalogs & Operator Manuals

AGRICULTURAL EQUIPMENT CATALOGS & OPERATOR MANUALS

TIP: If accessing Catalogs & Manuals via the Amadas Web Site use the "Save Target As..." feature in your browser to save the file to your local PC for faster viewing.

Click here for Technical Information

Select “Self Propelled Peanut Combine” for parts catalogs or manuals
# Self-Propelled Combines Parts Catalogs & Operators Manuals

## 9665 Self Propelled Peanut Combines

<table>
<thead>
<tr>
<th>Machine Model</th>
<th>Serial #’s</th>
<th>Edition Date</th>
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</thead>
<tbody>
<tr>
<td>9665</td>
<td>A33660 &amp; 033859</td>
<td>1st Ed. 8/1/97</td>
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<td></td>
<td>Operators Manual</td>
<td>1997</td>
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## 9865 Self Propelled Peanut Combines

<table>
<thead>
<tr>
<th>Machine Model</th>
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<tbody>
<tr>
<td>9865</td>
<td>056000-056647</td>
<td>1st Ed. 8/15/98</td>
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<tr>
<td></td>
<td>Operators Manual</td>
<td>1998</td>
</tr>
<tr>
<td>M6520-5 Optional 20' Header for 9865</td>
<td>Beg. 380970</td>
<td>1st Ed. 8/15/2011</td>
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## 9900 Self Propelled Peanut Combines

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<th>Machine Model</th>
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<td>9900</td>
<td>370160-409999</td>
<td>1st Ed. 8/1/1999</td>
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<tr>
<td>A9900</td>
<td>Beginning 370160</td>
<td>2nd Ed. 6/30/2000</td>
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<tr>
<td>UOTG &quot;Unload On The Go&quot; System for A9900 Combines</td>
<td>Beginning 400000 (Refers to Basket Serial No.)</td>
<td>1st Ed. 4/13/2003</td>
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## 9965A Self Propelled Peanut Combines

<table>
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<th>Serial #’s</th>
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<tr>
<td>9965A</td>
<td>370139-370152</td>
<td>1st Ed. 8/1/99</td>
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## 9960 Self Propelled Peanut Combines

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<td>9960</td>
<td>410000-419999</td>
<td>1st Ed. 8/1/2003</td>
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<td></td>
<td>Electrical Manual</td>
<td>1st Ed. May 2013</td>
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<td>Operator Controls Quick Reference</td>
<td>Sept. 2003</td>
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<tr>
<td>9960</td>
<td>420000-429999</td>
<td>2nd Ed. 2/1/2004</td>
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<td>1st Ed. May 2013</td>
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<td>Operator Controls Quick Reference</td>
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<td>430000-439999</td>
<td>3rd Ed. 3/1/2005</td>
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<td>Operator’s Manual</td>
<td>2nd Ed. April 2005</td>
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<td></td>
<td>Electrical Manual</td>
<td>1st Ed. May 2013</td>
</tr>
<tr>
<td>9960</td>
<td>440000-450030</td>
<td>4th Ed. 4/15/2006</td>
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### 9970 Self Propelled Peanut Combines

<table>
<thead>
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<tbody>
<tr>
<td>9970</td>
<td>470300-480154</td>
<td>Parts Catalog 1st Ed., Rev. 12/1/2009</td>
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<td></td>
<td>Electrical Manual 1st Ed. June 2009</td>
</tr>
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<td></td>
<td>480155-489999</td>
<td>Operator Controls Quick Reference January 2011</td>
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<td></td>
<td></td>
<td>Parts Catalog 2nd Ed., Rev. 3/15/2010</td>
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<td>Electrical Manual 1st Ed. June 2009</td>
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<td>490000-499999</td>
<td>Operator Controls Quick Reference January 2011</td>
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<td>Parts Catalog 3rd Ed., 10/15/2010</td>
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<td>Beg. 500000</td>
<td>Operator Controls Quick Reference January 2011</td>
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<td>Parts Catalog 4th Ed., 11/01/2011</td>
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<td>Beg. 510000</td>
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<td></td>
<td>Electrical Manual 1st Ed. June 2009</td>
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<td>500005-509999</td>
<td>Operator Controls Quick Reference January 2011</td>
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<tr>
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<td></td>
<td>Parts Catalog 1st Ed., 5/15/2012</td>
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<td></td>
<td>Electrical Manual 1st Ed. June 2009</td>
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<td>9970(S)</td>
<td>Beg. 510000</td>
<td>Operator Controls Quick Reference January 2011</td>
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<td>Electrical Manual 1st Ed. June 2009</td>
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<tr>
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<td>Operator Controls Quick Reference January 2011</td>
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**Green Peanut Supplement**

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**Amadas Industries**
## General Technical Information

<table>
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<tr>
<th>Release Date</th>
<th>Subject</th>
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<tbody>
<tr>
<td>12/6/11</td>
<td>Seal Kits for Hydraulic Cylinders Form 0374</td>
</tr>
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</table>

## Digger Information

<table>
<thead>
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<th>Release Date</th>
<th>Subject</th>
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<tbody>
<tr>
<td>03/28/11</td>
<td>Tach Programming for Diggers/Irrigators (Form 0366: Part #16395)</td>
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## SP Combine Technical Information

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<th>Release Date</th>
<th>Subject</th>
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<tbody>
<tr>
<td>07/12/05</td>
<td>SP Tire Pressures</td>
</tr>
<tr>
<td>01/10 2nd Ed</td>
<td>Open Top Conversion for 9900 SP Peanut Combine</td>
</tr>
<tr>
<td>2005</td>
<td>2005 SP &amp; PT Peanut Combine Service School</td>
</tr>
<tr>
<td>01/11</td>
<td>Operator Controls Quick Reference for 9970 SP Peanut Combine</td>
</tr>
<tr>
<td>09/27/11</td>
<td>Adjusting Header Speed Rate for 9970 Form 0371</td>
</tr>
<tr>
<td>09/27/11</td>
<td>Setting 9970 Cab Controller for Dual Tires Form 0373</td>
</tr>
<tr>
<td>12/14/11</td>
<td>Installation Instructions for the Chaff Spreader Pump Kit for 9970 MAN122</td>
</tr>
<tr>
<td>09/04/12</td>
<td>Installation Instructions for the Chaff Spreader Pump Kit for 9970 (S550 Engine Platform) MAN125</td>
</tr>
<tr>
<td>05/01/12</td>
<td>Unloading the 9970 from a Common Carrier</td>
</tr>
<tr>
<td>07/17/12</td>
<td>Calibrating Autotak for 9970 Wheel Angle Sensors</td>
</tr>
<tr>
<td>07/17/12</td>
<td>Calibrating Header with 9970 Calibration Box</td>
</tr>
<tr>
<td>01/08/13</td>
<td>Basic Diagnostic Trouble Codes for 9960 (See John Deere 9560 for Complete List)</td>
</tr>
<tr>
<td>01/08/13</td>
<td>Basic Diagnostic Trouble Codes for 9970 (See John Deere 9570 for Complete List)</td>
</tr>
<tr>
<td>02/08/13</td>
<td>Machine Setting Addresses for 9960</td>
</tr>
<tr>
<td>04/16/13</td>
<td>List of Wiring Harnesses for SP Combine Models M9665, M9865, A9900, A9905-4, M9965A</td>
</tr>
<tr>
<td>04/16/13</td>
<td>16264 Wiring Harness Drawing</td>
</tr>
<tr>
<td>04/16/13</td>
<td>16293 Wiring Harness Drawing</td>
</tr>
</tbody>
</table>
Diagnostics of the Electrical System

- Using the Electrical Manuals
  - 9970 Electrical Manual (MAN 111)
  - 9960 Electrical Manual (MAN 132)
- How to Access, Select and Load 9970 payloads into Service Advisor
- Diagnosing Header Engage and Reversing Problems
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- Determining use of a circuit
- Using the schematics to follow a circuit and see differences (if any) from Deere
- Circuit wire color and harness connector location
- Connector illustration and circuit locations
- Machine settings
- OCS timer box schematic
## Circuit Code Numbers with John Deere Amadas 9970 Functions

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Pathway of Circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>253</td>
<td>LC1 Sensor Supply 1</td>
<td>Same from LC1 to Header lift cylinder pressure sensor</td>
</tr>
<tr>
<td>254</td>
<td>CAB Local CAN Hi</td>
<td>Same from CAB to CFM</td>
</tr>
<tr>
<td>255</td>
<td>CAB Local CAN Lo</td>
<td>Same from CAB to CFM</td>
</tr>
<tr>
<td>256</td>
<td>LC1 Local CAN Hi</td>
<td>Same from LC1 to LFM</td>
</tr>
<tr>
<td>257</td>
<td>LC1 Local CAN Lo</td>
<td>Same from LC1 to LFM</td>
</tr>
<tr>
<td>258</td>
<td>DC1 BV Power Supply</td>
<td>Same from DC1 to various speed sensors</td>
</tr>
<tr>
<td>270</td>
<td>LC2 Sensor Return 1</td>
<td>Used for fan damper sensor</td>
</tr>
<tr>
<td>273</td>
<td>LC2 Sensor Supply 1</td>
<td>Used for fan damper sensor</td>
</tr>
<tr>
<td>284</td>
<td>RCU Local CAN Hi</td>
<td>Same from RCU to RPM</td>
</tr>
<tr>
<td>285</td>
<td>RCU Local CAN Lo</td>
<td>Same from RCU to RPM</td>
</tr>
<tr>
<td>289</td>
<td>RCU Sensor Return</td>
<td>Same</td>
</tr>
<tr>
<td>293</td>
<td>RCU Sensor Supply</td>
<td>Same from RCU to EP for sensor s through RH Main and Engine harness and to Bin Full sensor through RH Main and basket harness</td>
</tr>
<tr>
<td>297</td>
<td>RCU BV Sensor Supply</td>
<td>Same from RCU to #2 stripper cyl., #1 cyl &amp; #4 cyl speed sensors</td>
</tr>
<tr>
<td>301</td>
<td>Separator Engage</td>
<td>Same</td>
</tr>
<tr>
<td>302</td>
<td>RPM Micro Power</td>
<td>Same</td>
</tr>
<tr>
<td>306</td>
<td>Chaffer 1 Extend</td>
<td>Used for Fan Damper movement</td>
</tr>
<tr>
<td>307</td>
<td>Chaffer 1 Retract</td>
<td>Used for Fan Damper movement</td>
</tr>
<tr>
<td>312</td>
<td>RPM Power 1</td>
<td>Same</td>
</tr>
<tr>
<td>316</td>
<td>Auger Swing In</td>
<td>Conveyor in</td>
</tr>
<tr>
<td>317</td>
<td>Auger Swing Out</td>
<td>Conveyor Out</td>
</tr>
<tr>
<td>319</td>
<td>Auger Engage</td>
<td>Conveyor Engage</td>
</tr>
<tr>
<td>322</td>
<td>RPM Power 2</td>
<td>Same</td>
</tr>
<tr>
<td>327</td>
<td>Threshing Clearance Increase</td>
<td>Clearing Fan Damper Increase</td>
</tr>
<tr>
<td>328</td>
<td>Threshing Clearance Decrease</td>
<td>Clearing Fan Damper Decrease</td>
</tr>
<tr>
<td>329</td>
<td>Threshing Speed Change</td>
<td>Same</td>
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</table>

Use to determine function of a circuit and what page(s) the circuit is found in the schematic.
# Circuit Code Numbers with John Deere Functions and Amadas 9960 Functions

<table>
<thead>
<tr>
<th>Circuit Code</th>
<th>Deere Function (Amadas Function, if different)</th>
<th>Schematic Page Number (Corresponds to 9960ELEC-# on schematic pages)</th>
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<tbody>
<tr>
<td>317</td>
<td>Auger Swing Out (Conveyor Swing Out)</td>
<td>4</td>
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<td>319</td>
<td>Unloading Auger Engage (Unloading Conveyor Engage)</td>
<td>4,11</td>
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<tr>
<td>322</td>
<td>Walkers Plugged Signal (Peanut Door Open Alarm)</td>
<td>11</td>
</tr>
<tr>
<td>402</td>
<td>Header Clutch Engage Power (Header Solenoid Power)</td>
<td>8,11</td>
</tr>
<tr>
<td>406</td>
<td>Header Raise</td>
<td>13</td>
</tr>
<tr>
<td>407</td>
<td>Header Lower</td>
<td>13</td>
</tr>
<tr>
<td>412</td>
<td>Header Height Sensor 1 (Header Solenoid B Reverse)</td>
<td>4</td>
</tr>
<tr>
<td>414</td>
<td>Header Sensor (AHC Pressure Sensor Signal On Left Header Cylinder)</td>
<td>17</td>
</tr>
<tr>
<td>418</td>
<td>Reel Forward Peanut Basket Up</td>
<td>13</td>
</tr>
<tr>
<td>419</td>
<td>Reel Aft (Peanut Basket Down)</td>
<td>13</td>
</tr>
<tr>
<td>422</td>
<td>Reel Speed Decrease (Header Speed Decrease)</td>
<td>13</td>
</tr>
<tr>
<td>423</td>
<td>Reel Speed Increase (Header Speed Increase)</td>
<td>13</td>
</tr>
<tr>
<td>436</td>
<td>Header Sel 1</td>
<td>13,17</td>
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<td>438</td>
<td>Header Drop Rate</td>
<td>13</td>
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<tr>
<td>442</td>
<td>FF Reverse (Header Rev. Relay Signal 2004 &quot;SNs&quot; Starting With 42 Only)</td>
<td>4,8</td>
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<td>450</td>
<td>AHC Ground</td>
<td>1,13</td>
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<tr>
<td>471</td>
<td>AHC Sensor +SV2</td>
<td>13</td>
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<tr>
<td>480</td>
<td>AHC Sensor Ground</td>
<td>13,17</td>
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<tr>
<td>481</td>
<td>AHC Sensor +SV1</td>
<td>13,17</td>
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<tr>
<td>487</td>
<td>Header Sel 2</td>
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<td>490</td>
<td>Armrest Sensor Ground</td>
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<td>491</td>
<td>Injector Solenoid High 1</td>
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<tr>
<td>492</td>
<td>AHC Encoder 1</td>
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<td>493</td>
<td>AHC Encoder 2</td>
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<td>494</td>
<td>Injector Solenoid Cylinder 2</td>
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<td>495</td>
<td>Injector Solenoid Cylinder 3</td>
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<td>Injector Solenoid High 2</td>
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<tr>
<td>502</td>
<td>Hazard Lights Signal</td>
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Use to determine function of a circuit and what page(s) the circuit is found in the schematic.
Use to follow a circuit and determine differences if use is not the same as Deere
Use to follow a circuit and determine differences if use is not the same as Deere
For the 9960, if the schematic directs you to another page, always use the SE #’s to follow the circuit.
If the circuit code matches vertically and horizontally then the function is the same as Deere.

If Amadas-specific use, then the vertical circuit code name will be the Deere use and the horizontal name will be the Amadas use.
Circuit Codes within the Amadas 9970 Harness with Wire Color, Connector ID, and Pin Numbers

Listing of Circuit Codes that are within the Amadas Harness with wire color, connector identification and pin numbers.

Note 1: If Circuit is not listed here it is part of a John Deere supplied harness. Refer to the Circuit Code listing with schematic reference to find it in the schematic or refer to the John Deere Tech Manual for a 9570 STS Combine for more information.

Note 2: Refer to the Connector Identification sheets for more information on connectors and location.

<table>
<thead>
<tr>
<th>Circuit code # and Deere Function</th>
<th>Wire Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>006 System Wakeup Power (X101, Pin 2), (X131, Pin A1), (X288, Pin 1), (X121, Pin A1), (X358, Pin A1), (S70 Pin 1)</td>
<td>Blue</td>
</tr>
<tr>
<td>007 Alternator Field (X131, Pin G3), (X701, Pin 4)</td>
<td>Purple</td>
</tr>
<tr>
<td>010 Chassis Ground (X104, Pin A), (X123, Pin A), (X142, L1), (X142, L2), (X146, Pin A), (X169), (X173, Pin E), (X175, Pin H), (X192), (X211), (X222, Pin A), (X229, Pin A), (X246, Pin A), (X256, Pin A), (X268, Pin A), (X284, Pin A), (X297, Pin 6), (X297, Pin 9), (X297, Pin 12), (X297, Pin 16), (X297, Pin 20), (X297, Pin 24), (X297, Pin 25), (X297, Pin 27), (X297, Pin 31), (X306, Pin 1), (X309, Pin A), (X331, Pin 9), (X332, Pin 9), (X341, Pin L1), (X341, Pin L2), (X354, Pin A), (X355, Pin A), (X359, Pin L1), (X359, Pin L2), (X364, Pin E), (X366, Pin H), (X806, Pin B), (X901, Pin 12), (X1003, Pin 18), (X1005), (X1010, Pin A), (X1011, Pin A), (X1013), (X1014), (X1017, Pin A), (X1018), (T1, Pin A), (T2, Pin A)</td>
<td>Black</td>
</tr>
<tr>
<td>013 Key Switch RUN Signal (X570, Pin 7), (X701, Pin 2)</td>
<td>Orange</td>
</tr>
<tr>
<td>020 Left Side Electronics Ground (X339, Pin H1), (X358, Pin H1), (X365, Pin B), (T1, Pin A)</td>
<td>Black</td>
</tr>
<tr>
<td>022 CPM Power 1 (X117, Pin A), (X569, Pin A)</td>
<td>Red</td>
</tr>
<tr>
<td>030 Right Side Electronics Ground (X101, Pin 1), (X131, Pin H1), (X174, Pin B), (X193)</td>
<td>Black</td>
</tr>
<tr>
<td>032 CPM Power 2 (X117, Pin E), (X569, Pin B)</td>
<td>Red</td>
</tr>
<tr>
<td>042 CPM Power 3 (X117, Pin C), (X569, Pin C)</td>
<td>Red</td>
</tr>
<tr>
<td>052 CPM Power 4 (X117, Pin G), (X569, Pin E)</td>
<td>Red</td>
</tr>
<tr>
<td>080 Engine Electronics Ground (X195), (X701, Pin 5)</td>
<td>Black</td>
</tr>
</tbody>
</table>

Used to identify the wire color and connector locations of a circuit.
## Circuit Codes within Amadas 9960 Harnesses with Wire Color, Connector ID, and Pin Numbers

### Listing of Circuit Codes Within Amadas Harness With Wire Color, Connector Identification, and Pin Number

**Note 1:** If Circuit is not listed, it is part of a John Deere-supplied harness. Refer to the Circuit Code listing with schematic reference to find it in the schematic or refer to the John Deere Tech Manual for a [More information](#).

**Note 2:** Refer to the Connector Identification Sheets for more information on connectors and locations.

<table>
<thead>
<tr>
<th>Circuit code # and Deere Function</th>
<th>Wire Color</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>005 System Wakeup Diode Input</strong></td>
<td></td>
</tr>
<tr>
<td>(X5001, PIN A2) (X5005, PIN E)</td>
<td></td>
</tr>
<tr>
<td><strong>006 System Wakeup Power</strong></td>
<td>Red</td>
</tr>
<tr>
<td>(X5025, PIN M) (X5049, PIN B) (X5006, PIN H)</td>
<td></td>
</tr>
<tr>
<td><strong>010 Chassis Ground</strong></td>
<td>Black</td>
</tr>
<tr>
<td>(5024, PIN 3) (X5044, PIN C) (X5038, PIN A) (X5008, PIN 18) (X5000, PIN D) (5052, PIN A) (X5053, PIN A) (X5040, PIN 3) (X5057) (X5020, PIN 12) (SO57) (X5048, PIN C) (X5043) (X5040, PIN 6) (X5040, PIN 12) (X5040, PIN 16) (X5040, PIN 18) (X5040, PIN 19) (X5040, PIN 20) (X5033, PIN A) (X5040, PIN 21) (X5040, PIN 24) (X5040, PIN 25) (X5040, PIN 27) (X5040, PIN 31) (X5041) (X5042) (X5035) (X5036) (X5037, PIN A) (X5028, PIN A) (X5032, PIN A) (X5018, PIN A) (X5011, PIN B) (X5005, PIN A) (X5002, PIN N2)</td>
<td>Red</td>
</tr>
<tr>
<td><strong>011 Key Switch Accessory Power</strong></td>
<td>Red</td>
</tr>
<tr>
<td>(X5050, PIN G) (X5019, PIN A)</td>
<td></td>
</tr>
<tr>
<td><strong>012 Miscellaneous Cab Power</strong></td>
<td>Red</td>
</tr>
<tr>
<td>(5026, PIN 1) (X5019, PIN B)</td>
<td></td>
</tr>
<tr>
<td><strong>013 Key Switch Run Signal</strong></td>
<td>Red</td>
</tr>
<tr>
<td>(X5048, PIN E) (X5019, PIN C)</td>
<td></td>
</tr>
<tr>
<td><strong>014 Header Height Encoder 1</strong></td>
<td>Red</td>
</tr>
<tr>
<td>(X5050, PIN F) (X5007, PIN E)</td>
<td></td>
</tr>
<tr>
<td><strong>016</strong></td>
<td>Red</td>
</tr>
<tr>
<td>(X5056) (X5049, PIN F) (X5005, PIN H)</td>
<td></td>
</tr>
<tr>
<td><strong>020</strong></td>
<td>Black</td>
</tr>
<tr>
<td>(X5025, PIN A) (5051, PIN A) (X5014, PIN A) (X5045, PIN A) (X5045, PIN A) (X5047, PIN G) (X5034, PIN A) (X5039, PIN A) (X5031, PIN A) (X5020, PIN 10) (X5013, PIN A) (X5009, PIN 5) (X5012, PIN A) (X5008, PIN 20) (X5005, PIN D) (X5002, PIN L1)</td>
<td></td>
</tr>
</tbody>
</table>

Used to identify the wire color and connector locations of a circuit.
Illustrates connectors and position of circuits within it.
Note: The 9970 uses one main harness.
SP 9960 Connector Terminals for 16371 Harness

<table>
<thead>
<tr>
<th>PIN</th>
<th>WIRE CODE</th>
<th>COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>312</td>
<td>PINK</td>
</tr>
<tr>
<td>B</td>
<td>313</td>
<td>PINK</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>10C</td>
<td>BLACK</td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>306</td>
<td>PINK</td>
</tr>
<tr>
<td>G</td>
<td>307</td>
<td>PINK</td>
</tr>
<tr>
<td>H</td>
<td>31</td>
<td></td>
</tr>
</tbody>
</table>

Note: The 9960 uses Left and Right Hand Main Harnesses

Illustrates connectors and position of circuits within it
This section of the 9970 manual identifies by controller the payload used and the Machine Settings that must be set or verified when a controller is replaced.
9960 Machine Settings

These are the 9960 Amadas Machine Settings by controller and address. Unless equipped with OCS, only the Cornerpost controller (C03) requires any machine setting changes. If equipped with OCS, then controller E01 addresses 100 & 101 must be set as well.
Illustration, parts listing and schematic of systems that the conveyor and basket auger valves.

**NOTES:** cc# 38 supplies power for valves, cc#319 controls both relays, the resistors are used to meet minimum amp draw requirement of cc# 319

If timer relay fails and replacement is unavailable a short term repair can be made by using two jumpers. One between terminals 2 & 3, the second between 6 & 7.
Selecting and Installing 9970 Payloads into the Service Advisor

- Go to Technical Information
- Selecting Payloads
  - General
  - Autotrac
- How to download and install payloads into Service Advisor
# Autotrac Payloads

<table>
<thead>
<tr>
<th>Release Date</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/24/11</td>
<td>How to Select A Payload</td>
</tr>
<tr>
<td>10/24/11</td>
<td>How to Copy the Payload</td>
</tr>
<tr>
<td>10/24/11</td>
<td>AH234469A</td>
</tr>
<tr>
<td>10/24/11</td>
<td>AXE17165A</td>
</tr>
</tbody>
</table>

# Other (Non-Autotrac) Payloads

<table>
<thead>
<tr>
<th>Release Date</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/24/11</td>
<td>How to Select a Non-Autotrac Payload</td>
</tr>
<tr>
<td>10/24/11</td>
<td>How to Copy the Payload</td>
</tr>
<tr>
<td>10/24/11</td>
<td>CAB Payload AH234251A</td>
</tr>
<tr>
<td>10/24/11</td>
<td>CDU Payload AH231068A_9101</td>
</tr>
<tr>
<td>10/24/11</td>
<td>LC1 Payload AH234513A</td>
</tr>
<tr>
<td>10/24/11</td>
<td>RCU Payload AH233044A</td>
</tr>
<tr>
<td>10/24/11</td>
<td>LC2 Payload AH233046A</td>
</tr>
</tbody>
</table>
## Selecting Payloads for 9970 SP Combines

The payload selected depends on the Control Unit as follows:

<table>
<thead>
<tr>
<th>For the following controller:</th>
<th>Use payload file:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAB</td>
<td>AH234251A</td>
</tr>
<tr>
<td>CDU</td>
<td>AH231068A_9101</td>
</tr>
<tr>
<td>LC1</td>
<td>AH234513A</td>
</tr>
<tr>
<td>RCU</td>
<td>AH233044A</td>
</tr>
<tr>
<td>LC2</td>
<td>AH233046A</td>
</tr>
<tr>
<td>SSU</td>
<td>AH234469A</td>
</tr>
</tbody>
</table>

**NOTE**: SSU payload shown is for a combine with a Serial number of 500003 or higher with a one connector SID for all other applications use AH234469A.

For additional information refer to “How to Select the Correct Autotrac Payload for 9970 SP Combines” Chart.
# How to Select the Correct Autotrac Payload for 9970 SP Combines

There are two Autotrac Payload files available. The serial number of your combine and/or the number of SID connectors determine which file to use.

**NOTE:** The SID is located under the cab near the bottom of the steering column.

<table>
<thead>
<tr>
<th>If the combine:</th>
<th>Use payload file:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has a serial number of 500002 or LOWER OR</td>
<td>AH234469A</td>
</tr>
<tr>
<td>The SID has 2 connectors</td>
<td></td>
</tr>
<tr>
<td>Has a serial number of 500003 or HIGHER OR</td>
<td>AXE17165A</td>
</tr>
<tr>
<td>The SID has 1 connector</td>
<td>(Use generic serial # HQ98705735000)</td>
</tr>
</tbody>
</table>

---

**AMADAS INDUSTRIES**

American Manufacturer - Advanced Design - Aileron Series
How to Install a Payload into the Service Advisor

NOTE: The payload file is in a zipped folder. If your operating system is Windows Vista or 7, clicking on the folder will automatically unzip it. If your operating system is Windows XP or an earlier version, you will need WINZIP software to unzip the folder.

1. Use the “How to Select Payloads for 9970 SP Combine” chart to select the correct payload.

2. Click the appropriate payload file from the menu.

3. When the “File Download” screen displays, click Save

4. When the Directory screen displays, save the file as follows:
   - Open your C:\ directory. Locate the folder labeled sds; then open the folder labeled payloads
   - OR
   - Save the file to whatever directory you generally save downloads, but note that you will need to copy the file to the payloads directory.
5. Once you have selected the directory, click **Save**

6. When “Download Complete” displays, click **Close**.

7. Open the directory in which you saved the folder. If the folder was not saved to the **payloadsn** folder, copy the folder to it.

8. Click the folder; the payload file is listed with a .pld extension.

   **NOTE:** You must click on the zipped folder to open it or use WINZIP, depending on your operating system. The payload file will not work if you do not see a file with the .pld extension in the **payloadsn** folder.

9. Close all folders.

**NOTE:** If you are unable to download the file successfully after several attempts, you may send an email to **eng@amadas.com** to request the file be sent as an email attachment. In the email, you must indicate that you are requesting a payload file, the name of the specific file, and the email address to which the file is to be sent, if different than the requesting email address.
**Diagnosing Header Engage and Reversing Problems**

- **Will header engage in either forward or reverse?**
  
  NO!

- Make sure there is hydraulic flow. Check for pump belt (except 9970). Increase header valve flow to maximum.
- Make sure header motor(s) chain(s) are in place.
- If hydraulics and chain are good then disconnect, clean, inspect and reconnect header connector.
- Have someone engage separator and header and test both header valve coils for magnetism.
- Perform same test while trying to reverse header.
- If strong magnetism, hydraulic flow, and chains are present then problem is likely the header valve is seized.
- If no magnetism is present then either both coils have failed, the reverse switch has failed, or header engage circuit has failed.
- Test resistance on both coils. It should be 3 -3.5 ohms.
- The valve can also be tested by disconnecting one of the square connectors and apply 12 VDC to the coil with the separator engaged. If the header turns in one direction then the problem is either the reverse switch has failed or the header engage power is not present.
Diagnosing Header Engage and Reversing Problems

- Will header engage in either forward or reverse but not both?
  - Yes!

- Swap square connectors on header valve and see if problem reverses. If so then either a coil or reversing switch is the problem.
- Test resistance on both coils. It should be 3 -3.5 ohms
- If resistance is good then swap position of the coils and retest. If reverse switch has failed (in one position) then no change should occur.

- Note: On both 9960 and 9970 combines you cannot test for header engage power without it being connected to a good coil. The combine will not sense current draw and will remove power from the circuit.
Hydraulic Diagnostics

- Troubleshoot Header Problems
- Test and Set Header Relief Pressure
- Test and Set OCS Conveyor Pressure
- Diagnosing loss of valve stack functions
How to Troubleshoot and Correct Header Power Problems

• Check the belt tension on the drive to the pump.
• Inspect the sheaves for excessive wear or heat.
• Test header pressure (See next page)
• Make sure the system has enough oil in it.
• Inspect the header for damage, making sure the teeth are not being run in the dirt too low. If a large number of pickup teeth are missing then replace.
• Inspect the picking cylinders for broken or missing teeth. If a large number are missing, especially in one area, this will cause the header to feed incorrectly.
• Check the clearance between the auger and the header concave. If the auger has worn or the clearance is high, this will cause too much material to be pulled in at one time. If the header has run for some time and is still set at the factory setting, it will need to be adjusted.
• Make sure the header is being run as fast as possible for the conditions. (The slower the header is run, the more oil is bypassed, creating heat and reducing horsepower.)
How to Test and Set Header Relief Pressure

- The test port is the same as used on Deere equipment and teed in at the Header speed control valve.
- The header speed control valve for the 9970 is located in the engine platform area over the main engine gear case.
- On all other model combines the header speed control valve high is on the left side behind the air lift duct.
- The 9970 uses a direct coupled header pump. All other models use a belt drive. This must be in good condition (belt tight, sheaves not worn) before testing the pressure.
- Connect a 5000 psi rated gauge to the test port.
- Disconnect one of the two hoses going to the header. This will “dead head” the system.
- Before starting, ensure no one is near the combine.
- Start the combine and engage the separator just long enough to take a reading.
- The pressure should be set between 3400 - 3600 psi with warm oil.
- If this reading is not achieved, adjust the pressure relief valve as needed. (clockwise to increase pressure, counter clockwise to decrease)
- If the above pressure cannot be met, then either the relief valve or pump is faulty.
How to Test and Set OCS System Pressure

- The test port is the same as used on Deere equipment and teed in on the pressure side of the valve block that controls the conveyor and the augers. This is at the rear of the basket on the right hand side.
- The 9970 uses a direct coupled pump. All other models use a belt drive. This must be in good condition (belt tight, sheaves not worn) before testing the pressure.
- Connect a 5000 psi rated gauge to the test port.
- Disconnect one of the two hoses going to the conveyor. This will “dead head” the system.
- Before starting, ensure no one is near the combine.
- The pump will start with the engine. Start the combine just long enough to take a reading.
- The pressure should be set between 2800 - 3000 psi with warm oil.
- If this reading is not achieved, adjust the pressure relief valve as needed. (clockwise to increase pressure, counterclockwise to decrease)
- If the above pressure cannot be met, then either the relief valve or pump is faulty.
Diagnosing Loss of Valve Stack Functions

- The valve stacks controls, Header Raise/Lower, Basket Up/Down, Cylinder Speed, and, if equipped, Conveyor Swing or Bin Lip Extension.
- If a customer reports the loss of one function, have them check the remaining.
- If all functions have stopped functioning, the problem is likely loss of oil pressure signal.
- For safety, the combine controls will not allow any valve stack functions to work unless the engine is running which is determined by the oil pressure switch being close to ground.
- This problem can exist without a low oil pressure alert though typically it will present as such:
  - Start by testing the oil pressure switch. It should close when the engine is started. If it doesn’t, then replacing the switch should resolve the problem.
  - If it does, try adding an additional ground to the black wire side of the oil pressure switch connector.
  - If neither resolves the problem, then troubleshoot the circuit as described by Service Advisor. This system is identical to a Deere combine.

Note: On combines up to the 9960, the oil pressure switch provides ground for the Engine Run relay. On 9960 and 9970 combines, the oil pressure signal is connected to the ECU then transmitted via the Can Bus.
Basic Mechanical Repairs

- Change the No. 1 Disc Separator Shaft
- Adjust the Shaker Arms
- 9970 Header Clutch Changes
How to Change the Number 1 Disc Separator Shaft

SP Combines and PT Combines up to 2005 only

• Remove any ductwork on the machine that is in the way.
• Remove the snubber idler, main chain, small chain sprocket, and both upper disc shaft shields from the machine.
• Take the lock collars off of the bearings of the number one shaft.
• On the right side of the machine, cut the machine below the shaft so that the entire shaft can be removed assembled.
• Install the new shaft assembled, centering it in the machine and locking the bearings down.
• Weld the side of the machine back together and paint it AMADAS blue. A piece of flat bar can be welded to one side of the cut and bolted to the other instead of welding. This will allow access in the future.
• Replace the sprockets, chains, disc shields, and ductwork, and snubber idler.
• Make sure the blades bisect the number two shaft blades; refer to the number three shaft as an example. The first and third shafts should match.
• Run the machine to check that it is properly installed.
Illustration on where to cut to change #1 Disc Separator Shaft

Make cut in frame below 2nd bearing hole.
How to Adjust the Shaker Arms

Make sure the stemmer bottom is running as squarely as possible. If a stemmer is striking, it will damage the stemmer bottom. This contact can be caused by several things, such as mud build up, over speed (more than 110% on PT’s only), loose or lost bolts on the stemmer bottom hinges, worn grommets on the stemmer pegs, and cracked and damaged rubber hinges.

• With only one arm connected, stroke the machine forward (toward the tongue or cab) as far as possible. If the pegs are striking the machine side, lengthen the arm until you have ½ to ¾ of an inch of clearance.

• Once the stroke is set, install the bolt attaching the arm to the eccentric on the opposite side. Do not force the bolt to line up; instead, adjust the rod end in or out until the bolt lines up.

• Stroke the machine all the way to the rear and make sure it does not strike. If there is no striking, then ensure that both arms are tightened (including adjusting rod jam nuts).

• For older PT combines without cross augers, check for clearance in front and back of the peanut funnel.

• If all looks well, then run the machine starting at a slow speed listening for any striking noises. If there are none, then increase to operating speed. If no striking noise is heard, the repair is complete.
9970 Header Clutch Changes

Stronger, independent springs for each paw. Requires new springs, clips and 90 degree cotter pins.
Field Performance

- Theory of Operation
- Performance Troubleshooting
- Shaft Speeds Value and Use
- Basic Things to check on Service Call
Theory of Operation
Theory of Operation

- The header pickup lifts the peanuts and vines off of the ground. The header auger feeds them into the spring tooth cylinders.

- The spring tooth cylinders strip the peanuts from the vines. Large amounts of dirt and foreign material are removed by the cleaning area of the cylinder dirt removal screens under each cylinder.

- The first and fourth spring tooth cylinders have sets of adjustable overhead teeth which increase picking aggressiveness when engaged. An adjustable retention board controls the time that the vines remain in the fourth cylinder.

- Optional adjustable concave teeth are available for the first, second, and third cylinders for increased harvesting aggressiveness.

- Peanuts and vine material fall through the extraction holes in the fourth cylinder concave onto the disc separator, or travel back into the walker cylinders.

- The walker cylinders separate the good peanuts from the coarse vine material and carry the vine material out of the machine. Peanuts sift out of the cam actuated walker cylinders and are swept down to the disc separator for final separation.

- At the disc separator, the good peanuts are separated from vine material and other light trash.

- The cleaning fan agitates the material on the disc separator to aid in separation and blows light material such as leaves, pops, and other light trash over the tail board and out of the back of the combine.

- The higher density good peanuts fall through to the stemmer section, while vine material and sticks advance across the disc separator and out of the back of the combine. As the good peanuts fall into the stemmer saws, their stems are removed. Cleaned peanuts fall into the collection auger and are conveyed into the elevator air system, which sends them up to the peanut dump bin.
# Performance Troubleshooting

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>CORRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good peanuts attached to vines are being discharged from the combine.</td>
<td>Picking control board open too much.</td>
<td>Close in 1&quot; increments between checks.</td>
</tr>
<tr>
<td></td>
<td>Variable cylinder speed too low.</td>
<td>Increase variable cylinder speed.</td>
</tr>
<tr>
<td></td>
<td>Main drive belt slips under surge loads.</td>
<td>Tighten belt and slow down ground speed.</td>
</tr>
<tr>
<td></td>
<td>Ground speed too fast for conditions.</td>
<td>Reduce speed.</td>
</tr>
<tr>
<td></td>
<td>Moisture level in windrows is too high.</td>
<td>Lift windrows and/or wait for moisture to dissipate.</td>
</tr>
<tr>
<td></td>
<td>Adjustable breast spring bars not engaged enough.</td>
<td>Engage breast spring bars slightly (in 1&quot; increments).</td>
</tr>
<tr>
<td></td>
<td>Combine engine speed too slow.</td>
<td>Disengage 10% speed reduction switch.</td>
</tr>
<tr>
<td></td>
<td>Combine picking cylinders too slow.</td>
<td>Drive chains need to be on higher speed sprockets.</td>
</tr>
<tr>
<td>Loose peanuts being discharged over rear separator cylinders.</td>
<td>Combine separator not at or near design speed.</td>
<td>Adjust speed and monitor combine tachometer.</td>
</tr>
<tr>
<td></td>
<td>Ground speed too high for conditions.</td>
<td>Reduce speed.</td>
</tr>
<tr>
<td>Lightweight foreign material in bin.</td>
<td>Cleaning air control set too low.</td>
<td>Adjust to a higher setting.</td>
</tr>
<tr>
<td></td>
<td>Combine separator not at or near design speed.</td>
<td>Adjust and monitor combine tachometer.</td>
</tr>
<tr>
<td></td>
<td>Main drive belt slips under surge loads.</td>
<td>Tighten belt and reduce ground speed.</td>
</tr>
<tr>
<td></td>
<td>Moisture level in windrows too high.</td>
<td>Lift windrows and/or wait for moisture to dissipate.</td>
</tr>
<tr>
<td></td>
<td>Separator section drive, or cleaning air drive belts are slipping.</td>
<td>Tighten belts.</td>
</tr>
<tr>
<td>PROBLEM</td>
<td>CAUSE</td>
<td>CORRECTION</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------------------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Excessive amounts of LKSs in bin.</td>
<td>Adjustable breast spring bars are set too aggressively.</td>
<td>Disengage in 1” increments between checks.</td>
</tr>
<tr>
<td></td>
<td>Picking control board engaged too far in the closed position.</td>
<td>Open in 1” increments between checks.</td>
</tr>
<tr>
<td></td>
<td>Elevator fan set too high.</td>
<td>Lower elevator fan setting.</td>
</tr>
<tr>
<td></td>
<td>Variable cylinder speed too high.</td>
<td>Decrease variable cylinder speed.</td>
</tr>
<tr>
<td></td>
<td>Main drive belt slips under surge.</td>
<td>Tighten belts.</td>
</tr>
<tr>
<td></td>
<td>Moisture level in windrows too high.</td>
<td>Lift windrows or wait for moisture to dissipate.</td>
</tr>
<tr>
<td></td>
<td>Moisture content in peanuts too low.</td>
<td>Minimize aggressive settings, reduce combine RPM 10%. Increase to a higher ground speed if possible.</td>
</tr>
<tr>
<td></td>
<td>Combine separator not at or near design speed.</td>
<td>Adjust speed and monitor combine tachometer.</td>
</tr>
<tr>
<td>Obstruction in pneumatic conveyor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stones in air duct.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windrows have been run over and the peanuts shell easily.</td>
<td>None.</td>
<td></td>
</tr>
<tr>
<td>Combine picking chamber not fully loaded.</td>
<td></td>
<td>Increase ground speed slightly.</td>
</tr>
<tr>
<td>Excessive amounts of dirt clods in bin.</td>
<td>Pickup header is being operated too low.</td>
<td>Raise header so that spring tips just touch the ground.</td>
</tr>
<tr>
<td></td>
<td>Excessive dirt in windrow.</td>
<td>Lower ground speed.</td>
</tr>
<tr>
<td></td>
<td>Ground speed too fast for conditions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Combine separator not at or near design speed.</td>
<td>Adjust speed and monitor combine tachometer.</td>
</tr>
<tr>
<td></td>
<td>Main drive or cleaning air belts are slipping.</td>
<td>Tighten belts and check cleaning air fan belt and V sheave for wear.</td>
</tr>
<tr>
<td></td>
<td>Breast springs not engaged.</td>
<td>Engage breast springs in 1” increments.</td>
</tr>
<tr>
<td>PROBLEM</td>
<td>CAUSE</td>
<td>CORRECTION</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Elevator fan does not deliver peanuts to the bin.</td>
<td>Elevator fan set too low.</td>
<td>Increase setting.</td>
</tr>
<tr>
<td></td>
<td>Combine engine not at or near design speed.</td>
<td>Adjust and monitor tachometer.</td>
</tr>
<tr>
<td></td>
<td>Ground speed too fast for conditions.</td>
<td>Reduce speed.</td>
</tr>
<tr>
<td></td>
<td>Obstruction in pneumatic conveyor duct.</td>
<td>Disassemble duct and remove obstruction.</td>
</tr>
<tr>
<td></td>
<td>Main drive, cleaning air, or elevator fans belts are slipping.</td>
<td>Tighten belts and check the elevator fan belt and V sheave for wear.</td>
</tr>
<tr>
<td></td>
<td>Stones or dirt clods in air duct.</td>
<td>Shut off combine, open cleaning door and remove stones or clods.</td>
</tr>
<tr>
<td></td>
<td>Animals have built nests in high pressure section of pneumatic conveyor system.</td>
<td>Remove inspection door in auger and remove nest.</td>
</tr>
<tr>
<td></td>
<td>Dirt built up on inside of duct.</td>
<td>Inspect and clean.</td>
</tr>
<tr>
<td>Combine separator load excessive.</td>
<td>Combine separator not at or near design speed.</td>
<td>Adjust and monitor cylinder speed indicator.</td>
</tr>
<tr>
<td></td>
<td>Ground speed too fast for conditions.</td>
<td>Reduce ground speed.</td>
</tr>
<tr>
<td></td>
<td>Picking chamber jammed.</td>
<td>Stop, shut off engine, and remove excess material.</td>
</tr>
<tr>
<td>Hay is torn up excessively under dry conditions.</td>
<td>Adjustable breast spring bars set too aggressively.</td>
<td>Disengage breast spring bars in 1&quot; increments between checks.</td>
</tr>
<tr>
<td></td>
<td>Combine is being operated above ideal speed level.</td>
<td>Engage 10% speed reduction. Switch dual speed picking cylinder drives to low speed sprocket set.</td>
</tr>
<tr>
<td></td>
<td>Combine picking chamber not fully loaded.</td>
<td>Increase ground speed slightly.</td>
</tr>
</tbody>
</table>
## A9970 Self Propelled Peanut Combine
### Shaft Speeds

<table>
<thead>
<tr>
<th>SHAFT DESCRIPTION</th>
<th>SPEED (RPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine RPM</td>
<td>2510</td>
</tr>
<tr>
<td>Engine Gearbox Output</td>
<td>1524</td>
</tr>
<tr>
<td>#1 Jackshaft</td>
<td>790</td>
</tr>
<tr>
<td>#2 Jackshaft</td>
<td>526</td>
</tr>
<tr>
<td>#3 Jackshaft</td>
<td>208</td>
</tr>
<tr>
<td>Header Hydraulic Pump</td>
<td>1524 (18.5 gpm)</td>
</tr>
<tr>
<td>High #1 Picking Cylinder</td>
<td>114</td>
</tr>
<tr>
<td>High #2 Picking Cylinder</td>
<td>117</td>
</tr>
<tr>
<td>High #3 Picking Cylinder</td>
<td>132</td>
</tr>
<tr>
<td>Low #1 Picking Cylinder</td>
<td>89</td>
</tr>
<tr>
<td>Low #2 Picking Cylinder</td>
<td>91</td>
</tr>
<tr>
<td>Low #3 Picking Cylinder</td>
<td>102</td>
</tr>
<tr>
<td>Max. Cyl. Gearbox Input</td>
<td>2329</td>
</tr>
<tr>
<td>Min. Cyl. Gearbox Input</td>
<td>1441</td>
</tr>
<tr>
<td>Max. #4 Picking Cylinder</td>
<td>269</td>
</tr>
<tr>
<td>Max. #5 Picking Cylinder</td>
<td>273</td>
</tr>
<tr>
<td>Min. #4 Picking Cylinder</td>
<td>160</td>
</tr>
<tr>
<td>Min. #5 Picking Cylinder</td>
<td>169</td>
</tr>
<tr>
<td>#1 Beater Cylinder</td>
<td>344</td>
</tr>
<tr>
<td>#2 Beater Cylinder</td>
<td>497</td>
</tr>
<tr>
<td>#1 Stemmer</td>
<td>245</td>
</tr>
<tr>
<td>#2 Stemmer</td>
<td>302</td>
</tr>
<tr>
<td>#1 Separator Cylinder</td>
<td>98</td>
</tr>
<tr>
<td>#2 Separator Cylinder</td>
<td>102</td>
</tr>
<tr>
<td>#3 Separator Cylinder</td>
<td>107</td>
</tr>
<tr>
<td>#4 Separator Cylinder</td>
<td>111</td>
</tr>
<tr>
<td>#5 Separator Cylinder</td>
<td>116</td>
</tr>
<tr>
<td>#1-15 Disc Separator</td>
<td>186</td>
</tr>
<tr>
<td>Elevator Fan</td>
<td>2510</td>
</tr>
<tr>
<td>Cleaning Fan</td>
<td>1263</td>
</tr>
<tr>
<td>Vine Spreader</td>
<td>308</td>
</tr>
<tr>
<td>Collection Auger</td>
<td>107</td>
</tr>
<tr>
<td>Max. Header Auger Motor</td>
<td>389</td>
</tr>
<tr>
<td>Max. Header Auger</td>
<td>146</td>
</tr>
<tr>
<td>Max. Header Pickup Motor</td>
<td>389</td>
</tr>
<tr>
<td>Max. Header Pickup Motor</td>
<td>88</td>
</tr>
<tr>
<td>OCS Pump</td>
<td>2510 (19.7 gpm)</td>
</tr>
<tr>
<td>OCS Auger Motor</td>
<td>228</td>
</tr>
<tr>
<td>OCS Augers</td>
<td>53</td>
</tr>
<tr>
<td>OCS Conveyor Motor &amp; Roller</td>
<td>253</td>
</tr>
<tr>
<td>OCS Conveyor Belt Speed</td>
<td>563 (ft/min)</td>
</tr>
</tbody>
</table>
Basic Things to Check on Service Call

- Ensure belts are properly tightened and sheaves are not severely worn.
- Make sure drive chains are tightened correctly.
- Check for failed bearings.
- Inspect and clean as needed area above #1 disc separator shaft. Any build up or obstruction can affect cleaning system.
- Check for broken or missing picking cylinder teeth.
- Look for cleaning fan blades that are not cracked, bent or worn badly.
- For air lift problem ensure elevator lift fan blades are not badly worn or missing.
- Inspect for missing or broken header pickup springs.
- If harvesting in mud, make sure the cleaning fan and housing are clean. Small amounts of mud disturb air flow and the combine will not clean or cause fan failures.
- Look for bent or missing cylinder bars. If any, also check for bent lower concaves.
- Check for mud and/or foreign objects in the ductwork, stemmer bottom and cross auger. This can affect both cleaning and shelling.
- Check ratchet clutch (drives back of machine) to see if it is seized due to repeated jamming or lack of lubrication.
Why Use Amadas Parts?

- Ensures the parts have been matched to the application.
- You typically “get what you pay for.”
- Using inferior parts can cause premature failure, resulting in a dissatisfied customer.
- Amadas stands behind its product. But when incorrect or inferior parts are used, problems can be created that using Amadas parts would have prevented.
Critical Places to Use the Correct Parts

- **Bearings:**
  - All combine bearings should be Timken.
  - Substituting other brands may create frequent failures due to inadequate seals or bearing type for the application.
  - For example: The elevator and cleaning fans both have high speed seals. The cleaning fan uses wide inner race for stability and the main jack shaft must be well sealed.

- **Belts:**
  - We use belts with backings rated for reverse bending where ever an idler is used.
  - Do NOT substitute single belts in place of banded belts as a long term fix. A banded belt is made up of multiple belts with a common backing.
  - It is impossible to keep multiple single belts at the same tension so the total amount of horsepower will not be transmitted. This will lead to speed fluctuation and/or belt failure.

- **Chains:**
  - We use only domestic high quality chain, typically Diamond, on our combines.
  - On all applications of #80 chain or higher, it is imperative to use this chain.
  - Lower grade chain will stretch or break, which can cause tooth wear on sprockets or failure that can damage and/or plug the machine.
Warranty Information

- SP 9970 Combine Warranty
- Product Identification Number
- Warranty Terms and Period
- Amadas Warranty Claim Form
SP 9970 Warranty

ONE-YEAR LIMITED WARRANTY
For AMADAS INDUSTRIES 9970 SP Peanut Combine Components

A. General Provisions
The Warranties described below are provided by AMADAS INDUSTRIES (“AMADAS”) covering the AMADAS manufactured parts and components on the 9970SP self propelled peanut combine. These warranties are provided through AMADAS authorized dealers to the original purchaser of each new AMADAS 9970SP peanut combine. AMADAS will repair or replace, at its option, any part covered under warranty which is found to be defective in material or workmanship during the applicable period of warranty. The period of this warranty is one year, which is deemed by AMADAS to equal 12 months, 250 separator hours, or 500 engine hours, whichever comes first.

B. What is Warranted?
All AMADAS manufactured parts and components of any new AMADAS 9970SP peanut combine, except tires, tubes, filters, belts, chains, drivelines, picking and header springs, and other wear parts are warranted for 12 months, 250 separator hours, or 500 engine hours, whichever comes first. The warranty period will begin when the combine is delivered to the purchaser and will last until twelve months have passed or the combine has registered 250 separator hours or 500 engine hours according to the cornerpost separator hours display in the cab. AMADAS will repair or replace, at its option, any new part or component under the above warranty, if a defect in material or workmanship appears in such part or component and is reported to AMADAS before the expiration of the applicable equipment warranty. Tires, tubes, filters, belts, chains, picking and header springs, drivelines, and other wear parts are not warranted by AMADAS beyond that offered by the item's original manufacturer.

C. Unapproved Service or Modification
All obligations of AMADAS under this warranty are terminated if the combine is modified, serviced, or altered in ways not approved by AMADAS. The warranty will be terminated if there is any sign of tampering with or modification of the separator or engine hours measurement system.

D. Securing Warranty Service
To secure warranty service, the purchaser must (1) report the product defect and request repair within the applicable warranty period, (2) present evidence of the date of delivery of the peanut combine, and (3) make the combine available at an AMADAS authorized dealer within a reasonable period of time. If the purchaser cannot make the machine available at an authorized dealer's facility, the purchaser shall be responsible for the mileage and costs associated with a field service call.

E. No Dealer Warranty
The selling dealer makes no warranty of his own on any item warranted by AMADAS, and makes no warranty on other items. The dealer has no authority to make any representation or promise on behalf of AMADAS, or to modify the terms or limitations of this warranty in any way.

F. What are your Responsibilities?
   a. Sign the AMADAS machinery delivery form, which will be given to you by the dealer.
   b. Read the operator’s manual before operating the equipment.
   c. Perform all necessary maintenance as described in the operator’s manual.
   d. Contact an AMADAS authorized dealer promptly on any claim for warranty service.
   e. Deliver the machine to an AMADAS authorized dealer at your expense during normal working hours for any needed warranty services.

G. Disclaimer
There are no warranties that extend beyond the description here. ANY WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE ARE SPECIFICALLY DISCLAIMED AS ARE ALL OTHER REPRESENTATIONS TO THE PURCHASER. AMADAS specifically excludes any liability on behalf of the company for any incidental or consequential damages including, but not limited to, crop loss, loss of profits, rental of substitute equipment, or other commercial losses. AMADAS shall not be responsible for expenses or inconvenience that you might incur or experience with respect to the AMADAS peanut combine, nor shall AMADAS be liable for defects, damage, or failures caused by accident, improper storage, unreasonable use, or abuse, including the failure to provide reasonable and specified maintenance. This warranty applies only to the original purchaser of the equipment. Because some states do not allow the exclusion of limitations of incidental or consequential damages, the above limitation may not apply to you. This warranty gives you specific legal rights. You may also have other rights, which vary from state to state. Where there is a conflict between a provision of this warranty and the provision of any state, the state legislation prevails.
Product Identification Number

For Amadas purposes, use the Serial Number:

XXXXXXX

Example above: 510007

For John Deere, use the Model + Serial Number:

XXXXXXXXXXXXXXXXXX

Example above: 1H09970TCDO510007

For Amadas “New Machine Warranty Registration Form”:

XXXXXXX-X

Example above: A9970SU-4
Dealer Warranty Policy

Dealer Warranty Service Policy

1) This Warranty Service Policy applies to Authorized Amadas Industries Dealers ONLY.

2) It is the responsibility of Authorized Amadas Industries Dealers to perform warranty service.

3) Warranty claims must be prepared using an Amadas Warranty Claim Form and submitted to Amadas Industries within 30 days of actual repair. All claims must be complete and include all pertinent information and be submitted to our Suffolk, VA office. Claims will normally receive action within 30 days of receipt.

4) All defective parts replaced under warranty must be identified, tagged, and stored until Amadas makes a determination as to further disposition.

5) If Amadas determines that defective parts need to be returned, Amadas will issue an RGA (Returned Goods Authorization) number to the Dealer. The Dealer will ship the parts to Amadas immediately upon receipt of an RGA number. If the parts are not received within 30 days, the warranty claim will be denied.

6) Parts shipped to Amadas must be sent freight prepaid. If the claim is accepted, freight will be credited to the corresponding claim. All shipments to Amadas to be Standard UPS Ground Service unless otherwise instructed.

7) Replacement parts for warranty will be shipped and invoiced to the Dealer. These parts invoices are due and payable in accordance with the normal terms and conditions regarding parts invoices, i.e. net 30 days. Upon acceptance of the claim by Amadas, the parts excluding freight, will be credited as a part of the warranty claim.

8) All warranty repairs must be made with genuine Amadas replacement parts.

9) **Warranty Parts Reimbursement Allowance** – Dealer credit for Amadas parts, new assemblies, and remanufactured components used for warranty service will be at normal Dealer Net Price plus 20%.

10) **Warranty Service Labor Allowance** – Dealer reimbursement for labor required for warranty repair will be equivalent to the normal Dealer’s Hourly Shop Labor Rate as registered with Amadas, multiplied by the number of hours for repair as submitted by the Dealer, but not to exceed the number of hours as approved by Amadas.

11) Each Dealer must keep Amadas informed in writing and verified by the Amadas service manager of their current hourly shop labor rate.

12) Time allowed for completion for warranty service work (excluding diagnostic labor) will be established by Amadas. For repairs for which there are no pricing guides or flat rates established, the repair time allowed will be on the basis of time reasonably spent. Final determination of time reasonably spent will be made by Amadas.

13) The Amadas Whole Good Warranty Policy to the original purchaser provides for warranty repair work to be performed on the premises of an authorized Amadas Dealer. If the Dealer travels to the machine to perform warranty service work, the costs for travel should be for the customer’s account. Amadas will not reimburse a Dealer for mileage or travel time in conjunction with the performance of warranty service work.

14) Amadas service personnel will be available to assist Dealer service personnel if the need arises. If an Amadas service technician goes to the field, he must be accompanied by a trained Dealer service technician.

15) If service work performed under warranty does not repair the equipment satisfactorily due to improper diagnosis or poor workmanship, the Dealer remains obligated and responsible for subsequent repair and will not be reimbursed by Amadas.

16) The Dealer must use and retain work orders for all warranty repairs. They should be numbered and dated, and contain a complete list of parts used and labor hours required. The time cards, and other pertinent information essential to the audit of warranty claims are to be retained by the Dealer until such time as the claim is settled.

Revised 4/99
Amadas Warranty Claim Form

Requesting an Amadas Warranty Claim Form:

• Request a claim form from the Amadas Territory Sales Manager

• If not available, request a form from Willie Branch or Roger Mercer at 1-757-539-0231

Completing an Amadas Warranty Claim Form:

• Refer to the example on the next page to properly complete an Amadas Warranty Claim Form.

Submitting a Warranty Claim Form:

• Once properly completed, return your Warranty Claim Form to:

  Amadas Industries, Inc.
  Attn: Willie Branch
  1100 Holland Road
  Suffolk, VA 23434
Example Amadas Warranty Claim Form

DEALER NAME AND ADDRESS
Carolina Tractor
308 Cotton Ln
Tarboro, NC

OWNERS NAME AND ADDRESS
John Doe Farm
265 Jordan Dr
Hubgood, NC

DATE WRITTEN
10/2/12

SERIAL NO.
510000

MODEL NO.
2110

DELIVERY DATE
3/15/12

DATE OF REPAIR
9/25/12

DEALERS WORK ORDER NO.
W045791

DETAILED REPORT ON REPAIR
Bearing failed on pedestal shaft after three days in the field.

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>QTY</th>
<th>PART NAME</th>
<th>UNIT PRICE</th>
<th>EXTENSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3160</td>
<td>1</td>
<td>Bearing</td>
<td>61.40</td>
<td>61.40</td>
</tr>
</tbody>
</table>

Labor rate $70.00 per hour

Labor 0.5 hrs

35.00

TOTAL 96.40

FACTORY USE ONLY

☐ CLAIM APPROVED
☐ CLAIM DENIED

REASON FOR DENIAL:

[Signature]

Authorized Dealer Signature

AMADAS
American Manufacturer - Advanced Design - Excellent Service

W11287