MANUAL SUPPLEMENT

Hydrostatic ChipSpreader
with Standard Spread Hopper,
2WD and 4WD

Maintenance Adjustments
Integrated Control Circuits

Supplement to Manual No. M-209-91
Chipspreader Operation, Maintenance and Safety Manual

This supplement contains maintenance adjustments for Integrated
Control Circuits on Etnyre Hydrostatic Drive Chipspreaders with Standard
Spread Hoppers, for other operations and service procedures refer to
"Hydrostatic Drive Chipspreader Operation, Maintenance and Safety

The information in this supplement applies to hydrostatic driven
ChipSpreaders with Integrated Control Circuits and replaces; "Belt Speed
Controls" pages 18 & 19 and pages 27, 28, 29, 30, 31 and 32 of

WARNING
Unsafe operation of equipment may
cause injury. Read, understand and
follow the manuals when operating or
performing maintenance.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Precautions</td>
<td>4</td>
</tr>
<tr>
<td>Reporting Safety Defects</td>
<td>5</td>
</tr>
<tr>
<td>Identification of Integrated Hydraulic Control Circuits</td>
<td>5</td>
</tr>
<tr>
<td><strong>MAINTENANCE ADJUSTMENTS</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Brake</strong></td>
<td></td>
</tr>
<tr>
<td>Front Brake Pressure Reducing Valve</td>
<td>11</td>
</tr>
<tr>
<td><strong>Control Assembly</strong></td>
<td></td>
</tr>
<tr>
<td>Hydraulic Control Pressure Relief</td>
<td>9</td>
</tr>
<tr>
<td>Hydraulic Control Assembly - 2 Wheel Drive</td>
<td>10</td>
</tr>
<tr>
<td>Hydraulic Control Assembly - 4 Wheel Drive</td>
<td>11</td>
</tr>
<tr>
<td><strong>Conveyor</strong></td>
<td></td>
</tr>
<tr>
<td>Belt Speed Controls</td>
<td>6</td>
</tr>
<tr>
<td>Left Conveyor Relief Valve</td>
<td>8</td>
</tr>
<tr>
<td>Right Conveyor Relief Valve</td>
<td>9</td>
</tr>
<tr>
<td><strong>Gate</strong></td>
<td></td>
</tr>
<tr>
<td>Power Gate Relief Valve - without Power Seat</td>
<td>7</td>
</tr>
<tr>
<td>Power Gate Relief Valve - with Power Seat</td>
<td>7</td>
</tr>
<tr>
<td><strong>Hitch</strong></td>
<td></td>
</tr>
<tr>
<td>Hitch Release Pressure Reducing Valve</td>
<td>11</td>
</tr>
<tr>
<td><strong>Hopper</strong></td>
<td></td>
</tr>
<tr>
<td>Spread Roll Relief Valve</td>
<td>6</td>
</tr>
<tr>
<td><strong>Seat</strong></td>
<td></td>
</tr>
<tr>
<td>Power Seat Relief Valve</td>
<td>8</td>
</tr>
<tr>
<td><strong>Steering</strong></td>
<td></td>
</tr>
<tr>
<td>Power Steering Relief Valve</td>
<td>9</td>
</tr>
</tbody>
</table>
Safety Precautions

⚠️ CAUTION ⚠️

Make certain everyone is clear of machine before starting engine or operation.

Always use steps, platforms and handrails provided.

Remain clear of moving or rotating parts.

Always have shields, covers and guards in place when operating.

Keep loose clothing away from conveyor area.

Always install locking control box cover and chock wheels when leaving machine unattended as protection against vandalism and accidental movement.

Before operating the chipspreader, make an inspection of the machine to be sure that the machine is in a safe condition to operate.

The seat must always be latched during travel.

To avoid potential damage to electrical components disconnect batteries before welding.

Since all functions except power steering and brakes are electrically controlled, turning the ignition key to “off” results in an emergency stop.

Do not transport ChipSpreaders with Variable Width Hoppers without mechanically securing the two movable hoppers.

Extraordinary contamination of the hydraulic system may allow system oil leakage resulting in possible movement of the hopper sections.

⚠️ WARNING ⚠️

Unsafe operation of equipment may cause injury.

Read, understand and follow the manuals when operating or performing maintenance.

Remain clear of all moving parts.

The fuel tank is part of the crosswalk. Do not drill or weld in this area.

Never put hands in between gate and spread roll or gate and rear of hopper. The gate could move at any time and cause severe injury.

Do not travel with the seat unlatched. Seat movement could occur causing disorientation and possible loss of control.

Shift in and out of “travel” only while stopped or moving at a very slow rate of speed. Shifts between “2nd” and “travel” are very abrupt and could cause personal injury.

When two people are required to perform adjustments or maintenance operations or two people are simultaneously performing different operations, the work must be coordinated between the two people to avoid possible injuries.

⚠️ IMPORTANT ⚠️

Do not tow the chipspreader before reading the towing instructions contained in this manual. Improper towing may damage the hydraulic motors.
General Identification

Integrated Control Circuits
(hydraulic manifolds)

Integrated control circuits are used on current model hydrostatic drive ChipSpreaders. They streamline the hydraulic system and allow most of the pressure checks and adjustments to be accomplished at the circuit block (manifold). The major circuit systems are identified below.

This supplement contains maintenance adjustments for integrated control circuits on Etnyre hydrostatic drive ChipSpreaders with standard spread hoppers, for other operations and service procedures, refer to "Hydrostatic Drive Chipsprader Operation, Maintenance and Safety Manual" No. M-209-91.

It is especially important from the safety standpoint that this manual be thoroughly read and understood before performing any operation or maintenance functions.

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</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

**REPORTING SAFETY DEFECTS**

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying E. D. Etnyre & Co.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or E. D. Etnyre & Co.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 (or 366-0123 in Washington, D.C. area) or write to: NHTSA, U.S. Department of Transportation, Washington, D.C. 20596. You can also obtain other information about motor vehicle safety from the hotline.
The following information replaces "Belt Speed Controls" pages 18 & 19 of manual No. M-209-91, for units with integrated control circuits (hydraulic manifolds).

Belt Speed Controls (Figure 16)

This feature allows the operator located on the right catwalk to vary the speed of each conveyor independently to provide a uniform distribution of material to the front hopper. Valves for this operation are incorporated in the integrated circuit block on top of the right conveyor, outboard of each conveyor's solenoid valve. Each valve has an adjustment knob and a locking knob.

With the knob screwed fully in, the conveyor will run at its highest speed. Unscrewing the knob counterclockwise to its full out position will slow the conveyor down to approximately half of its full speed. The knob may be positioned anywhere in between and locked at the desired speed with the lock knob. The knob is much easier to rotate with the engine running at idle, and a greatly reduced oil flow, than may be experienced with full oil flow.

This feature is particularly useful in doing shoulder work or in operations requiring less than full hopper width. It is also useful in trying to smooth out delivery of material to match the rate being spread. (Fig. 16).

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WARNING

Conveyor must be running during this procedure. To avoid personal injury, be sure to remain clear of moving belt.

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1. Hopper Spread Roll Relief Valve (Figure 24)

a) With engine off, uncouple the quick disconnects on the hopper hoses and install a 3000 psi gauge with necessary adapters to hook to 3/4" female quick disconnect.
b) Leave the quick couplers uncoupled.
c) Run the engine at governed RPM (approximately 2300 RPM).
d) Use the manual override to actuate the valve. (Fig. 24, Ref. 1).
e) Loosen locknut and using allen wrench, set the pressure to 1500 psi and retighten the locknut.
f) If relief pressure cannot be obtained, shut down the engine and remove the hopper relief valve cartridge and check for contamination. Clean or replace as necessary.
g) Remove gauge, and reconnect the quick couplers to their respective hoses.

---

WARNING

Never put hands in between gate and spread roll or gate and rear of hopper. The gate could move at any time and cause severe injury.
2. Power Gate Relief Valve  
(Figure 27a. without power seat)

a) With engine off, remove cap (1) (Fig. 27a) and install a 3000 psi gage with necessary adapters to hook to a 1/2" JIC (08MJ) male fitting. Disconnect the reach rod from the cylinder under the right catwalk.

b) Disconnect the orange wire from one solenoid and the brown wire from the other solenoid.

c) Loosen locknut on relief valve (2).

d) Start the engine and run at 2300 RPM (governed speed).

e) Use the manual override button to actuate the valve (Fig. 27a, Ref. 3).

f) Use a box wrench to adjust the cartridge in valve (2). This relief valve pressure should be set at 900 psi. Retighten the locknut to hold the setting.

g) If relief pressure cannot be obtained, shut down the engine and remove power gate relief valve cartridges and check for contamination. Clean or replace as necessary.

h) Shut engine off.

i) Remove gage and reinstall cap.

j) Reconnect the electrical connectors and reconnect the reach rod.

---

2A. Power Gate Relief Valve  
(Figure 27b with power seat)

a) With engine off remove plugs (1) at port “G1” and (2) at port “G3” and install 3000 psi gages with the necessary adapters to hook to a 1/4” SAE o ring port (04MB). Disconnect the reach rod from the cylinder under the right catwalk.

b) Disconnect the orange wire from one solenoid and the brown wire from the other solenoid of the forward valve on the outboard (nearest to catwalk) integrated circuit.

c) Loosen locknuts on relief valves (4, 5).

d) Start the engine and run at 2300 RPM (governed speed).

e) Turn the relief valve (5) all the way in.

f) Use the manual override button to actuate the valve (Fig. 27b, Ref. 7).

g) Use a box wrench to adjust the cartridge in valve (4). This relief valve pressure should be set at 1500 psi at port “G1”. Retighten the locknut to hold the setting.

h) Use a box wrench to adjust the cartridge in valve (5). This relief valve pressure should be set at 900 psi at port “G3”. Retighten the locknut to hold the setting.

i) If relief pressure cannot be obtained, shut down the engine and remove power gate relief valve cartridges and check for contamination. Clean or replace as necessary.

j) Shut engine off.

k) Remove gages and reinstall plugs.

l) Reconnect the electrical connectors and reconnect the reach rod.

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**WARNING**

Never put hands in between gate and spread roll or gate and rear of hopper. The gate could move at any time and cause severe injury.
2B. Power Seat Relief Valve (Figure 27b)

a) With the engine off, remove plug (3) and install a 3000 psi gage with the necessary adapters to hook to 1/2" SAE o ring port (08MB).

b) Start the engine and run it at full rpm. Place the speed range selector in either Lo or 2nd and then use the seat switch to position the seat either full left or right and insert the seat lock pin into the hole in the walkway.

c) Loosen locknut on relief valve (6)

d) Use the manual override button to actuate the valve (Fig. 27b, Ref. 8).

e) Use a box wrench to adjust the cartridge in valve (6). This relief valve pressure should be set at 1200 psi at port “G2”. Retighten the locknut to hold the setting.

f) If relief pressure cannot be obtained, shut down the engine and remove power gate relief valve cartridges and check for contamination. Clean or replace as necessary.

g) Shut engine off.

h) Remove gage and reinstall plug.

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3. Left Conveyor Relief Valve
(Figure 27a, Ref. 4)

a) With the engine off remove plug (5) at port “GL” and install a 3000 psi gage with necessary adapters to hook to 1/4 SAE o ring port (04MB).

b) Hold (lock) the left conveyor head pulley with a pipe wrench or other suitable tool. (Fig. 26) Use caution when doing this operation. Be sure wrench is securely positioned on U-joint or sleeve coupler & rotated by hand against supporting steel so it cannot rotate further.

c) The engine should be run at governed speed (approximately 2300 RPM).

d) Use the manual override to actuate the valve (Fig. 27a, Ref. 6).

e) Adjust this relief valve (Fig. 27a, Ref. 4) to a setting of 2100 psi.

f) If relief pressure cannot be obtained, shut down the engine and remove left conveyor relief valve cartridge and check for contamination or damaged cartridge pieces. Clean and replace as necessary.

g) Shut engine off.

h) Remove gage and reinstall plug.

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⚠️ CAUTION

Before starting, securely chock the chispsreader wheels to prevent accidental movement of chispsreader.

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⚠️ WARNING

Do not travel with the seat unlatched. Seat movement could occur causing disorientation and possible loss of control.

---

⚠️ WARNING

When two people are required to perform adjustments or maintenance operations or two people are simultaneously performing different operations, the work must be coordinated between the two people to avoid possible injuries.

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⚠️ CAUTION

Keep loose clothing away from conveyor area when operating conveyors.

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⚠️ WARNING

Use caution when doing this operation. Be sure wrench is securely positioned on U-joint and rotated by hand against supporting steel so it cannot rotate further.

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Figure 26. Lock Left Conveyor Head Pulley
1. Large Pipe Wrench Secure Against Unit Frame
4. Right Conveyor Relief Valve  
(Figure 27a, Ref. 7)

a) With engine off remove plug (9) at port “GR” and install a 3000 psi gage with necessary adapters to hook to 1/4 SAE o ring port (04MB).

b) Hold (lock) the left conveyor head pulley with a pipe wrench or other suitable tool. (Fig. 26) Use caution when doing this operation. Be sure wrench is securely positioned on U-joint or sleeve coupler & rotated by hand against supporting steel so it cannot rotate further.

c) The engine should be run at governed speed (approximately 2300 RPM).

d) Use the manual override to actuate the valve (Fig. 27a, Ref. 8).

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⚠️ WARNING

Remain clear of all moving parts.

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e) Adjust this relief valve (Fig. 27a, Ref. 7) to a setting of 2100 psi.

f) If relief pressure cannot be obtained, shut down the engine and remove left conveyor relief valve cartridge and check for contamination or damaged cartridge pieces. Clean and replace as necessary.

g) Shut engine off.

h) Remove gage and reinstall plug.

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5. Power Steering Relief Valve  
(At Hydraulic Control Assembly)  
(Fig. 28a, Ref. 1)  
(Fig. 28b, Ref. 1)

a) With the engine “off”, remove plug (2) at port “MP” on integrated control circuit and install a 3000 psi gage with necessary adapters to hook up to a 1/4" SAE o ring port (04MB).

b) The engine must be run at or above 950 RPM.

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⚠️ CAUTION

Before starting, securely chock the chipspreader wheels to prevent accidental movement of chipspreader.

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c) Turn the front wheels full left or right until the wheels are against the stops (2WD) or the cylinder is fully stroked (4WD).

d) While holding the wheels full left or right set the relief valve (1) pressure to 1950 psi.

e) If the relief valve pressure cannot be reached, the secondary relief valve within the pump may be set at or too close to 1950 psi. In order to verify and set this relief valve, the relief valve on the integrated circuit must be screwed all the way in and then the relief valve at the pump may be adjusted to 2250 psi by referring to (Fig. 25). Remove cap (5), loosen locknut (6) and adjust relief valve (7) to 2250 psi (Fig. 25) while holding the wheels full left or right.

f) Return to the relief valve at the hydraulic control integrated circuit (Fig. 28a, Ref. 1) and repeat steps 4b, c and d. If the pressure cannot be set at 1950 psi without the control pressure dropping below 400 psi then set this pressure lower than 1950 psi but not lower than 1800 psi.

g) If relief pressure cannot be obtained at either cartridge, shut down the engine, remove appropriate cartridge and check for contamination or damaged cartridge pieces. Clean or replace as necessary.

h) Shut engine off.

i) Remove gage and reinstall plug.

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6. Hydraulic Control Pressure Relief  
(Fig. 28a, Ref. 3)  
(Fig. 28b, Ref. 3)

a) With the engine off, remove plug (4) at port “PP” and insert a 3000 psi gage with adapters to hook to a 1/4" SAE o ring port (04MB).

b) Run the engine at idle RPM.

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⚠️ CAUTION

Before starting, securely chock the chipspreader wheels to prevent accidental movement of chipspreader.

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c) Loosen locknut and adjust pressure to approximately 600 psi (Fig. 28a, Ref. 3)

d) Shut engine down, remove 3000 psi gage, and install 1000 psi gage.

e) Restart engine and run at or above 950 RPM.

f) Adjust relief valve to 400 psi and retighten locknut.

g) If relief pressure cannot be obtained, shut down the engine and remove the control pressure relief valve cartridge and check for contamination or damaged cartridge pieces. Clean or replace as necessary.

h) Shut engine off.

i) Remove gage and reinstall plug.
Figure 28a. Hydraulic Control Assembly — 2WD Integrated Circuit

1. Power Steering Relief Valve
2. Power Steering Pressure Check Port "MP"
3. Hydraulic Control Pressure Relief Valve
4. Hydraulic Control Pressure Check Port "PP"
5. Hitch Release Pressure Reducing Valve
6. Hitch Release Pressure Check Port "RP"
7. Front Brake Pressure Reducing Valve
8. Front Brake Pressure Check Port
7. Hitch Release Pressure Reducing Valve
(Fig. 28a, Ref. 5) (Fig. 28b, Ref. 5)

a) With the engine off, remove plug (6) at port “RP” and insert a 1000 psi gage with the necessary adapters to hook to a 1/4” SAE o ring port (04MB).

b) Run the engine at idle RPM.

c) Loosen locknut ant set reduced pressure to 100 psi (Fig. 28a, Ref. 5). You may not be able to get as low as 100 psi due to back pressure. If this is the case, reduce the pressure to its lowest point and then go back up 10-15 psi.

d) If reduced and/or relief pressures cannot be set, shut down engine and recheck hydraulic control pressure to be sure it is at 400 psi. If it is, shut down engine and remove the reducing valve or relief valve cartridge and check for contamination or damaged cartridge pieces. Clean or replace as necessary.

e) Shut engine off.

f) Remove gage and reinstall plug.

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8. Front Brake Pressure Reducing Valve
(2 WD Only)
(Fig. 28a, Ref. 7)

a) With the engine off, remove cap (Ref. 8) and insert a 1000 psi gage with necessary adapters to hook to 1/4” JIC (04MJ).

b) Run the engine at idle RPM.

c) Loosen locknut and set reduced pressure to 250 psi (Fig. 28a, Ref. 7).

d) Shut engine off.

e) Remove gage and reinstall cap.

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Figure 28b. Hydraulic Control Assembly — 4WD Integrated Circuit

1. Power Steering Relief Valve
2. Power Steering Pressure Check Port “MP”
3. Hydraulic Control Pressure Relief Valve
4. Hydraulic Control Pressure Check Port “PP”
5. Hitch Release Pressure Reducing Valve
6. Hitch Release Pressure Check Port “RP”