



OPERATION MANUAL

MANUAL FOLD TRAILER



Hayes Spraying
ABN 54 011 061 260
1 Troy Drive
PO Box 515
GOONDIWINDI QLD 4390

P 07 4671 3092
F 07 4671 3155
E sales@hayesspraying.com.au



TABLE OF CONTENTS

INTRODUCTION	1
WARRANTY POLICY	2
WARRANTY REGISTRATION	3
SPECIFICATIONS	4
Approximate Dimensions	4
Customised Boomspray Details	5
Additional Product Information	6
IMPORTANT INFORMATION TO UNDERSTAND BEFORE USE	7
Operator Responsibilities	7
Safety Decals	8
Sliding Height Adjustment Tower	9
Self Levelling Rocking Bar	10
BOOMSPRAY OPERATION	11
Connecting To The Tractor	11
Hydraulic Hoses	12
Hypro Hydraulic Drive Pump	13
Operational Capacities	14
Plumbing Functions	16
Decontamination	18
MAINTENANCE	19
Filters	19
Greasing	20
Other Maintenance	21
TROUBLESHOOTING	22
Understand Your Automatic Controller	22
Understand The Hydraulics	23
Common Issues	24
WIRING DIAGRAMS	27
Hydraulics	27
Electrical	28
Controller Harnesses	29
ELECTRICAL COMPONENTS	32
Ball Valves	32
Regulating Valve	33
Other Boomspray Components	33
TEEJET NOZZLE CAPACITY GUIDE	34



INTRODUCTION

Congratulations on the purchase of your new Hayes Spraying Trailed Boomspray.

Hayes Spraying originally commenced operations in the early 1970s as a contract spraying & consulting business. By the late 1980s, demand for the tough and well-designed spray equipment allowed Hayes Spraying to manufacture agricultural machinery full time.

Over the last 30 years, Hayes Spraying has built a name synonymous with reliable, robust and good value for money equipment. The products have proved themselves in the agricultural industry for many years & remain highly sought after due to their durability, performance & ability to be customised.

Today, Hayes Spraying has a state of the art workshop facility and a strong team of manufacturing and assembly specialists. The extent of knowledge and experience within the company ensures that your equipment is specifically designed to suit your requirements. Constant research and development ensures our product range meets the changing demands of farmers and conditions today and into the future.

Our boomsprays are used extensively throughout the QLD, NSW & VIC broadacre cropping areas. Our products have been exported to 7 countries; mainly Africa, where they have stood up well to the rugged conditions.

The experienced sales and support team at Hayes Spraying offer outstanding after sales service; you can be guaranteed of superior assistance for years to come.

Our website is constantly improving and is an ideal tool for the operator to gain further information & assistance now and into the future. Keep up to date with Hayes Spraying at **www.hayesspraying.com.au** . Be sure to look into our wider range of agricultural equipment including three point linkage boomsprays, vehicle mounted boomsprays, shielded sprayers, tractor mounted tanks and the N-Buggy.

Thank you again for choosing Hayes Spraying. We hope that you are very pleased with the performance of your trailed boomspray and we welcome any feedback that you have about our product.

Kind regards,

Maurie & Jenny Hayes
Directors

Phone: 07 4671 3092
Fax: 07 4671 3155
Email: sales@hayesspraying.com.au
Website: www.hayesspraying.com.au
Postal: PO Box 515, GOONDIWINDI QLD 4390
Street: 1 Troy Drive, GOONDIWINDI QLD 4390

WARRANTY POLICY

Hayes Spraying Pty Ltd, warrants to the original purchaser, that each new Hayes Spraying Pty Ltd boomspray, part or accessory will be free from defect in material or workmanship for twelve (12) months after the date of delivery.

During the warranty period, the Dealer or Hayes Spraying Pty Ltd shall repair or replace, at Hayes Spraying option, without charge for parts and labour any part of the Hayes Spraying Pty Ltd product which fails because of defects in parts or workmanship.

Pumps, engines, controllers and hoses are all warranted directly by the original manufacturer, pending that manufacturer's warranty approval.

This warranty does not cover damage resulting from misuse, neglect, alterations or normal wear and tear or outside of recommended operation procedures.

In no event shall the authorised dealer or Hayes Spraying Pty Ltd be liable for downtime expenses, loss of chemical, loss of machine use or other incidental damages.

Incorrect operating speeds will void warranty and compromise the life of your boomspray.

Exclusions

At the discretion of Hayes Spraying Pty Ltd, the defective part must be returned to Hayes Spraying Pty Ltd at the owners cost.

Time for wash down, transportation costs or insurance costs for sprayers are not warranted. Travel and communication are not covered by warranty.

**WARRANTY REGISTRATION**

NOTE: your details will not be passed on to a third party.

Please fill out warranty registration details and return to Hayes Spraying.

SERIAL NUMBER: _____

Owners Name /s	
Trading Name	
Postal Address	
State	
Postcode	
Landline	
Mobile	
Fax	
Email	
District where boomspray is used?	
Would you like to receive newsletters or product information?	

Hayes Spraying
Phone: 07 4671 3092
Fax: 07 4671 3155
Email: office@hayesspraying.com.au
Website: www.hayesspraying.com.au
Postal: PO Box 515, GOONDIWINDI QLD 4390
Street: 1 Troy Drive, GOONDIWINDI QLD 4390

PLEASE ENSURE YOU ABIDE BY MAINTENANCE REQUIREMENTS LISTED IN MAINTENANCE SECTION.

SPECIFICATIONS

APPROXIMATE DIMENSIONS

NOTE: Due to the nature of our booms being custom built, slight variations will occur in the dimensions used here as an example. Transport heights can vary depending on drawbar position in transit.

Height:	2.6m
Width Folded:	2.47m approx.
Length Folded:	6.4m approx.
Weight Empty:	1940kg approx. – different models will vary
Wheel track width:	2m



Serial Number – located on the inside of the drawbar

**CUSTOMISED BOOMSPRAY DETAILS****SERIAL NUMBER**

BOOM MOUNTFront Mount Tandem Axle **BOOM SIZE**18m 24m 27m **TANK**2000L 3000L **WHEEL CENTRES**2m **WHEEL SIZE**Gooseneck 11 x 16 Tandem Axle 11 x 16 **BOOM SECTIONS**3 5 Other **FENCELINE NOZZLES**Manual Electric **ON / OFF VALVES**Teejet B344BEC24-C 1" Teejet 430 Flowback Teejet 430 Two way Other **REGULATING VALVE**Teejet B344BRL 24s 03 Teejet B344BRL 24s 06 Teejet B346BRL 25s 03 Teejet B246BRL 25s 06 Other **FLOW METER**Teejet 801 1" Teejet 801 1.25" Other **PUMP**1.5" Cast 9303C-HM4C 1.5" S/S 9303S-HM4C 2" Cast 9306C-HM5C 2" S/S 9306S-HM5C 2" S/S with self-fill plumbing Other **BOOM PLUG**23 pin deutsch **HYDRAULIC PLUG**14 pin deutsch 14 pin + 14 pin reverse deutsch

ADDITIONAL PRODUCT INFORMATION

Paint

Hayes Spraying products are painted with a chemical resistant two pack paint. For touch ups, the closest colour is Watty! Killrust Ocean Blue.

Filter System

Trailed boomsprays are plumbed with a three point filtration system.

Tank Basket



Inline Pressure Filters



Nozzle Strainer



Boom

Hayes Spraying boom design is standard with the following features:

- Individual hydraulic boom tilt
- Shock dampened breakaway end sections
- Self-levelling
- Hydraulic accumulators
- Twin Chain Suspension

Suspension

Fully independent coil spring suspension allows for a no maintenance smooth ride.

Chassis

Fully welded box steel construction.

IMPORTANT INFORMATION TO UNDERSTAND BEFORE USE

OPERATOR RESPONSIBILITIES

Include but are not limited to:

Operator

- Each operator must read & understand this manual before operating the boomspray.
- Local laws may require the operator to be licenced.
- Do not be under the influence of drugs or alcohol whilst operating boom equipment
- Read & follow the chemical label
- Do not eat, drink or smoke while working with spray equipment
- If poisoned, seek medical advice immediately and identify the chemicals being used.
- Be aware of power line locations
- Be aware of weather conditions

Protective Clothing

- Wear protective clothing
- Wash and change clothing after spraying
- Keep protective clothing in good condition and replace as required

Operating the Boomspray Safely

- Take notice of the safety warning labels on boomspray & replace when necessary
- Lower the boom fully or put locking pins in place if the boom needs to be raised
- Do not go under any equipment unless properly secured
- Keep the freshwater tank full with clean water only.
- Disconnect the power before servicing or welding
- Never repair or service equipment whilst operating
- Do not enter the spray tank
- Rinse, wash and depressurise equipment after use and before servicing or storage
- Inspect boomspray for faults, leaks and cracks to avoid contamination
- Ensure the boomspray locking pins and support jack are in the correct position
- Ensure bystanders are a safe distance away from sprayer when operating
- Be aware of the width of the machine especially when turning or moving around obstacles
- Boom tips move much faster while turning and may cause injury to equipment or bystanders
- Spray at speeds suitable to the ground conditions. Warranty will be void if operated at speeds exceeding those stated in this manual.
- Avoid sudden turns, stops and constant direction changes at high speeds.
- Do not ride on the boomspray.

SAFETY DECALS

Take notice of the safety warning labels on the boomspray and replace when damaged. Replacement decals are readily available through spare parts.



SLIDING HEIGHT ADJUSTMENT TOWER

Locking Pins

Locking pins exist for the sliding height adjustment tower & the self-levelling system.

Transporting & Maintenance Position

There are 2 locking pins for the tower / height adjustment located on the sides

1. Lift the tower all the way up.
2. Remove the locking pin from the vertical locking pin holder.
3. Insert the locking pin horizontally into the height adjustment tower.
4. Lower the tower down to rest on the locking pins.



Spraying Position

To get the tower into the spraying position from the transport/ maintenance position:

1. Raise the tower off the locking pins.
2. Remove the locking pin from the horizontal locked position.
3. Insert the pin into the vertical locking pin holder.
4. Lower the tower to the desired height.

NOTE: Major damage will result if you attempt to lower your tower before removing locking pins

SELF LEVELLING ROCKING BAR

Transporting & Maintenance Position

To lock the self-level function into place:

1. Unscrew the D Shackle pin and twist the locking pin handle to release from the D Shackle.
2. Make sure the spring loaded locking pin is aligned with the bush.



NOTE: Above photos display transport & maintenance position

Spraying Position

To unlock the self-level function for spraying:

1. Pull the spring loaded locking pin out from the bush.
2. Twist the locking pin handle so that it locks in the D shackle.
3. Insert the D Shackle pin.



NOTE: Above photo displays spraying position.

BOOMSPRAY OPERATION

CONNECTING TO THE TRACTOR

Check the Tractor Hydraulic Oil Level

The tractor needs to have an adequate level of hydraulic oil available for the boomsprays hydraulic functions to operate properly.

Identify the Tractor Free Flow Return Port

The Hypro pump requires the return line to be plugged into the Free Flow Return or Dump Port of your tractor hydraulic system. You will need to identify this port and make sure all operators are aware of this requirement.

Hooking Up

All bystanders should be well away whilst the tractor is reversing onto the trailer drawbar.

- Reverse the tractor onto the trailer drawbar.
- The support jack may have to be adjusted to suit the tractor hitch height.
- Lock the tractor drawbar pin into place.
- Attach the safety chain to the tractor.
- Wind up the support jack and remove from front supporting position lug.
- Attach the support jack to the spraying position lug on the top rail of the drawbar and lock in with the pin.



Support Jack

The trailer support jack has two lug positions:

Supporting Position

Located on the left side of the drawbar side.

Spraying Position

Located on the top of the left side of the drawbar

HYDRAULIC HOSES

The hydraulic hoses are fitted with crimp on JIC fittings.

Hypro Pump Hydraulic Lines

The Hypro pump hydraulic lines are easily identified as they are 1/2" hoses. There are 2 hydraulic lines for the Hypro.

1. Pressure Line – marked with spiral guard & can be fitted to any remote.
2. Return Line – is not marked and **MUST** be fitted to the dump port / free flow return.

Hydraulic Folding Boomspray Functions

These hydraulic lines are 3/8" in size. The hydraulic lines can be connected to any pair of remote couplings on the tractor.

As Shown Below From Top to Bottom:

1. Pressure Line for Hypro – 1/2" hose & can fit to any remote.
2. Return Line for Hypro – 1/2" hose & must be fitted to free flow return port.
3. Hydraulic Boomspray Functions Line – 3/8" hose & can fit to any remote.
4. Hydraulic Boomspray Functions Line – 3/8" hose & can fit to any remote.



CONNECTING DEUTSCH PLUGS

There are 3 deutsch plugs.

1. 23 pin with pins
2. 14 pin with pins
3. 14 pin with sockets (reverse).



HYPRO HYDRAULIC DRIVE PUMP

Hypro pumps cannot be run dry or the seal will be damaged. Shut pump down immediately when tank is empty or when pressure drops below 1 bar.

1. Connect the Hypro return line to the free flow return.

It is critical it is not connected to a normal remote. You can identify the return line on the Hypro pump as it has TANK written above it.

2. Connect the Hypro pressure line to the tractor remote.

The pressure line is the ½" hose with spiral guard on it. You can identify the pressure line on the Hypro pump as it as PRESS written above it.

3. Ensure the filters are clean – clean daily at least.

4. Set the main bypass / agitation ball valve at the pump.

This should never be fully open or fully closed whilst spraying. For glyphosate it should be approx. ¼ turn open. The thickness of the chemical you are using will determine how far the valve should be open. Some products require more

agitation, however Glyphosate will foam with excessive agitation.

5. Ensure bypass screw is screwed the entire way in.

This ensures the pump has full flow of oil when used with closed centre hydraulics.

6. Set the hydraulics to slow / low flow eg 25%

7. Turn on all boom sections.

Turn spray controller on and set to manual to open regulator valve fully and turn all boom sections on.

8. Adjust hydraulic flow.

Engage the Hypro hydraulics and increase hydraulic flow until the maximum spray pressure is achieved.

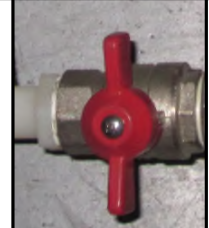
Do not exceed 5 bar pressure when nozzles are on

Do not exceed 6 bar pressure when nozzles are off

9. Set Low Pressure Alarm (if installed)

Close the regulator valve until 12 – 15psi is displayed on gauge. Adjust the pressure switch (located below & behind gauge) with screw driver until alarm beeps at 1 bar / 12-15psi. Make sure master switch and boom section switches are on & check alarm by cycling pressure up and down.

The alarm serves to notify operator that the tank level is low and pump is starting to suck air.



OPERATIONAL CAPACITIES

Wing Tilt

Your booms are set at the correct operating position. Booms should sit low when ram is fully extended – not level. DO NOT adjust turnbuckle so boom sits level, as you will bend your boom.



When spraying, ensure at least 40mm hydraulic cylinder travel is available for wing tilt rams. Do not operate wing tilt rams bottomed out or fully extended.

Do not adjust the wing tilt turnbuckles. Booms must be allowed to drop below the level working height for operation to allow accumulators to properly dampen the boom ride.

The adjusting screw on the accumulator mount block is used to control the speed of the tilt hydraulic cylinder when lowering only.

Adjustment can be made with a 5/32 hex key.

To Slow Down – screw clockwise

To Speed Up – screw anticlockwise



Minimum Boom Operating Height from Ground

BOOM WIDTH	MIN HEIGHT
18m – 27m boom	950mm

In undulating or rough terrain conditions minimum operating height may vary accordingly.

Never operate at fully raised or fully lowered boom heights, ensure at least 40mm of your hydraulic cylinder travel is available to allow the hydraulic accumulators to work.

Maximum Operating Speed

Incorrect operating speed will void warranty and compromise the life of your boomspray.

BOOM WIDTH	GOOD CONDITIONS	ROUGH CONDITIONS
18m – 27m	18 k/hr	16 k/hr

Operating speeds may need to be further reduced by 20 – 40% when crossing contour banks, wash outs, extremely rough conditions and when turning at the headland.

When using auto steer systems the boom should be aligned with the run prior to engaging the auto steer.

PLUMBING FUNCTIONS

The following plumbing components that are on your trailer will depend on the plumbing options you have chosen.

Main Fill Camlock & Ball Valve

The point at which you connect your loading hose to the boomspray.
Turn the ball valve ON when loading hose is connected.
Turn the ball valve OFF when loading hose is disconnected.

Bypass / Agitation Tap

This tap should only ever be adjusted when you are setting up your Hypro or if you are changing to a chemical with differing viscosity. This tap should never be fully open or closed. Increased agitation is required for powdered and thick chemicals; reduced agitation is required for chemicals that will froth.

Tank Fill

This line allows liquid to enter from the fill camlock into the tank.
Turn ON when filling tank.
Turn OFF when tank is full & ready to spray.

Tank Suction

This line allows liquid to enter from the tank into the Hypro pump.
Turn OFF when filling tank.
Turn ON when ready to spray.
Turn OFF when flushing lines using clean water from Rinse Tank.
Turn ON when filling with a separate load pump.

Spray Pressure

This line allows liquid from the manifold into the delivery line to the booms.
Turn OFF when cleaning filters.
Turn ON when ready to spray.

Induction Probe

The induction probe allows you to load chemical from a standalone chemical hopper. Turn ON to load chemical from bin. Turn OFF to spray.

Hand wash

The hand wash tap is connected to the 20L Clean Water Container. This container is isolated from all other plumbing to stop contamination.

Wash down

The wash down function allows you to use the trailer plumbing for washing down the trailer or for firefighting.
Turn OFF when spraying.
Turn ON to wash down.
Turn ON tank suction

Tank Wash Nozzle

This is the nozzle in the main tank which rinses the main tank with clean water from clean water loaded at the fill point or Rinse Tank if fitted (see Rinse Tank Plumbing).



To Rinse Main Tank with Clean Water from External Loading Pump

Connect loading hose to main fill point.
Turn OFF Tank Suction
Turn ON Tank Wash Nozzle

To Flush Boom Lines with Clean Water from Main Fill Point Using External Loading Pump

Connect loading hose to main fill point.
Turn OFF Tank Suction
Open regulating valve
Turn on the (on/off) section valves

Rinse Tank Plumbing (Optional)

Rinse Tank Fill

This allows water from the fill point into the Rinse Tank.
It is important that you always put clean water into your rinse tank. It is advisable to rinse the lines through with clean water before opening the rinse tank fill tap and fill this tank before loading chemical.

Turn ON to fill Rinse Tank.
Turn Off when ready to spray.

Rinse Tank Suction

This delivers clean water from rinse tank to the delivery line of the boomspray to rinse out the boom and the main tank.

Turn OFF when spraying.

To Flush Boom Lines with Clean Water from Rinse Tank.

Turn OFF Tank Suction.
Turn ON Rinse Tank Suction.
Turn ON Pressure Spray.
Open regulating valve
Turn on (on/off) section valves.

To Rinse Main Tank with Clean Water from Rinse Tank

Turn OFF Tank Suction
Turn ON Rinse Tank Suction
Turn ON Tank Wash Nozzle

Chemical Hopper Self Fill Plumbing (Optional)

NOTE: Don't spray with chemical loaded in your chemical hopper.

Hopper Fill

Fills the chemical hopper with water to rinse the bin. You must have the lid closed.
Turn OFF to spray.

Hopper Suction

Loads the chemical into the main tank from the hopper once loaded.
Turn OFF to spray.

Jet Agitation

Agitates the chemical in the hopper. You must have the lid closed.
Turn OFF to spray.

Drum Rinse

Directs water into the drum rinse nozzles to allow you to rinse 20L drums.
Turn OFF to spray.

Loading Chemical from Hopper Into Main Tank

Start loading the main tank with water as above.

Make sure rinse tank is filled prior to loading chemical into main tank. Ensure Rinse Tank Fill tap is OFF.

Fill hopper with chemical as desired.

Once full; turn ON jet agitation to agitate brew.

Turn ON Hopper Suction until hopper is empty.

Turn OFF Hopper Suction.

Repeat as required. When changing from one chemical to another, it's a good idea to rinse the hopper between in case of a reaction causing chemical to go hard.

To rinse drums, turn ON Drum Rinse as required. Place drum over nozzle and push down to rinse.

To rinse hopper, turn ON Hopper Fill & rinse components.

Once rinsed; turn ON Hopper Suction.

Turn OFF when empty.

Always finish filling the main tank with clean water to flush the pump.

DECONTAMINATION

You may need to decontaminate your boomspray when

- Changing from one chemical to another
 - Changing from one crop type to another
-
- Flush all spray lines, agitation lines, delivery hoses, tanks, jugs, rinse bins and chemical hopper with clean water. Make sure you utilise the tank rinse nozzle for your main tank – see above.
 - When soaking boomspray with rinsing solution, leave all ball valves turned half on to expose inner cavity to rinse.
 - Flush again with recommended cleaner. Talk to your agronomist about the best cleaning agent & penetration time.
 - Flush out cleaning agent with clean water.

MAINTENANCE

FILTERS

The filters are a critical part of your boomspray operation.

Tank Basket



Inline Pressure Filters



Nozzle Strainer



1. Check the tank basket for debris
 2. Unscrew (clockwise) the bottom filter bowl of the inline pressure filters and remove. Use a toothbrush to clean the filter under running water. Reseat the filter into the filter bowl and screw back onto filter body. Take care not to cross thread the o ring while reassembling or over tighten as it may crack.
 3. If nozzle strainers are located in the nozzle bodies. Remove from nozzle body and clean with a toothbrush to remove build up.
-

Flush the booms with water.
Isolate main tank by closing tank suction if you still have chemical left in spray tank before flushing booms.

Every Day

Drain any remaining spray mix from tank.
Fill tank with at least 200L water and open regulator valve fully.
Spray water through nozzles to flush.
Clean the outside of the boomspray.

End of Spraying Session

Flush as described previously.
Drain all water from system.
Drain water from pump.
Fill pump with a mix of 50% water and antifreeze.
Take particular care not to have any air in the pump.

Long Term Storage

NOTE: See decontamination in Boomspray Operation Section

GREASING

The following grease points need greasing as per below.

First Fold Point 2 grease points on each swivel on each boom arm.

10 hrs



Second Fold Point 4 grease points on each boom arm

10 hrs



Swingarm & Self Level Pivot Point Left Boom - 2 grease points – one for Swingarm and one for the Self Level Pivot Point.

10 hrs

Right Boom – 1 grease point for the Swingarm



Tow Hitch One grease point for the swivel ball in tow hitch

10 hrs



Supporting Jack One grease point for the supporting jack

100 hrs



OTHER MAINTENANCE

Drawbar Bolts	1 Grease Point Per Wheel Hub & Tighten	First 50 hrs then every 200 hrs
Wheel Nuts	Check Wheel Nuts & Tighten. 297 ft. lbs (404N.m)	First 50 hrs then every 200 hrs
Wheel Bearings	Check Wheel Bearings.	First 50 hrs then every 200 hrs
	Repack annually with grease or as required	If floatation tyres are fitted first 50 hrs then every 100 hrs. Repack annually or as required

PAINTWORK

To protect the paintwork and presentation of your new boomspray it will require regular washing at the end of every spraying session.

When using hydrocarbon based products (e.g. Ester, Treflan and Avadex) a strict external method is required using clean water.

Do not allow dust to build up and turn to chemical impregnated mud. Any neat chemical spills onto paintwork will require immediate wash down.

TYRE PRESSURE

Tyre pressure guide is written on your tyre side wall. Do not exceed maximum pressure stated on tyre.

16.9 x 30	18 psi to 35 psi
18.4 x 34	18 psi
20.8 x 42	23 psi
600/65 x 30.5	29 psi to 47 psi
650/65 x 30.5	28 psi

TROUBLESHOOTING

UNDERSTAND YOUR AUTOMATIC CONTROLLER

The controller controls the application rate based upon the target application rate set before spraying such as 40L / Ha. The controller receives information from the flow meter and the speed sensor and tells the Regulating Valve to open or shut.

Nozzle Size:	Set in Controller
Boom Width:	Set in Controller
Speed Sensor:	Measures speed & sends information to Controller
Flow Meter:	Measures L/Min & sends information to Controller
Regulating Valve:	Controlled by controller calculating variable information such as speed & flow. L/Ha is too high – Reg Valve Closes L/Ha is too low – Reg Valve Opens

The controller will also monitor when spraying speed is too fast or slow for the controller to regulate the target rate given the nozzle and desired application rate.

You must use suitable nozzles for the application rate. Check the nozzle capacity information.

UNDERSTAND THE HYDRAULICS

The hydraulic spool system on your boomspray has been fitted to suit your tractor depending on whether you have an open or closed centre system. The majority of systems use the closed system.

The electric solenoid spool valves are Rexroth brand with a J (closed) or G (open) CETOP3.



Closed Centre Solenoid Spool Valve

Open Centre Solenoid Spool Valve



Located between the hydraulic block and the solenoid valve there is a pilot operated check valve to prevent cylinder creep.

The hydraulic hoses are either 3/8" or 1/2" fitted with JIC fittings.

It is crucial that you identify the hydraulic hoses that control your Hypro pump. These are 1/2" hoses.

COMMON ISSUES

Most problems can be found quickly by checking the following:

What does the monitor display:

Speed

Hectares

L/min

Can you spray in manual mode (+ & - buttons increase & decrease pressure)?

Can you manually adjust the pressure & flow?

Are the fuses good?

Check your controller settings are correct.

Check the filters are clean & briefly start pump to check flow.

ISSUE	ITEMS TO CHECK
No Pressure	Check your filters Check the Reg Valve has power Check Reg Valve is opening & closing by either listening or watching. Apply a separate 12v DC power source to Reg Valve wires. This will isolate the valve from the controller & cables. Disconnect Reg Valve power for 30 secs as it has a reset fuse built in. Check Reg Valve is working in the correct direction, if not reverse the polarity of red & black wires eg red to black. If you remove the reg valve motor from shaft, make sure the paint pen marks on the shaft are aligned when in the off position.
No Speed	Check speed sensor connectors & cable for cuts or breaks. Check speed sensor is plugged in. Check you are getting a pulse in the signal wire. Check pins in the deutsch plug are not pushed out. For wheel sensors: Check magnets are in place Check the LED light in the end of the sensor when the magnet passes. Check the sensor is the correct distance from the magnets 10—20mm
No Hectares	See above as for speed Check width setting in controller
No L/Min	Check pump is pumping liquid Check flow meter connectors and cable for cuts etc Check flow meter is not stuck or restricted Flush flow meter with clean water, it should spin freely when blown through. Check pins in deutsch plug are not pushed out. Teejet 801 Flow Meters: Turn on spray controller, a green LED light should appear on the flow sensor to indicate power. An orange LED should also appear to indicate when flow is going out nozzles. Check reg valve is working in the correct direction.



ISSUE	ITEMS TO CHECK
Tank Output Different To What Has Been Sprayed Out	If controller is saying too high—increase flow meter calibration by that % If controller is saying too low—decrease flow meter calibration by that % Default calibration for the Teejet 801 is 82—start with this number and adjust as above.
Cant Adjust Flow Manually	Check Reg Valve has power Check Reg Valve is opening & closing by either listening or watching. Apply separate 12v DC power source to reg valve wires. This will isolate from controller & cables. Disconnect reg valve power for 30 secs as it has a reset fuse built in. Reverse the polarity of red & black wires on reg valve eg red to black. If you removed the reg valve motor from the shaft, make sure the paint marks are aligned when in the off position. Check pins in deutsch plug are not pushed out.
Spraying Stops While In Auto Mode	Check flow meter is not stuck or stalled. The flow meter might be stalled due to reg valve shutting. Check reg valve console settings are set to inline or throttling, not bypass.
Application Rate Oscillates	Check all controller values are correct. Check Reg Valve motor is correctly aligned with the paint pen mark on the shaft of the reg valve (when aligned the motor should be in the off position). Decrease the reg valve speed in the controller.
Application Rate Oscillates with only 1 section of boom on or when connected to a planter or shielded sprayer.	Teejet 801 flow meters won't regulate below 9.5L/min. All low flow applications need to be done in manual mode.
Flow Drops Off Whilst Spraying	Check for blocked filters or delivery hose. Check reg valve is opening & closing by watching or listening.
Tank 3/4 Empty & Cant Maintain Pressure	Check the agitation tap is not too far open causing frothing in the tank making the pump suck air & water.
Hypro Pump Runs For A Few Seconds Then Stops	Tractor hydraulics are on a timer, adjust to a continuous setting. Case—set timer to 0. JD—set time to C.



ISSUE	ITEMS TO CHECK
Not Regulating in Auto Mode	<p>Ensure controller is in Auto Mode. Check speed sensor Check regulating valve If you are using 1 or 2 sections and going slow, some flow meters won't operate below 9.5L/min. You might have to operate in manual mode.</p>
Console wont turn on, it just clicks	<p>Dead short in electrical cables Disconnect sensor cables to isolate short.</p>
Other Electrical Faults	<p>Check 15 amp fuse at battery Ball valves have an internal resettable fuse, disconnect all three wires for 30 sec Check wiring harness for cuts or breaks. Check pins in deutsch plugs Make sure settings in controller are correct</p>
Hydraulic Functions	<p>Ensure hydraulics are connected to the correct port. Ensure Hypro is connected to a free flow return. Wiring plugs on solenoid valves (Hirschman plug) can be swapped from one to another to determine if fault is hydraulic or electrical. Check if power is getting to Hirschman plug with a multimeter. Check for a quiet click when solenoid is activated. If solenoid is faulty, it can be swapped with another. Hydraulic function can be activated manually by pushing a small screwdriver into the poppet on either end of spool valve in the middle of the cap. This will manually open or close the solenoid valve.</p>

WIRING DIAGRAMS

HYDRAULICS

14 pin Deutsch Plug for Tilt & Folds

Tractor Plug: HD 34-18-14 SN

Boom Plug: HD 36-18-14 PN

PIN	FUNCTION	WIRE COLOUR
A	Left Tilt Up	Purple
B	Left Tilt Down	Dark Brown
C	Right Tilt Up	White / Red
D	Right Tilt Down	White / Blue
E	Left Inner Fold Out	Grey
F	Left Inner Fold In	Orange
G	Right Inner Fold Out	Blue
H	Right Inner Fold In	Red
J	Left Inner Fold Out	Green
K	Left Outer Fold In	Yellow
L	Right Outer Fold Out	White / Brown
M	Right Outer Fold In	White
N	Blank (12v switch wire for 6 pole switches if fitted)	Blank (White)
P	Earth	Black

14 pin Deutsch Plug for Height Adjust Tower, Floating Hitch & Levelling

Tractor Plug: HD 34-18-14 PN

Boom Plug: HD 36-18-14 SN

PIN	FUNCTION	WIRE COLOUR
A	Tower Height Up	White / Green
B	Tower Height Down	White / Yellow
C	Floating Hitch Up	Yellow / Green
D	Floating Hitch Down	Yellow / Black
E	Levelling Right On	White
F	Earth	Black
G	Levelling Left On	Yellow
H	Earth	Black
J	Back Jet rail Up	Pink
K	Back Jet rail Down	Blue
L	Blank	
M	Blank	
N	Blank	
P	Earth	Earth

ELECTRICAL

Boom 23 Pin Deutsch Plug

Boom Plug: HD 36-24-23 PN
 Pins: D0460-215-16141

PIN	FUNCTION	WIRE COLOUR
A	Boom Section 1	3mm White
B	Boom Section 2	3mm Brown
C	Boom Section 3	3mm Green
D	Boom Section 4	3mm Yellow
E	Boom Section 5	3mm Grey
F	Boom Sections Earth -	4mm Green
G	Reg Valve	3mm Brown
H	Reg Valve	3mm White
J	Boom Sections Power +	4mm Red
K	Flow Meter	3mm White / Red
L	Flow Meter Power +	3mm Brown
M	Flow Meter Earth -	3mm Green
N	Speed Sensor	3mm White / Green
O	Speed Sensor Power +	3mm Brown
P	Speed Sensor Earth -	3mm Green
Q	Pressure Sensor	3mm Black
R	Pressure Sensor	3mm White
S	Blank	
T	Boom Section 9	3mm Purple
U	Boom Section 10	3mm Orange
V	Boom Section 6	3mm Pink
W	Boom Section 7	3mm Blue
X	Boom Section 8	3mm Yellow / Red

NOTE:

- Boom Section Wires In Group of 12
- Reg Valve Wires In Group of 2
- Flow Meter Wires In Group of 3
- Speed Sensor Wires in Group of 3
- Pressure Sensor Wires in Group of 2

CONTROLLER HARNESSSES

TEEJET 844E 23 pin Deutsch Plug

Tractor Plug: HD 34-24-23 SN

Socket: D0462-209-16141

PIN	FUNCTION	WIRE COLOUR
A	Boom Section 1	3mm White
B	Boom Section 2	3mm Brown
C	Boom Section 3	3mm Green
D	Boom Section 4	3mm Yellow
E	Boom Section 5	3mm Grey
F	Boom Sections Earth -	4mm Green
G	Reg Valve	3mm Brown
H	Reg Valve	3mm White
J	Boom Sections Power +	4mm Red
K	Flow Meter	3mm White / Red
L	Flow Meter Power +	3mm Brown
M	Flow Meter Earth -	3mm Green
N	Speed Sensor	3mm White / Green
O	Speed Sensor Power +	3mm Brown
P	Speed Sensor Earth -	3mm Green
Q	Pressure Sensor	3mm Black
R	Pressure Sensor	3mm White
S	Blank	
T	Boom Section 9	3mm Purple
U	Boom Section 10	3mm Orange
V	Boom Section 6	3mm Pink
W	Boom Section 7	3mm Blue
X	Boom Section 8	3mm Yellow / Red

NOTE:

- Boom Section Wires In Group of 12
- Reg Valve Wires In Group of 2
- Flow Meter Wires In Group of 3
- Speed Sensor Wires in Group of 3
- Pressure Sensor Wires in Group of 2

**TRIMBLE Ez Guide 500, CFX & FMX AMP Plug**

Main Connector: AMP 206037-1

PIN	FUNCTION	WIRE COLOUR
1	GND	4mm Green
2	Boom 2	3mm Brown
3	Inc / Dec Reg Valve Open	3mm Brown
4	Inc / Dec Reg Valve Close	3mm White
5	Boom 3	3mm Green
6	Boom 1	3mm White
7	Boom 4	3mm Yellow
8	Boom 5	3mm Grey
9	Boom 6	3mm Pink
10	Blank	
11	Flow Earth -	3mm Green
12	Flow Power +	3mm Brown
13	Flow Signal	3mm White / Red
14	Blank	
15	Boom 7	3mm Blue
16	Positive +	4mm Red

Secondary Connector: AMP 206044-1

PIN	FUNCTION	WIRE COLOUR
1	Boom 8	3mm Red / Yellow
2	Boom 9	3mm Purple
3	Boom 10	3mm Orange
4	Blank	
5	Blank	
6	Blank	
7	Blank	
8	Blank	
9	Blank	
10	Blank	
11	Blank	
12	Blank	
13	Blank	
14	Blank	

GREENSTAR
37 PIN AMP CONNECTOR – 2009 onwards

PIN	FUNCTION	WIRE COLOUR
1	Valve Ground	4mm Green
4	Boom Section 1	3mm White
5	Boom Section 2	3mm Brown
6	Boom Section 3	3mm Green
7	Boom Section 4	3mm Yellow
8	Boom Section 5	3mm Grey
9	Boom Section 6	3mm Pink
10	Boom Section 7	3mm Blue
11	Boom Section 8	3mm Yellow Red
12	Left Fence Line	3mm Purple
13	Right Fence Line	3mm Orange
15	Reg Valve	3mm White
16	Reg Valve	3mm Brown
21	Flowmeter Shield	3mm Green
28	Flowmeter #1 Signal	3mm White Red
36	Valve Power	4mm Red
37	Flowmeter +	3mm Brown

**31 PIN DEUTSCH PLUG– Older Type
HDP26-24-31**

PIN	FUNCTION	WIRE COLOUR
1	Boom Section 1	3mm White
2	Boom Section 2	3mm Brown
3	Boom Section 3	3mm Green
4	Boom Section 4	3mm Yellow
5	Boom Section 5	3mm Grey
6	Boom Section 6	3mm Pink
7	Boom Section 7	3mm Blue
8	Boom Section 8	3mm Yellow Red
9	Left Fence Line	3mm Purple
10	Right Fence Line	3mm Orange
15	Reg Valve	3mm Brown
16	Reg Valve	3mm White
23	Flowmeter Earth	3mm Green
24	Flowmeter Power + 5v dc	3mm Brown
25	Flowmeter Signal	3mm White Red
27	Boom Section Earth	4mm Green
28	Boom Section Power + 12v dc	4mm Red

ELECTRICAL COMPONENTS

BALL VALVES



TEEJET 344 Series 2-Way Electric Ball Valve
Part No. SS-B344BEC-24-C

Circulation: 2005 onwards



TEEJET 430 Series 2-Way Electric Ball Valve
Part No. SS-430EC-2-D (Single Unit)
Part No. SS-435EC-2-D (5 Manifold)
Part No. SS-437EC-2-D (7 Manifold)

Circulation: 2010 onwards



TEEJET 430 Series Flow Back Electric Ball Valve
Part No. SS-435EC-3FB-D (5 Manifold)
Part No. SS-437EC-3FB-D (7 Manifold)

Circulation: 2010 onwards

REGULATING VALVE



TEEJET 344 Series Electric Regulating Valve

Part No. SS-B344BRL-24S-03CGS

Circulation: 2005 onwards

When ordering make sure you specify if you need 1" or 1.25"

OTHER BOOMSPRAY COMPONENTS



TEEJET Wheel Speed Sensor

Part No. SS-38412 (Sensor Only)

Part No. SS-38416 (Single Magnet)



TEEJET Flowmeter 801

Part No. SS-57-10100

When ordering make sure you specify if you need 1" or 1.25"

TEEJET NOZZLE CAPACITY GUIDE

	BAR	1 Nozzle L/Min	L/ ha on 50cm Spacing										
			4 km/h	5 km/hr	6 km/hr	7 km/hr	8 km/hr	10 km/hr	12 km/hr	16 km/hr	18 km/hr	20 km/hr	25 km/hr
Green 015	1.5	0.42	126	101	84.0	72.0	63.0	50.4	42.0	31.5	28.0	25.2	20.2
	2.0	0.48	144	115	96.0	82.3	72.0	57.6	48.0	36.0	32.0	28.8	23.0
	2.5	0.54	162	130	108	92.6	81.0	64.8	54.0	40.5	36.0	32.4	25.9
	3.0	0.59	177	142	118	101	88.5	70.8	59.0	44.3	39.3	35.4	28.3
	4.0	0.68	204	163	136	117	102	81.6	68.0	51.0	45.3	40.8	32.6
	5.0	0.76	228	182	152	130	114	91.2	76.0	57.0	50.7	45.6	36.5
Yellow 02	1.5	0.56	168	134	112	96.0	84.0	67.2	56.0	42.0	37.3	33.6	26.9
	2.0	0.65	195	156	130	111	97.5	78.0	65.0	48.8	43.3	39.0	31.2
	2.5	0.72	216	173	144	123	108	86.4	72.0	54.0	48.0	43.2	34.6
	3.0	0.79	237	190	158	135	119	94.8	79.0	59.3	52.7	47.4	37.9
	4.0	0.91	273	218	182	156	137	109	91.0	68.3	60.7	54.6	43.7
	5.0	1.02	306	245	204	175	153	122	102	76.5	68.0	61.2	49.0
Purple 025	1.5	0.70	210	168	140	120	105	84.0	70.0	52.5	46.7	42.0	33.6
	2.0	0.81	243	194	162	139	122	97.2	81.0	60.8	54.0	48.6	38.9
	2.5	0.90	270	216	180	154	135	108	90.0	67.5	60.0	54.0	43.2
	3.0	0.99	297	238	198	170	149	119	99.0	74.3	66.0	59.4	47.5
	4.0	1.14	342	274	228	195	171	137	114	85.5	76.0	68.4	54.7
	5.0	1.28	384	307	256	219	192	154	128	96.0	85.3	76.8	61.4
Blue 03	1.5	0.83	249	199	166	142	125	99.6	83.0	62.3	55.3	49.8	39.8
	2.0	0.96	288	230	192	165	144	115	96.0	72.0	64.0	57.6	46.1
	2.5	1.08	324	259	216	185	162	130	108	81.0	72.0	64.8	51.8
	3.0	1.18	354	283	236	202	177	142	118	88.5	78.7	70.8	56.6
	4.0	1.36	408	326	272	233	204	163	136	102	90.7	81.6	65.3
	5.0	1.52	456	365	304	261	228	182	152	114	101	91.2	73.0
Red 04	1.5	1.12	336	269	224	192	168	134	112	84.0	74.7	67.2	53.8
	2.0	1.29	387	310	258	221	194	155	129	96.8	86.0	77.4	61.9
	2.5	1.44	432	346	288	247	216	173	144	108	96.0	86.4	69.1
	3.0	1.58	474	379	316	271	237	190	158	119	105	119	105
	4.0	1.82	546	437	364	312	273	218	182	137	121	109	87.4
	5.0	2.04	612	490	408	350	306	245	204	153	136	122	97.9

NOZZLE WEAR CALCULATOR

Check nozzles regularly or replace on an annual basis.

Nozzle Capacity	Pressure at the nozzle (bar)	Flow at the nozzle (L/Min)	Replace Nozzles if L/Min is more than
015	3.0	0.59	0.64
02	3.0	0.79	0.86
025	3.0	0.99	1.08
03	3.0	1.18	1.29
04	3.0	1.58	1.73