Case Drain & Motor Return Tractor Connection Guide For Great Plains YP Planters and Air Drills

This Guide Contains Information For Connecting Great Plains YP Planters and Air Drills With Continuous Flow Fan Motors to John Deere, Case-IH, New Holland, Massey, AGCO, Challenger, & Fendt Tractors
Current revisions of this Case Drain & Motor Return Tractor Connection Guide are posted on the Great Plains Mfg public website under:

www.greatplainsmfg.com/support/servicedocuments.html
and
www.greatplainsmfg.com/manuals/plantermanuals.html
and
www.greatplainsmfg.com/manuals/mintillmanuals.html
and
www.greatplainsmfg.com/manuals/notillmanuals.html

Make sure you are using the most current revision of the guide. The date of the revision is shown at the bottom of each page.
Explanation

Early production YP Planters and Air Drills were not manufactured with fan motors that utilized a case drain connection. If there are only two lines connected to the fan motor, then the case drain connection is not utilized. If there are three hoses connected to the fan motor, then case drain is utilized.

The purpose of this guide is to show the port locations for connecting case drain and motor return for Great Plains YP Planters and Air Drills that utilize continuous flow fan motors. The information obtained for this guide was taken directly from the tractor manufacturer’s information that is available on-line and through tractor dealers.

Since tractor equipment and options vary, the connections shown in this guide must be verified through the tractor manufacturer or dealer to prevent damage to the tractor and implement hydraulic systems.

Great Plains continuous flow fan motors require case drain and motor return lines to protect the motor during use. The case drain line must be connected first, then connect motor return line before connecting the pressure line. Failure to do so can cause damage to the motor seals. When disconnecting, always disconnect pressure, then motor return, and case drain last.

**Case Drain**

This connection is required to carry the motor case internal leakage directly to the tractor hydraulic reservoir (sump) with zero pressure. This oil serves to lubricate and cool motor components not directly exposed to the working oil. Great Plains supplies a 3/8” body size ISO 16028 zero pressure flat face case drain male coupler on a 1/4” hydraulic hose for the fan case drain line. It is normal to have seepage from this fitting when disconnected from the tractor to protect the motor seals from thermal expansion. If the tractor is not equipped with a female flat face case drain coupler, then it must be sourced through a tractor dealer or hydraulic supplier.

### Case Drain

NOTE: Dimensions are for reference only. Not exact size.

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Motor Return
This connection is required to carry the low pressure return oil from the motor to the hydraulic reservoir or charge circuit. Using a motor return port prevents accidental reverse operation and possible flow checking of the return SCV coupling. Great Plains supplies a 3/4" body size ISO 7241-1 Series A male and female coupler with each YP planter and air drill. The male coupler is installed on the 1/2" or 5/8” motor return hydraulic hose from the factory. The mating female coupler must be connected to the tractor motor return port. The motor return hose and couplers are large to reduce back pressure to the motor.

Terminology
Agricultural manufacturer’s use different terminology to describe case drain, motor return, power beyond pressure, and load sense. Below is a list of terms used to describe them:

<table>
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<th>Case Drain</th>
<th>Motor Return</th>
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<td>Low Flow Low Pressure Drain</td>
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<td>Free Return</td>
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Below is a list of abbreviations used in this guide to describe types of fittings:

- FORB: Female O-Ring Boss
- FORFS: Female O-Ring Face Seal
- MORB: Male O-Ring Boss
- FJIC: Female JIC
- MJIC: Male JIC
- DIN: Deutsch (German) Industrial Norm
- BSPP: British Standard Parallel Pipe
Tractor Requirements

Tractors connected to YP Planters and Air Drills must meet the following requirements:

1. LS Closed or PC Closed hydraulic systems with a case drain connection and a motor return connection. Open Center hydraulic systems **MUST NOT** be used.
2. Verify the tractor Hp meets the requirements listed in the Specification section of the planter or drill Operator’s Manual before connecting.

Tractors Equipped with Additional Accessories Connected to Case Drain and/or Motor Return

Some tractors may be equipped with additional accessories that connect to power beyond connections on the rear of the tractor (i.e. auto steering). If the case drain and motor return connections are already in use, then tee’s can be installed to add connections.

**IMPORTANT!**

**DO NOT** tee case drain into motor return. Case drain must have zero pressure return. Great Plains warranty will be voided if case drain has been connected and/or teed to a motor return line. Case drain should only be returned directly to the hydraulic reservoir. The case drain line must utilize an ISO 16028 coupler that will allow seepage due to thermal expansion when disconnected from the tractor.

If tractor case drain circuit is filtered, it is necessary to make sure to have a clean filter to prevent excessive case pressure. High case pressure will cause motor seal failure.

**DO NOT** connect the fan motor to power beyond pressure. Continuous flow through the power beyond will deprive the tractor rear differential and pto drive gears of hydraulic flow and cause damage to the tractor.

Some tractor manufacturer’s have chosen to use the same type coupler for power beyond load sense lines as for case drain lines. It is very important that these not be confused to prevent motor seal damage. **DO NOT** connect the case drain hose to a power beyond load sense coupler.

Some tractor manufacturer’s recommend running motor return through a tractor SCV return port. **DO NOT** run motor return through a tractor SCV return port. Minimum pressure on most tractor SCV return ports is approximately 250 to 300 psi. Only connect motor return to a motor return port. Motor return ports allow pressures less than 50 psi, which prolongs motor seal life.

Failure to use the correct motor return port can cause oil starvation to the transmission pump and hydraulic charge circuit on some tractors. This is caused when oil is returned into the differential housing rather than the transmission or hydraulic charge circuit.

Make sure all hydraulic couplers and hose ends are clean before connecting.
Connecting Fan Motor to Tractor

Always connect case drain first, motor return second, then pressure line to prevent motor damage. Always disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

CONNECT LAST
Connect to tractor hydraulic remote capable of continuous flow.
1/2” or 5/8” i.d. hydraulic hose with standard 1/2” body size male coupler.

CONNECT SECOND
Connect to power beyond return port or tractor manufacturer suggested port location for high flow low pressure return.
1/2” or 5/8” i.d. hydraulic hose with large 3/4” body size male coupler, labeled with “SUMP” decal.

CONNECT FIRST
Must be connected to zero pressure return directly to the hydraulic reservoir.
1/4” i.d. hydraulic hose with 3/8” body size male flat face coupler.

Sourcing Adaptor Fittings

This guide lists part numbers for Eaton-Aeroquip and Parker hydraulic adaptor fittings since these two brands are widely used in North America. There are many other brands of hydraulic high pressure steel adaptor fittings available that can be used as long as the thread combinations match as shown in the illustrations. The part numbers listed can be used to cross reference with other brands if using a local hydraulic distributor or supplier.

or by calling toll free 888-258-0222

Find your nearest Parker hydraulic fittings and couplers distributor on-line at www.parker.com
or by calling toll free 800-272-7537
Tractor Models

This guide lists suggestions for connecting case drain and motor return for John Deere, Case-IH, New Holland, Massey, AGCO, Challenger, & Fendt tractors. See the tables for each tractor manufacturer to find the models included in each series.

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<th>8020 &amp; 8020T Series</th>
<th>8030 &amp; 8030T Series</th>
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8010 & 8010T Series

If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install John Deere case drain kit part number RE222721.

**Case Drain**

If the tractor is not equipped with a 3/4" body size ISO 7241-1 Series A female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N GG108-NP12-22
- Parker P/N 12M22F8OMXS
- Eaton Aeroquip P/N 2266-12-12
- Parker P/N 12F65OMXS

**Motor Return**

- Connected to fan motor return hose from Great Plains
- Supplied with Great Plains planters and air drills (p/n 811-069C)

**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

**NOTE:** Can use John Deere P/N RE248312 to extend case drain coupler and motor return coupler out from rear of tractor if needed.

John Deere P/N RE248312

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8020 & 8020T Series

Case Drain
If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install John Deere case drain kit part number RE222721.

Motor Return
If the tractor is not equipped with a 3/4" body size ISO 7241-1 Series A female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N GG108-NP12-22
- Parker P/N 12M22F8OMXS
- Eaton Aeroquip P/N 2266-12-12
- Parker P/N 12F65OMXS

IMPORTANT: ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

NOTE: Can use John Deere P/N RE248312 to extend case drain coupler and motor return coupler out from rear of tractor if needed.

John Deere P/N RE248312

Great Plains Manufacturing reserves the right to make changes or to add improvements to this guide at any time without notice or obligation.
**NOTE:** Two possible motor return port locations are shown.

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**Case Drain**

If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install John Deere case drain kit part number RE222721.

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**Motor Return**

If the tractor is not equipped with a 3/4" body size ISO 7241-1 Series A female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N GG108-NP12-22
- Parker P/N 12M22F8OMXS
- Eaton Aeroquip P/N 2266-12-12
- Parker P/N 12F65OMXS

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**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

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**NOTE:** Can use John Deere P/N RE248312 to extend case drain coupler and motor return coupler out from rear of tractor if needed.

John Deere P/N RE248312

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8000R & 8000RT Series

**Case Drain**

If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install John Deere case drain kit part number RE222721.

**Motor Return**

If the tractor is not equipped with a 3/4" body size ISO 7241-1 Series A female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N GG108-NP12-22
- Parker P/N 12M22F8OMXS
  - M22 x 1.5 MORB 1-1/16-12 MJIC
- Eaton Aeroquip P/N 2266-12-12
- Parker P/N 12F65OMXS
  - 1-1/16-12 FJIC 1-1/16-12 MORB

**Case Drain**

If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install John Deere case drain kit part number RE222721.

**Motor Return**

If the tractor is not equipped with a 3/4" body size ISO 7241-1 Series A female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N GG108-NP12-22
- Parker P/N 12M22F8OMXS
  - M22 x 1.5 MORB 1-1/16-12 MJIC
- Eaton Aeroquip P/N 2266-12-12
- Parker P/N 12F65OMXS
  - 1-1/16-12 FJIC 1-1/16-12 MORB

**Important:** Always connect case drain first, motor return second, then pressure line to prevent motor damage. **Always disconnect** pressure line first, motor return second, then case drain last to prevent motor damage.

**Note:** Can use John Deere P/N RE248312 to extend case drain coupler and motor return coupler out from rear of tractor if needed.

John Deere P/N RE248312

- M22 x 1.5 MORB 5.7" M22 x 1.5 FORB

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**9000 & 9000T Series**

**Case Drain**

If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install John Deere case drain kit part number RE218665.

**Motor Return**

If the tractor is not equipped with a 3/4" body size ISO 7241-1 Series A female motor return coupler, then order and install the following parts:

- **Eaton Aeroquip** P/N GG108-NP12-22
- **Parker** P/N 12M22F8OMXS

- **Eaton Aeroquip** P/N 2266-12-12
- **Parker** P/N 12F65OMXS

**IMPORTANT:** **ALWAYS connect** case drain first, motor return second, then pressure line to prevent motor damage. **ALWAYS disconnect** pressure line first, motor return second, then case drain last to prevent motor damage.

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9020 & 9020T Series
(With 3pt Hitch)

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**Case Drain**

If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install John Deere case drain kit part number RE218665.

**Motor Return**

If the tractor is not equipped with a 3/4" body size ISO 7241-1 Series A female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N GG108-NP12-22
- Parker P/N 12M22F8OMXS
  - M22 x 1.5 MORB
  - 1-1/16-12 MJIC

- Eaton Aeroquip P/N 2266-12-12
- Parker P/N 12F65OMXS
  - 1-1/16-12 FJIC
  - 1-1/16-12 MORB

---

**IMPORTANT:** *ALWAYS connect* case drain first, motor return second, then pressure line to prevent motor damage. *ALWAYS disconnect* pressure line first, motor return second, then case drain last to prevent motor damage.

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9020 & 9020T Series
(Without 3pt Hitch)

Old Style Bracket

Case Drain

Motor Return

If the tractor is not equipped with a 3/8” body size ISO 16028 zero pressure female flat face case drain coupler, then order and install John Deere case drain kit part number RE218665.

Case Drain

New Style Bracket

Case Drain

Motor Return

If the tractor is not equipped with a 3/4” body size ISO 7241-1 Series A female motor return coupler, then order and install the following parts:

<table>
<thead>
<tr>
<th>Eaton Aeroquip P/N GG108-NP12-22</th>
<th>Parker P/N 12M22F8OMXS</th>
</tr>
</thead>
<tbody>
<tr>
<td>M22 x 1.5 MORB</td>
<td>1-1/16-12 MJIC</td>
</tr>
<tr>
<td>Eaton Aeroquip P/N 2266-12-12</td>
<td>Parker P/N 12F65OMXS</td>
</tr>
<tr>
<td>1-1/16-12 FJIC</td>
<td>1-1/16-12 MORB</td>
</tr>
</tbody>
</table>

IMPORTANT: ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

Eaton Aeroquip 811-069C supplied with Great Plains planters and air drills.

Great Plains Manufacturing reserves the right to make changes or to add improvements to this guide at any time without notice or obligation.
9020 Series **High Flow**  
*(With & Without 3pt Hitch)*

**With 3pt Hitch**

- **Case Drain**
- **Motor Return**

**Case Drain**

If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install John Deere case drain kit part number RE218665.

**Motor Return**

If the tractor is not equipped with a 3/4" body size ISO 7241-1 Series A female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N GG108-NP12-22
- Parker P/N 12M22F8OMXS
  - M22 x 1.5 MORB
  - 1-1/16-12 MJIC
- Eaton Aeroquip P/N 2266-12-12
- Parker P/N 12F65OMXS
  - 1-1/16-12 FJIC
  - 1-1/16-12 MORB

**Without 3pt Hitch**

- **Case Drain**
- **Motor Return**

**Case Drain**

**Motor Return**

**NOTE:** Two possible motor return port locations are shown.

**NOTE:** Two possible motor return port locations are shown.

**IMPORTANT:** Always connect case drain first, motor return second, then pressure line to prevent motor damage. **Always disconnect** pressure line first, motor return second, then case drain last to prevent motor damage.

**NOTE:** Two possible motor return port locations are shown.

**NOTE:** Two possible motor return port locations are shown.

Great Plains Manufacturing reserves the right to make changes or to add improvements to this guide at any time without notice or obligation.
9030 & 9030T Series
(With 3pt Hitch)

**Case Drain**
If the tractor is not equipped with a 3/8” body size ISO 16028 zero pressure female flat face case drain coupler, then order and install John Deere case drain kit part number RE218665.

**Motor Return**
If the tractor is not equipped with a 3/4” body size ISO 7241-1 Series A female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N GG108-NP12-22
- Parker P/N 12M22F8OMXS
  - 1-1/16-12 MORB
  - 1-1/16-12 MJIC

- Eaton Aeroquip P/N 2266-12-12
- Parker P/N 12F65OMXS
  - 1-1/16-12 FJIC
  - 1-1/16-12 MORB

**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

Eaton Aeroquip P/N GG108-NP12-22
Parker P/N 12M22F8OMXS

M22 x 1.5 MORB
1-1/16-12 MJIC

Eaton Aeroquip P/N 2266-12-12
Parker P/N 12F65OMXS

1-1/16-12 FJIC
1-1/16-12 MORB

Connected to fan motor return hose from Great Plains

Supplied with Great Plains planters and air drills (p/n 811-069C)
**9030 & 9030T Series**  
*(Without 3pt Hitch)*

If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install John Deere case drain kit part number RE218665.

**Case Drain**

**Motor Return**

If the tractor is not equipped with a 3/4" body size ISO 7241-1 Series A female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N GG108-NP12-22
  - Parker P/N 12M22F8OMXS
  - M22 x 1.5 MORB
  - 1-1/16-12 MJIC

- Eaton Aeroquip P/N 2266-12-12
  - Parker P/N 12F65OMXS
  - 1-1/16-12 FJIC
  - 1-1/16-12 MORB

**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

- connected to fan motor return hose from Great Plains
- supplied with Great Plains planters and air drills (p/n 811-069C)
- connect to tractor

Great Plains Manufacturing reserves the right to make changes or to add improvements to this guide at any time without notice or obligation.
9030 Series *High Flow*  
(*With 3pt Hitch*)

**Case Drain**
If the tractor is not equipped with a 3/8” body size ISO 16028 zero pressure female flat face case drain coupler, then order and install John Deere case drain kit part number RE218665.

**Motor Return**
If the tractor is not equipped with a 3/4” body size ISO 7241-1 Series A female motor return coupler, then order and install the following parts:

<table>
<thead>
<tr>
<th>Eaton Aeroquip P/N</th>
<th>Parker P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>GG108-NP12-22</td>
<td>12M22F8OMXS</td>
</tr>
<tr>
<td>M22 x 1.5</td>
<td>1-1/16-12</td>
</tr>
<tr>
<td>MORB</td>
<td>MJIC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eaton Aeroquip P/N</th>
<th>Parker P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2266-12-12</td>
<td>12F65OMXS</td>
</tr>
<tr>
<td>1-1/16-12</td>
<td>1-1/16-12</td>
</tr>
<tr>
<td>FJIC</td>
<td>MORB</td>
</tr>
</tbody>
</table>

**NOTE:** Two possible motor return port locations are shown.

---

**Case Drain**

**Motor Return**

**NOTE:** Two possible motor return port locations are shown.

**Important:** *ALWAYS connect* case drain first, motor return second, then pressure line to prevent motor damage. *ALWAYS disconnect* pressure line first, motor return second, then case drain last to prevent motor damage.

---

*Great Plains Manufacturing reserves the right to make changes or to add improvements to this guide at any time without notice or obligation.*
9030 Series *High Flow*  
(Without 3pt Hitch)

**Case Drain**

If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install John Deere case drain kit part number RE218665.

**Motor Return**

If the tractor is not equipped with a 3/4" body size ISO 7241-1 Series A female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N GG108-NP12-22
- Parker P/N 12M22F8OMXS
  - M22 x 1.5 MORB
  - 1-1/16-12 MJIC

- Eaton Aeroquip P/N 2266-12-12
- Parker P/N 12F65OMXS
  - 1-1/16-12 FJIC
  - 1-1/16-12 MORB

**NOTE:** Two possible motor return port locations are shown.

**Important:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

- Supplied with Great Plains planters and air drills (p/n 811-069C)
- Connected to fan motor return hose from Great Plains

Great Plains Manufacturing reserves the right to make changes or to add improvements to this guide at any time without notice or obligation.
**Case Drain**

If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install the following:

- Eaton Aeroquip P/N GG106-NP08-12
- Parker P/N 8-12F42DMX5S

- Eaton Aeroquip P/N 2266-8-8S
- Parker P/N 8F65OX5S

- CNH P/N 85999238
- Eaton Aeroquip P/N FF-371-8FO

**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

**Motor Return**

(With power beyond)

If tractor is equipped with power beyond, then connect motor return to coupler shown.

**NOTE:** See next page for information for motor return without power beyond.
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**Puma 165, 180, 195, 210, & 225**

**T7000 Series**

**Continued**

**Motor Return**

*(without power beyond)*

If tractor is not equipped with power beyond, then a plug will need to be removed from the front of the valve stack. The port is labeled with an “R” on the casting. Then install two adaptors, a hose, an adaptor, and coupler as shown.

Order and install the following:

**Eaton Aeroquip P/N GG108-NP12-27**

Parker P/N 12M27F87OMXS

**Eaton Aeroquip P/N 221501-12-8S**

Parker P/N 12-8TRTXS & 12BTX-S

**Great Plains P/N 811-269C**

**Eaton Aeroquip P/N 202702-12-8S**

Parker P/N 8-12F5OMXS

**NOTE:** See previous page for information for motor return *with* power beyond.

Connect to tractor

Connected to fan motor return hose from Great Plains

3/4-16 MJIC

1-1/16-12 MORB

1-1/16-12 MJIC

3/4-16 MJIC

3/4-16 MORB

36”, 1/2 i.d. hydraulic hose

Connected to tractor

Supplied with Great Plains planters and air drills (p/n 811-069C)
Magnum 180, 190, & 210

These tractor models must be equipped with optional power beyond to have case drain and motor return connections.

If the tractor is not equipped with power beyond, then order and install the following part numbers through a Case-IH and/or New Holland dealership to equip the tractor with the power beyond assembly:

<table>
<thead>
<tr>
<th>Qty</th>
<th>P/N</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>84158051</td>
<td>Power Beyond Assembly</td>
</tr>
<tr>
<td>1</td>
<td>84188738</td>
<td>Hydraulic Connector</td>
</tr>
<tr>
<td>1</td>
<td>84187163</td>
<td>Hydraulic Hose</td>
</tr>
<tr>
<td>1</td>
<td>700-162</td>
<td>Hydraulic Connector</td>
</tr>
</tbody>
</table>

**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. **ALWAYS disconnect** pressure line first, motor return second, then case drain last to prevent motor damage.

---

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CDMR 08/27/10
MX Series
Magnum 215, 245, 275, 305, & 335
TG & T8000 Series

If tractor is equipped with power beyond, then use the couplers as shown for case drain and motor return.

If tractor is not equipped with power beyond, then plugs need to be removed and couplers need to be installed on the valve assembly as shown. Order and install the following couplers from a Case-IH and/or New Holland dealership to add case drain and motor return:

- Case Drain Coupler 380739A1 (flush face)
- Motor Return Coupler 298291A1

The load sensing plug must be installed or tractor oil will overheat and damage to the pump can occur. The top plug must be removed to gain access to the load sensing plug. The load sensing plug is an internal plug in the passage between the power beyond pressure port and the load sense port.

**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. **ALWAYS disconnect** pressure line first, motor return second, then case drain last to prevent motor damage.
STX
Steiger Series
TJ & T9000 Series
(shown with power beyond installed)

If the tractor is equipped with power beyond, then the case drain and motor return couplers are already installed. Connect as shown.

If the tractor is not equipped with power beyond, then order the following parts from a Case-IH and/or a New Holland dealership:

Case Drain & Motor Return Kit 719517003

**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.
8400 Series
DTA Series
MT600B Series

The motor return and case drain ports are capped with DIN (Deutsch Institute Normung) sized fittings from the factory. It is necessary to convert the motor return fitting to 1-1/16 MORB to use the female o-ring motor return coupler supplied with Great Plains planters and air drills. The case drain must be converted to 3/4-16 MORB.

Tractors manufactured later than s/n P146047 will have a loadsensing decompression tube installed between the load sense and case drain ports. The decompression tube can be removed if port access is needed. Removal of the decompression tube leaves a small risk that the hydraulic circuit could hold residual loadsensing oil pressure.

**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

---

**Plug**
AGCO P/N 3011134X91
Eaton Aeroquip P/N VKA12

**Nut**
AGCO P/N 3011118X1
Eaton Aeroquip P/N M12L

- **Remove load sensing decompression tube if installed, then install plug and nut on load sense port.**

---

**Order the following part numbers for**
**case drain adaptors and coupler**

<table>
<thead>
<tr>
<th>Eaton Aeroquip P/N 15.163-8-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>M16 x 1.5 DIN</td>
</tr>
<tr>
<td>3/4-16 MJIC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eaton Aeroquip P/N 2266-8-8S</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4-16 FJIC</td>
</tr>
<tr>
<td>3/4-16 MORB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eaton Aeroquip P/N FF-371-8FO</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4-16 FORB</td>
</tr>
</tbody>
</table>

**Order the following part numbers for**
**motor return adaptors**

<table>
<thead>
<tr>
<th>Eaton Aeroquip P/N 15.163-16-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>M26 x 1.5 DIN</td>
</tr>
<tr>
<td>1-1/16-12 MJIC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eaton Aeroquip P/N 2266-12-12S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/16-12 FJIC</td>
</tr>
<tr>
<td>1-1/16-12 MORB</td>
</tr>
</tbody>
</table>

- **connect to tractor**
  - **flush face coupler**
  - **connected to fan case drain hose from Great Plains**

- **connected to fan motor return hose from Great Plains**
  - **supplied with Great Plains planters and air drills**
  - **p/n 811-069C**
These tractor models may or may not be equipped with case drain and motor return lines from the factory. The part numbers given for these models is assuming the lines are installed. Contact an AGCO dealer if the lines are not installed.

**IMPORTANT:** The coupler called out in the AGCO parts books for the case drain connection is **NOT** compatible and must be changed.

AGCO calls for using a standard 1/2" male coupler for the case drain which is not compatible. Case drain requires a 3/8" body size ISO 16028 zero pressure female flat face coupler.

The coupler supplied through AGCO for motor return is compatible and can be used. However, the coupler is male, therefore the male coupler on the motor return line on the planter or drill must be removed and install a female coupler in its place.

There are two different types of fittings used on these models of tractors. The difference is in the type of caps on the bulkhead fittings. One type is ORFS (one piece), the other type is DIN. Determine which type of caps are on the tractor and use the correct diagram and parts listing on the following page to install adaptor fittings for the case drain coupler.
**IMPORTANT:** The coupler called out in the AGCO parts books for the case drain is **NOT** compatible and must be changed.

**Case Drain**

If the tractor is not equipped with a 3/8" body size female flat face case drain coupler, then order and install the following parts according to the type of fittings on the tractor:

**with ORFS caps**

<table>
<thead>
<tr>
<th>Eaton Aeroquip P/N FF2130T1010S</th>
<th>Parker P/N 10-F65OL-S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaton Aeroquip P/N FF1010-0810S</td>
<td>Parker P/N 8-10-F5OGS-S</td>
</tr>
</tbody>
</table>

**with DIN caps**

<table>
<thead>
<tr>
<th>Eaton Aeroquip P/N 15.163-13-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaton Aeroquip P/N 2266-8-10S</td>
</tr>
</tbody>
</table>

**Motor Return**

If the tractor is not equipped with 3/4" body size ISO 7241-1 Series A female motor return coupler, then order and install part number 4293732M2 from an AGCO dealer.

This motor return coupler is male and has a bulkhead. Remove the bulkhead fitting from the tractor motor return line (labeled “T”) and install this bulkhead coupler. Also, remove the male coupler from the motor return hose on the planter, then install one of the 3/4" body size ISO 7241-1 Series A female coupler supplied with the planter.

**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. **ALWAYS disconnect** pressure line first, motor return second, then case drain last to prevent motor damage.

**IMPORTANT:** Tractor must be turned off before connecting power beyond pressure and load sense lines.
MT700 & MT700B Series

Case Drain

If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install the appropriate kit through a Challenger dealer:

<table>
<thead>
<tr>
<th>Kit</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>With Wide Swing Drawbar</td>
<td>502675D1</td>
</tr>
<tr>
<td>Without Wide Swing Drawbar</td>
<td>502681D1</td>
</tr>
</tbody>
</table>

Location of the case drain varies depending on model, year manufactured, and tractor options. Installation instructions are included with each kit. Consult a Challenger dealer for more information.

Motor Return

If the tractor is not equipped with a 3/4" body size, ISO 7241-1 Series A, female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N FF1010-1612S
- Parker P/N 16-12F5OG5-S
- Eaton Aeroquip P/N 2229-1212S
- Parker P/N 12F5OHAC-S

**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

Great Plains Manufacturing reserves the right to make changes or to add improvements to this guide at any time without notice or obligation.
**MT700C Series**

### Case Drain

If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install the appropriate kit through a Challenger dealer:

<table>
<thead>
<tr>
<th>Kit</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>With Wide Swing Drawbar</td>
<td>502675D1</td>
</tr>
<tr>
<td>Without Wide Swing Drawbar</td>
<td>502681D1</td>
</tr>
</tbody>
</table>

Location of the case drain varies depending on model, year manufactured, and tractor options. Installation instructions are included with each kit. Consult a Challenger dealer for more information.

### Motor Return

If the tractor is not equipped with a 3/4" body size, ISO 7241-1 Series A, female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N FF1010-1612S
- Parker P/N 16-12F5OG5-S
- Eaton Aeroquip P/N 2229-1212S
- Parker P/N 12F5OH0AO-S

**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

Great Plains Manufacturing reserves the right to make changes or to add improvements to this guide at any time without notice or obligation.
MT800 & MT800B Series

**Case Drain**

If case drain is not already installed on the tractor, then order and install case drain kit with flush face coupler part number 502682D1 through a Challenger dealer.

Location of the case drain varies depending on model, year manufactured, and tractor options. Installation instructions are included with the kit. Consult a Challenger dealer for more information.

**Motor Return**

If the tractor is not equipped with a 3/4” body size, ISO 7241-1 Series A, female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N FF1010-1612S
  Parker P/N 16-12F5OG5-S
- Eaton Aeroquip P/N 2229-1212S
  Parker P/N 12F5OHAO-S

**Top Configuration**

**Bottom Configuration**

**IMPORTANT:** *ALWAYS connect* case drain first, motor return second, then pressure line to prevent motor damage. *ALWAYS disconnect* pressure line first, motor return second, then case drain last to prevent motor damage.

Great Plains Manufacturing reserves the right to make changes or to add improvements to this guide at any time without notice or obligation.
MT800C Series

Case Drain

If the tractor is not equipped with a 3/8" body size ISO 16028 zero pressure female flat face case drain coupler, then order and install the following case drain kit with flush face coupler through a Challenger dealer.

<table>
<thead>
<tr>
<th>Kit</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Drain</td>
<td>502682D1</td>
</tr>
</tbody>
</table>

Location of the case drain varies depending on model, year manufactured, and tractor options. Installation instructions are included with the kit. Consult a Challenger dealer for more information.

Motor Return

If the tractor is not equipped with a 3/4" body size, ISO 7241-1 Series A, female motor return coupler, then order and install the following parts:

- Eaton Aeroquip P/N FF1010-1612S
- Parker P/N 16-12F5OG5-S
- Eaton Aeroquip P/N 2229-1212S
- Parker P/N 12F5OHAO-S

**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. **ALWAYS disconnect** pressure line first, motor return second, then case drain last to prevent motor damage.

Great Plains Manufacturing reserves the right to make changes or to add improvements to this guide at any time without notice or obligation.
MT900B Series

Case Drain

If the tractor is not equipped with a 3/8” body size female flat face case drain coupler, then order and install kit part number 512468D1 through a Challenger dealer.

Location of the case drain varies depending on model, year manufactured, and tractor options. Installation instructions are included with the kit. Consult a Challenger dealer for more information.

Motor Return

If the tractor is not equipped with a 3/4” body size, ISO 7241-1 Series A, female motor return coupler, then order and install the following parts:

Eaton Aeroquip P/N FF1010-1612S
Parker P/N 16-12F50G5-S

1-1/16-12 FORB
1-1/16-12 MORB

Eaton Aeroquip P/N 2229-1212S
Parker P/N 12F50HAO-S

1-1/16-12 FORB
1-1/16-12 MORB

IMPORTANT: ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

Great Plains Manufacturing reserves the right to make changes or to add improvements to this guide at any time without notice or obligation.
MT900C Series

**Case Drain**

If the tractor is not equipped with a 3/8" body size female flat face case drain coupler, then order and install kit part number 503450D1 through a Challenger dealer.

Location of the case drain varies depending on model, year manufactured, and tractor options. Installation instructions are included with the kit. Consult a Challenger dealer for more information.

**Motor Return**

If the tractor is not equipped with a 3/4" body size, ISO 7241-1 Series A, female motor return coupler, then order and install the following parts:

1. Eaton Aeroquip P/N FF1010-1612S
   Parker P/N 16-12F5OG5-S
   Eaton Aeroquip P/N 2229-1212S
   Parker P/N 12F5OHAO-S

   1-5/16-12 FORB
   1-1/16-12 MORB

   1-1/16-12 FORB
   1-1/16-12 MORB

   connected to fan motor return hose from Great Plains
   supplied with Great Plains planters and air drills p/n 811-069C

**IMPORTANT:** ALWAYS connect case drain first, motor return second, then pressure line to prevent motor damage. ALWAYS disconnect pressure line first, motor return second, then case drain last to prevent motor damage.

Great Plains Manufacturing reserves the right to make changes or to add improvements to this guide at any time without notice or obligation.
All North American Com 3 tractors have case drain and motor return couplers installed from the factory. These couplers are compatible with the couplers supplied from Great Plains. However, the motor return coupler installed on the tractor from the factory is male. Remove the male coupler from the motor return hose on the planter. Then install a 3/4” body size ISO 7241-1 Series A female coupler supplied with the planter or drill.

**IMPORTANT:** **ALWAYS connect** case drain first, motor return second, then pressure line to prevent motor damage. **ALWAYS disconnect** pressure line first, motor return second, then case drain last to prevent motor damage.