CROPLANDS

WEED-IT Revisions, February 2022

Pi-017

Compilation of Product Information Guides related to Croplands WEED-IT sprayers

Please note; not every page is relevant to every sprayer. In some case the photos might be from a different model. Some changes are being introduced as running changes and might not be available to all models at the time of publication. Croplands reserves the right to change this information without notice.

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PRODUCT INFORMATION – 017

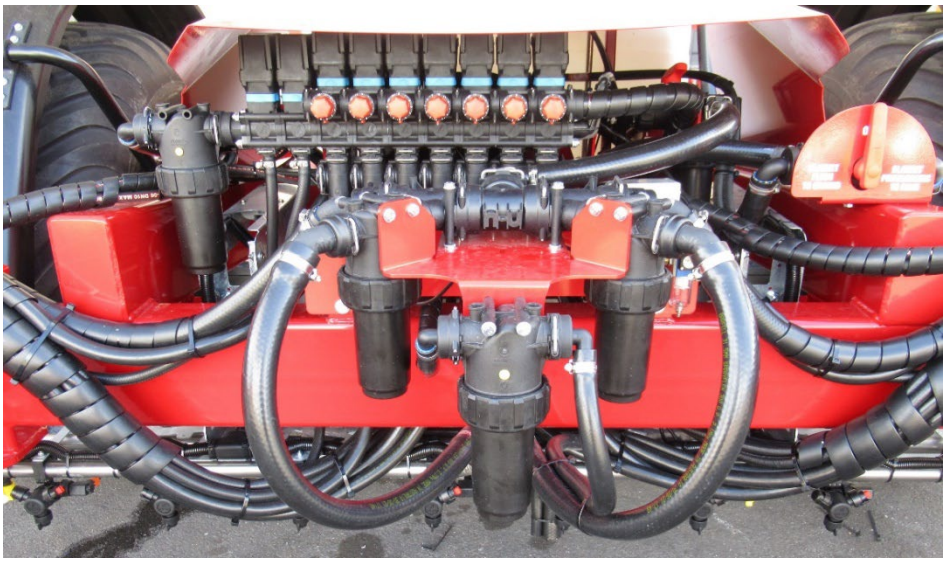
WEED-IT REVISIONS @ Feb 2022

Summary of recent (2021) product enhancements for WEEDit 4000, 6000 & 7000 sprayers

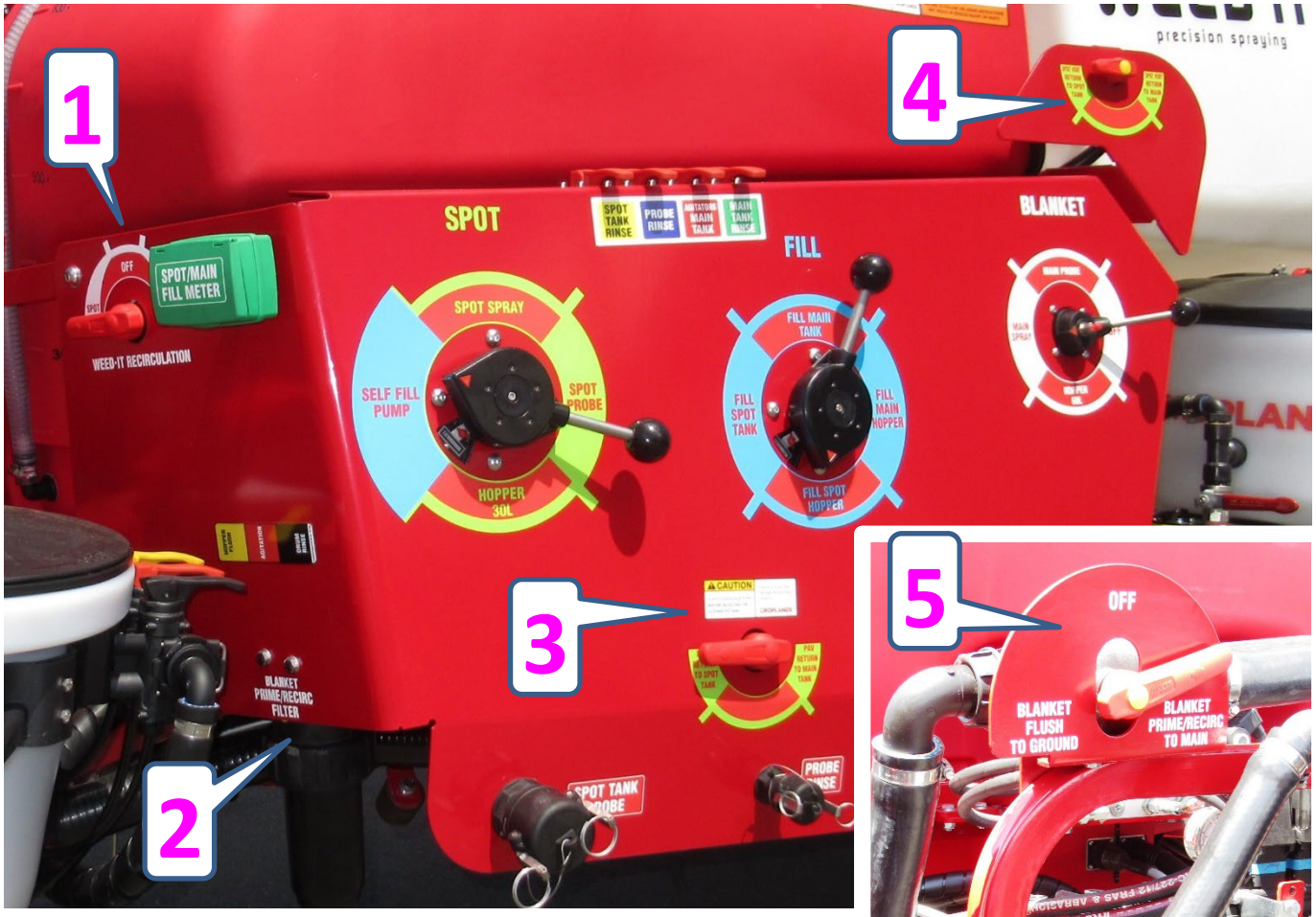
This compilation of Product Information Guides is to be supplied with every Croplands WEED-IT sprayer along with existing manuals until the sprayer manuals are fully updated later in 2022

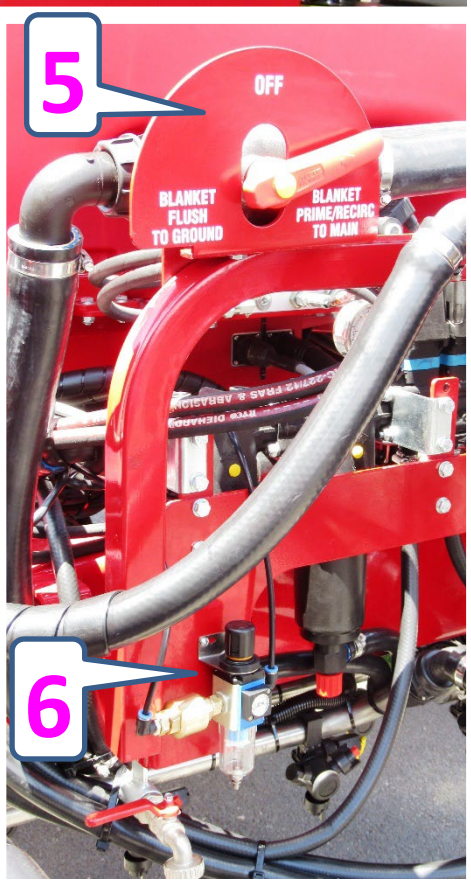
Pi-016	WEED-IT Castor Wheel attachment	2022 02 02	current
Pi-015	WEEDit Plumbing Enhancements (remove PAV dongle)	2021 12 13	current
Pi-012	Wheel Stud Torque levels	2021 08 16	current
Pi-011	WEEDit Boom - Tip & nozzle protector changes	2021 08 16	current
Pi-010	WEEDit Steer Wheel - ship with shocker replacement bar	2021 08 16	current
Pi-009	WEEDit 7000 Pump Priming / Vent relocation	2021 08 10	current
Pi-008	Pegasus BT-Prime - Recirc - Reverse Flush system. V2	2021 08 11	Also WEED-IT dual line
Pi-007	WEEDit Steer Wheel Change - remove stop bolt	2021 02 08	current
Pi-006	WEEDit PAV Bypass return tank selection ball valve label	2020 11 30	current

BT-PRIME, (Pi-008 blanket line Prime – Recirc – Reverse Flush) is now being fitted as standard to the blanket line of all dual line WEED-IT's. The below photo's show it's implementation to a WEED-IT dual-line 4000 / 6000 – note the Blanket Recirc Filter mounted to the main control panel. PTO for 7000's



WEED-IT 7000 Plumbing Updates as of Mid-January 2022





1; WEED-it recirculation (Pi-006 & earlier)

2; Blanket Prime-Recirc Filter (Pi-008)

3; Label XD-204 (Pi-006)

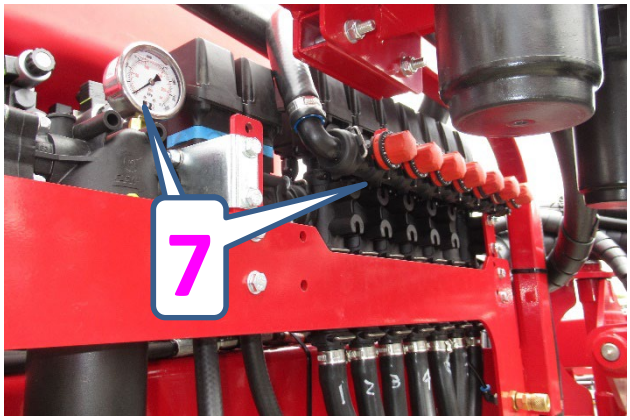
4; Spot pump priming / vent (Pi-009)

5; Blanket Prime / Recirc to tank or ground (Pi-008)

6; Air regulator (Pi-015). Not shown is the the PAV air feed change.

7; Metering valves & bleeders (Pi-008). Note the extra gauge to help with setting the metering valves.

8; Spot pump gauge (far left) (Pi-015)



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PRODUCT INFORMATION – 016

WEED-IT CASTOR WHEEL ATTACHMENT

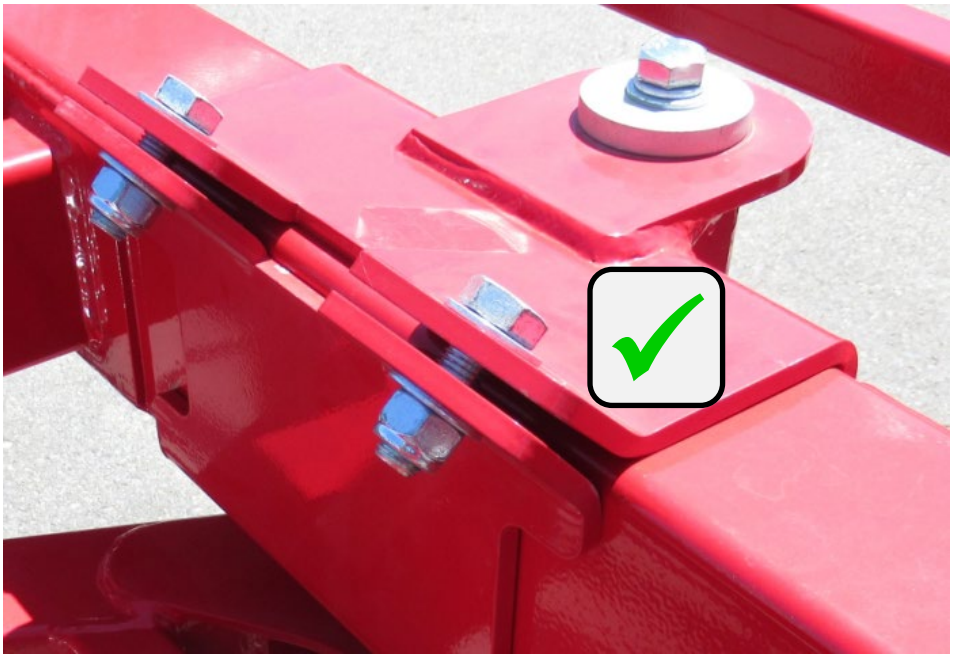
For WEEDit 4000, 6000 & 7000 sprayers with ground following booms / Castor wheel assy.

A reminder re the correct attachment of the Castor wheel assemblies to WEED-IT booms.

1) The correct positioning of the pivot pin is IN FRONT of the main beam.

2) **It's important that the assembly is clamped correctly.**

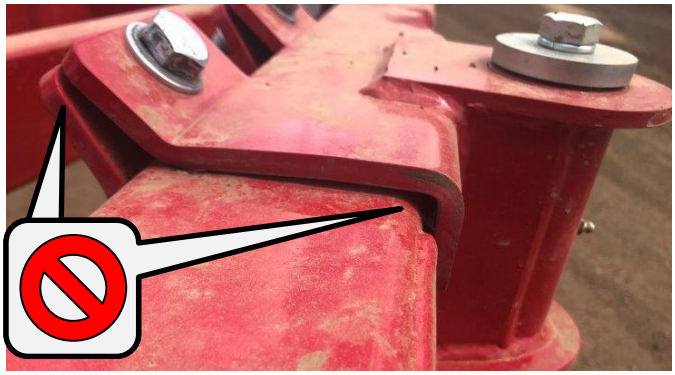
Both sides of the clamping plate must be located squarely against the main beam before tightening the 4 clamp bolts.



All bolts must be tightened in a sequence which allows for even clamping. Correct torque for the bolts is 85 Nm.

All 4 faces of the clamp plate should be evenly against the sides of the main beam, and all 4 gaps of the bolt face should also be even – ever so slightly flexed together. See above photo. Minimum torque for the pivot pin is 85 Nm.

Do NOT use a rattle gun to tighten the bolts. Do NOT tighten unevenly or overtighten. Failure to correctly locate the plates before tightening will result in 2 lines of contact as opposed to 4 faces of contact – and it will eventually come loose regardless of how they are tightened.



3) Checking the clamp bolts (and pin) should be a part of the regular maintenance schedule.

   a. A visual inspection along with every daily check / every time the pin is greased,

   b. Check for bolt tightness
      - Upon delivery,
      - After the first 4 hours of operation, then after 8 hours, 16 hours and then 24 hours,
      - Every 50 hours thereafter.

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PRODUCT INFORMATION – 015

WEED-IT, PLUMBING ENHANCEMENTS

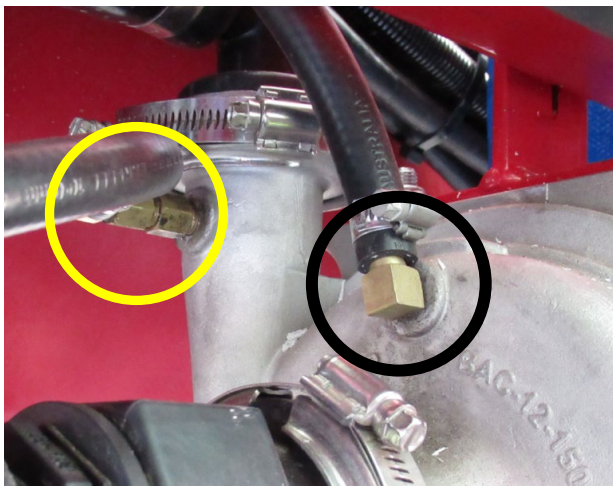
Product Enhancement applicable to new (2022) WEEDit 4000, 6000 & 7000

Multiple changes designed to further enhance spot spraying performance when switching from low volume (say 10% coverage) to high volume (say 100% coverage) optical spraying.

1) Upgrade to the ACE "205 series" centrifugal pump.

2) Add a pump (output) pressure gauge to the system. Photo opposite shows brass connections for the pump air vent (black circle) and pressure (yellow circle).

Gauge position varies from model to model.



3) Reposition the (4000 / 6000) pump to the opposite side of the sprayer (for improved flow).

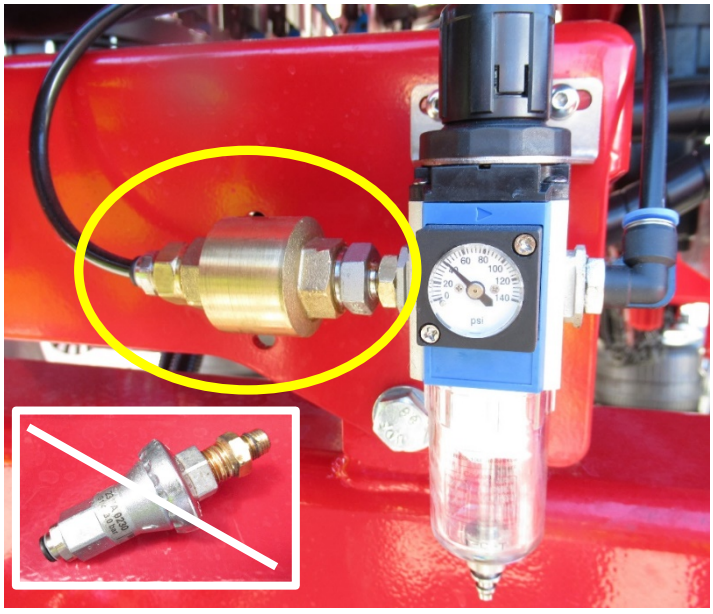
4) Remove the 3 Bar, one way, pressure limit valve from the PAV (Pressure Accumulator Valve).

5) Add a one-way valve preceding the air pressure regulator valve. Connect hose to PAV. Note if the PAV diaphragm fails, it will damage the regulator.

6) Revised plumbing at the PAV (See below).

7) **Revised operating procedure (see next page).**

8) NOTE; WEED-IT sprayers fitted with the dual (blanket) spray line will also be fitted with the Boom Prime – Recirculation – Reverse Flush "BT-PRIME" system, (see Pi-008).



All the above have / will be introduced as running changes, as stock becomes available.

Revised Spot Spray Operating Summary.

a) **Air system must always be engaged before activating the pump** (turn on the WEEDit control console). Failure to do this may result in damage to the PAV and / or air pressure regulator.

b) **Set the air pressure** to around 40 psi. The air regulator is the only means to adjust spot spray pressure. Use the SPOT PRESSURE gauge at the front of the sprayer as the primary reading. The regulator's pressure may vary and will likely need fine tuning once the spot spray pump is at operating speed.

c) **Set the control valves for spraying**. Choose the source tank (usually SPOT). Set panel control valve to SPRAY. Set the Recirculation Valve & PAV Vent Valve to the same tank (spot / main), both fully open.

d) **Engage the SPOT pump** via tractor hydraulics and set to the correct operating rpm as per below. CAUTION; whilst it takes very little power (low pump rpm) to establish a static 3 Bar spot spray pressure – the correct pump operating rpm is significantly higher (as per below).

If the sprayer is equipped with a Spot Pump Pressure gauge ….

- Adjust the (205 series) pump oil flow (at the tractor) until a minimum of 4 bar pump pressure is achieved. If equipped with a 150 series pump – set to 4.5 bar pressure, with nozzles on. When set to these pressures there will be sufficient flow to …..

  1) have sufficient boom recirculation flow and most importantly ….

  2) have sufficient flow bypassing the PAV back to tank. Failing to have sufficient flow bypassing the PAV is the most common mistake made in operating the WEEDit sprayer.

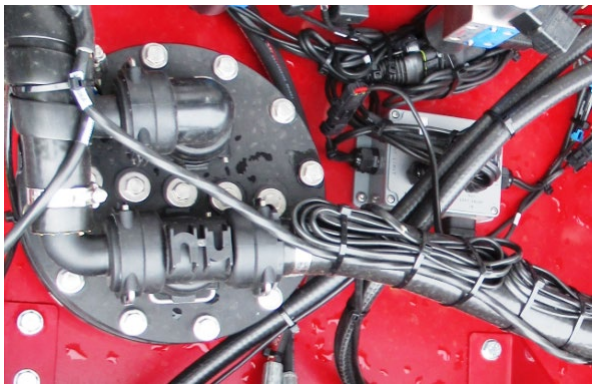
- Once the 4+ Bar Spot Pump Pressure has been established, check and adjust the spray pressure via adjusting the air pressure regulator. Best recommended (static) pressure is 3.2 Bar spray pressure. It's recommended to cycle between normal and flush mode (via WEEDit console) several times to clear any air etc and stabilise the setting. Also read below.

If the sprayer is not equipped with a pump pressure gauge

- Perform the above flush cycling and monitor the pressure drop. If the pump is running too slow the pressure drop in flush mode will be significant – keep increasing the pump speed / flush until there is no more improvement in the pressure drop test. DO NOT exceed 4 Bar Spot Line pressure.

  It's not practical to quote exact numbers due to the variables in pumps, agitators, nozzles etc. However, a best-case scenario is a drop of just 0.2 ~ 0.4 bar in full flush mode.

  If the pressure drops significantly (in the flush mode test) and fails to rebound is a sign that the pump is operating too slowly.



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PRODUCT INFORMATION - 012

WHEEL STUD TORQUE LEVELS

Applicable to sprayers using M12 ~ M24 Wheel studs - supersedes all previous recommendations

These recommendations were supplied by Titan Australia – our major supplier for axles, wheels & tyres.

INSPECTION INTERVALS

MINIMUM RECOMMENDED TENTION INTERVALS FOR AG WHEELS

RETENTION AT	INITIAL FITMENT
	4 HOURS OF OPERATION
	8 HOURS OF OPERATION
	16 HOURS OF OPERATION
	24 HOURS OF OPERATION
	48 HOURS OF OPERATION

Alternatively, after the first 50km & subsequently every 100km, the stud bolt nuts are to be tightened by means of a dynamometric key and with the torque values listed below. Male and female treads are to be dry, however small amounts of anti-corrosive oil covering is permitted. Ongoing inspection & re-tensioning should be done in accordance with daily wheel/tyre inspection procedures. These inspection periods may vary depending on vehicle operating conditions.

RECOMMENDED TORQUE VALUES FOR TITAN AUSTRALIA AXLES

METRIC WHEEL STUDS	
STUD SIZE	TORQUE
M12	73 ft.lbs (100 N.m)
M14	122 ft.lbs (166 N.m)
M16	173 ft.lbs (235 N.m)
M18	253 ft.lbs (344 N.m)
M20	372 ft.lbs (504 N.m)
M22 Csk Nut	442 ft.lbs (600 N.m)
M22 Cap/w Nut	425 ft.lbs (575 N.m)
M24 Csk Nut	562 ft.lbs (762 N.m)
M24 Cap/w Nut	540 ft.lbs (732 N.m)

IMPERIAL WHEEL STUDS	
STUD SIZE	TORQUE
7/16"	61 ft.lbs (83 N.m)
1/2"	86 ft.lbs (117 N.m)
9/16"	134 ft.lbs (182 N.m)
5/8"	176 ft.lbs (239 N.m)
3/4"	297 ft.lbs (404 N.m)
7/8"	482 ft.lbs (654 N.m)

TITAN
TYRES • WHEELS • AXLES

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PRODUCT INFORMATION – 011

WEED-IT, TIP & NOZZLE PROTECTION IMPROVEMENTS

Applicable to all WEEDit Sprayer ground following booms

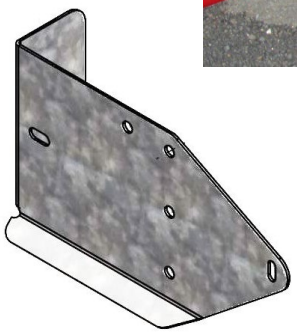
A variety of changes have been implemented to further improve nozzle protection.

1) Tip Protector, new part code AB243000-600D-1 is now a standard fit to the tip of all ground following booms.

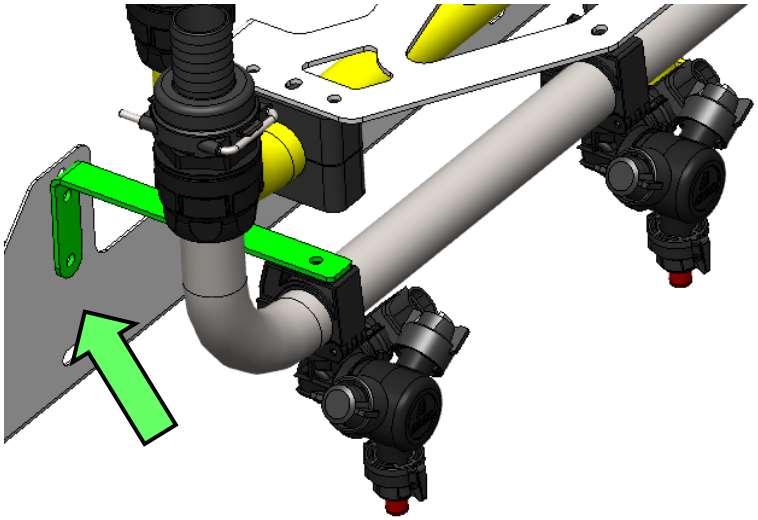
   Seen here fitted with a pair of XBMBB50-130 U-bolts.

   Note the nozzle protection rail is also bolted to the tip protector.

   The nozzle protector end guard, MP-333-1L (&R) mounting holes have been modified to better align with the tip protector / fit fence-lines.



2) To further improve rigidity of the nozzle protection rails is the new bracket MP-334 as shown here in green. This bracket can be used wherever the nozzle guard is deemed to be too flexible.



3) Note that in some cases nozzle protector end guards have been used where they are not needed hence adding to the unsupported weight / creating fatigue issues.

- Note the drawing assemblies incorporating the variable combinations of extra stiffening brackets and removal of unrequired tip guards have not yet been published. For dual line sprayers extra rigidity can also be achieved by using extra Stauff clamps (UP-434).

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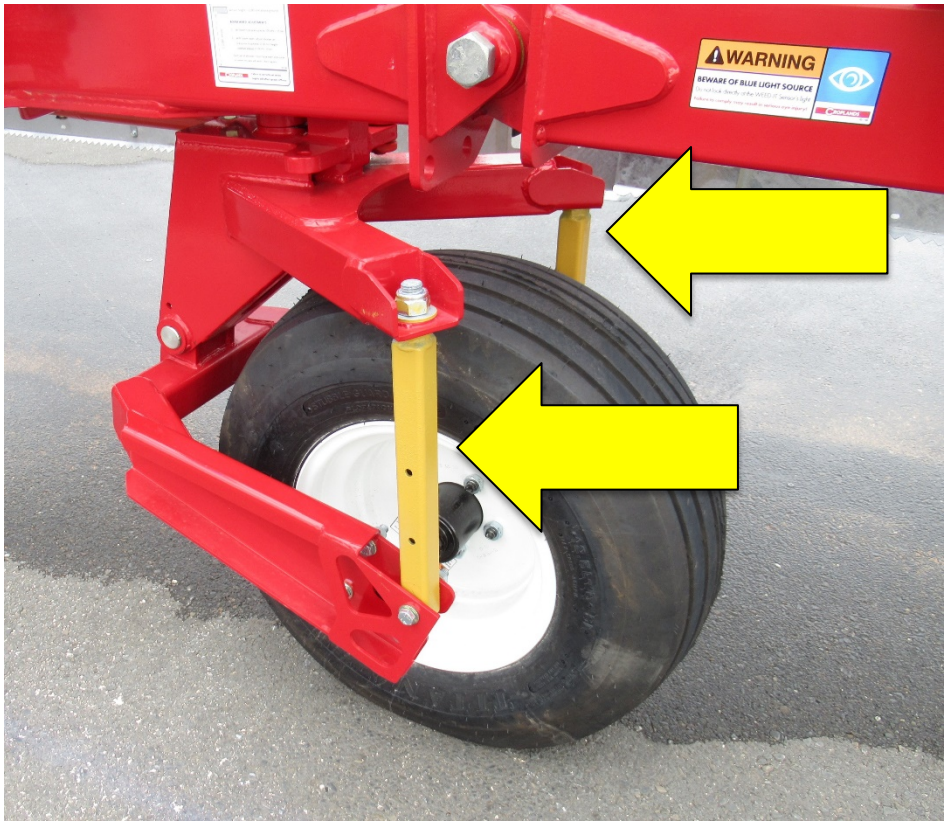
PRODUCT INFORMATION - 010

WEEDIT BOOM STEER WHEEL – SHIP WITH SHOCKER REPLACEMENT BAR

Applicable to the transport of all WEEDit Sprayers with ground following booms

In order to prevent damage to the shock absorber's airbags, the boom Steer Wheels are now being shipped with fixed transport bars (new part MP-379-1) fitted in place of the shock absorbers.



The 4 x shock absorbers are shipped with the sprayer, on a pallet along (along with the red boxes, etc). To be fitted at the unloading / setup stage.

The Transport, Unloading & Setup guide (BT-OMWEED-TRANS) has been updated. Now v4 spiral bound landscape.

The (hardware) Transport Kit information page has also been updated (version 4), part numbered, and added to stock as BT-OMWEED-MP375.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WEEDit Transport Kit, (MP-375) – version 4

WEEDit Transport Brackets & Frames: Return to Croplands after delivery.

WEEDit Sprayers with booms longer than 28 metres are shipped double tiered with the outer castor wheels supplied in separate frames. This requires a variety of brackets, braces & hardware, as per this document.

Customers are billed for the transport kit – which is refunded upon return of all components – all larger YELLOW items on a pallet along with smaller items, plates and hardware in the spare red crate.

- Note: From time to time items supplied will vary from the standard transport kit.
- Use these pages to check off supplied & returned components.
- Steer (main) wheel shock absorbers are exchanged with rigid bars (HP-379-1) for truck transporting.

Delivery will include the caster wheels bolted to the MP-379 frames, and then used to support the boom to the truck's trailer.

Delivery includes shocks, controllers, manuals etc all wrapped to a pallet along with a spare crate. Please use the pallet & spare crate to ship the transport kit components back to Croplands. Boom protection bars (pictured below) are usually fitted to the sprayer.

Versions shown below are for "RED" tech. QUADRO "BLUE" tech versions have some modification to the original parts.

MP-371-1L QTY: 1	MP-371-1R QTY: 1	MP-371-3 QTY: 2	MP-371-2 QTY: 4
Use plate MP-371-2	Use plate MP-371-2	Mount to MP371-1L / 1R	Use with MP371-1L / 1R

extra pads used on Quadro

BT-OMWEED-MP375, (v4) 09/08/2021 PRODUCT INFORMATION Specifications subject to change without notice

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PRODUCT INFORMATION – 009

WEED-IT 7000, PUMP PRIMING / VENT RELOCATED

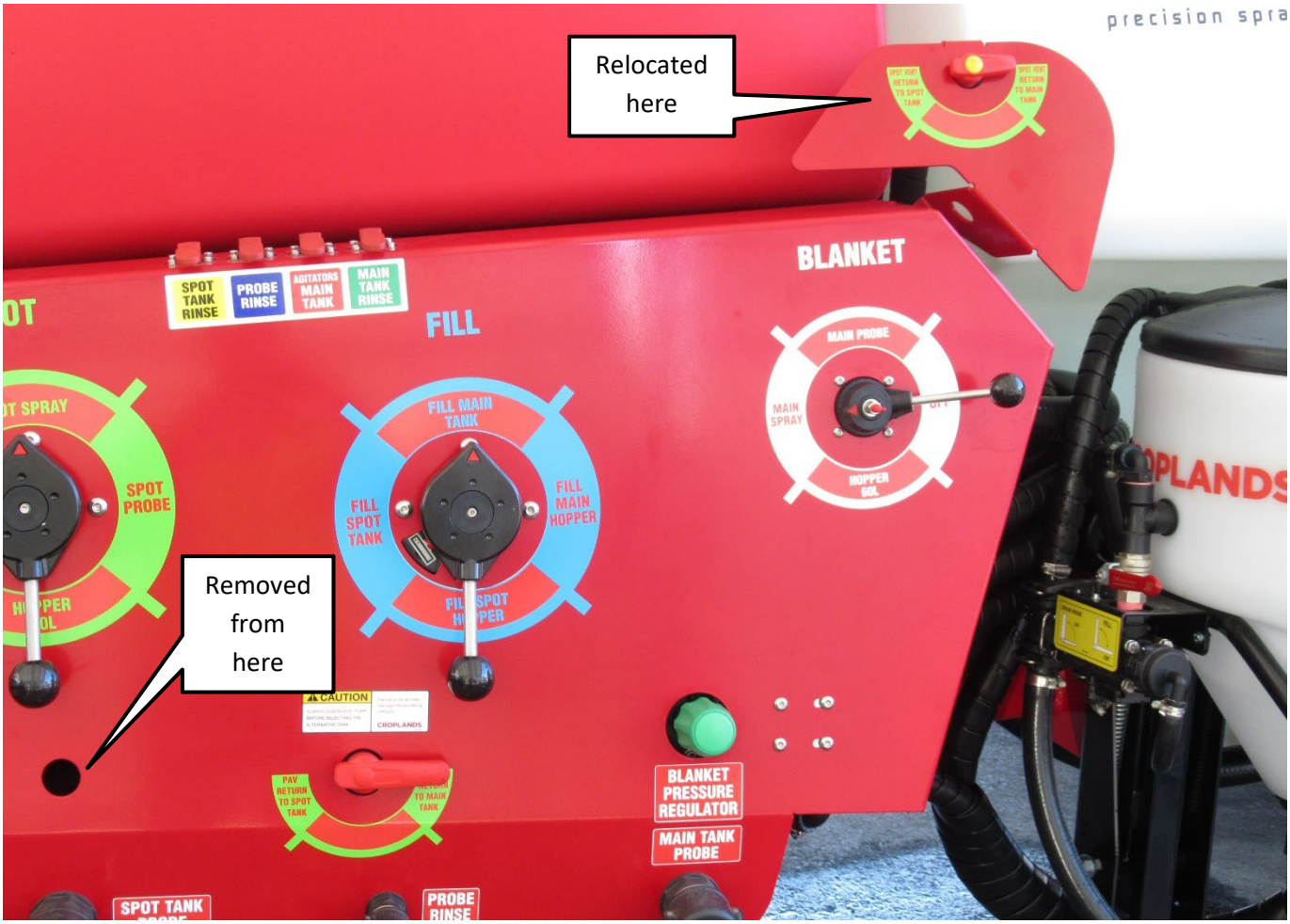
Only applicable to WEEDit 7000

On occasions, the WEEDit 7000's Spot spray centrifugal pump can be difficult to prime, especially from new or after an extended layoff, due to air trapped in the vent line. The fix is a repositioned ball valve to better bleed the air.

- The "SPOT VENT" ball valve has been moved from the lower left of the panel and relocated to a new mini panel (BP-750-27-3) to the top right-hand side of the main panel. The functions of pump vent return to SPOT or pump vent return to MAIN remain the same.

- It's recommended this ball valve be left open (set to Spot or Main) at all times as it will help prevent dead-heading / over-heating of the centrifugal pump.

All new WEEDit 7000's will be fitted with the above change. Note this issue is only applicable to the optical spray pump – the blanket line pump rarely (if ever) has this problem.



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PRODUCT INFORMATION – 008

2021 PEGASUS; BT-PRIME PRIME – RECIRCULATION- FLUSH

Pegasus models (ordered after July 1, 2021) have an added option, BT-PRIME. This is an advanced plumbing system that features high volume Boom Prime – Recirculation – Reverse Flush, for ….

- Improved spray efficiency (boom lines are always fully charged, ready to spray)
- Reduced lag times, wear and tear on the main servo valve
- Instant nozzle shut-off's

Standard* fitment for Pegasus 8000 & 7000 models (ordered after July 1, 2021) * Exceptions apply, see below.

Optional feature for Pegasus 6000 & 5000 models (ordered after July 1, 2021) * Exceptions apply, see below.

DETAIL:

Wherever this system is installed, the boom section valve plumbing will be revised to use Metering* and Bleeder valves fitted to the boom section valves.

Metering devices maintain a constant pressure when either turned on or off. Farmers using GPS Section Control will notice the rapid response turning nozzles on at the correct pressure for better application. (This system replaces the conventional controls whereby the Servo Valve chases the pressure demands as sections turn on and off which by today's standards is too slow).

Bleeder Valves rapidly dump the residual boom line pressure trapped between the Boom Section valves and the 1.4 bar non-drip valves at the nozzle body. Operators will notice fast boom section shut off with little dripping.

The BT-PRIME system is designed to aid agitation and ensure the boom is fully primed with fresh chemical from the very first headland spray hence increasing sprayer efficiency and productivity whilst also reducing product wastage and minimising environmental impact.

The system recirculates fluid from the outside of the boom towards the centre within seconds, ensuring the tank mix is correct from the very first spray.

Flushing the boom is safe and efficient with the system reverse flushing from the outside of the boom through the boom section valves, returning to the main tank or to ground. Using a single tap much safer.

The system is activated via the controller master switch being set to OFF in the tractor cab making it safe and efficient for the operator.

* Exceptions: BA7000 Controller doesn't support metering valves (fitted with bleeder valves only). Pegasus 8000's existing boom flush system (multiple boom flush taps) is replaced by a "flush to tank" or "flush to ground" ball valve (as use on all BT-Prime's).

OPERATION:

(1) **SETTING** the Metering valves (constant pressure regulating valves).

Having well-adjusted metering valves will significantly improve the main servo valve's functionality and life cycle. Generally, the metering will only require checking when making a major change in nozzle size.

Setting up or testing is best done with fresh water in the main tank.

a) Pump on. Turn all sections ON (in spray mode).

b) Set the system pressure to slightly above expected operational pressures – say 4 or 5 Bar.

c) The "**secret**" is to set each section one by one. Individually turn OFF each section and see what happens to the pressure. Adjust the metering valve (red knob) until the pressure comes back to chosen pressure (i.e. 5 bar). Once set, turn the section back on – the pressure shouldn't change.

- Note; there is now a pressure gauge connected to the bank of section valves to make this process easier from the back of the sprayer. Flow goes back to tank.
- The actual number indicated on the metering valve is not important as can be seen in the photo.

d) Continue this process for all sections, one at a time.

e) Once completed, perform a final check by turning section(s) on and off at random. The pressure should always stay the same.

(2) The **PRIME** / Recirculation system is automatically operational once the pump is running, section valves off and the rate controller master switch is OFF.

(3) **FLUSHING** (Quick flush of nozzles to ground).

a) Select the fresh water source (Flushing tank).

b) Perform a conventional boom flush – Master on, all boom sections on.

(4) **REVERSE FLOW FLUSH**.

c) Turn sections valves OFF, turn Master OFF. The full reverse flow flush is now active, flushing to either the main tank or ground (as per below).

d) The BT-PRIME system has a Flushing ball valve located on the left-hand boom parallelogram arms. Select either "flush to ground", or "flush to main tank", as required.

(5) Upon completion of flushing, turn the flushing ball valve back to "flush to main tank". Note this is the normal ball valve position for a Quick flush of the nozzles to ground – as per point #3.

(6) Refer to manual for tank rinse, agitator rinse and tank draining functions.

NOTE: With the BT-Prime option, there are no individual boom flushing taps fitted to the boom.

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PRODUCT INFORMATION - 007

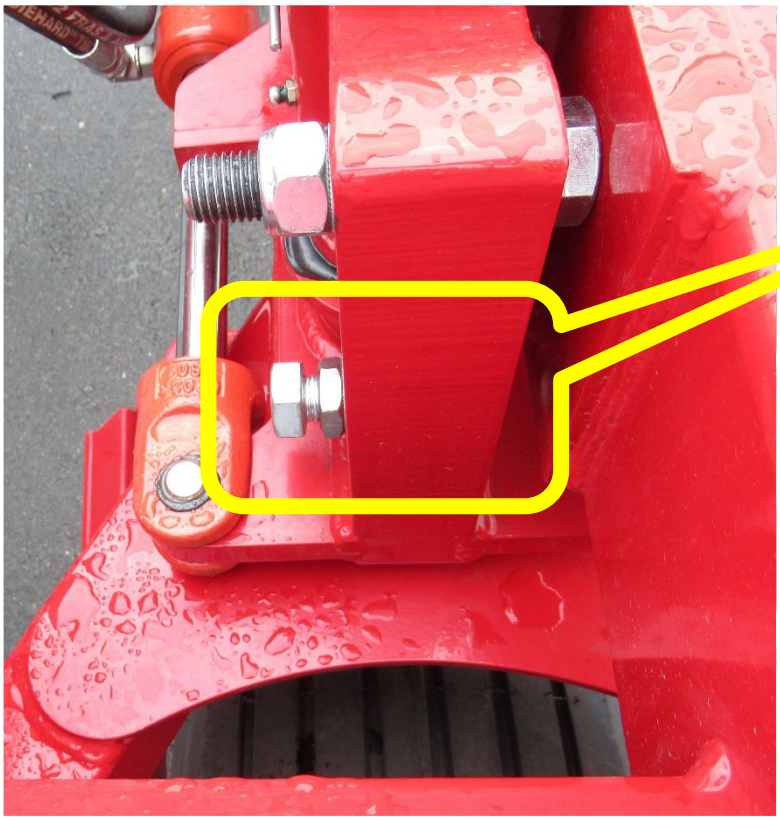
WEED-IT, REMOVE STOP BOLT FROM STEER WHEEL ASSY

Removing this bolt may reduce tyre scrubbing.

It's been discovered that the use of the "stop bolt" in float / spraying mode is not necessary and in fact might be contributing to the scrubbing of Steer wheel tyres on WEEDit trailed boom sprayers.

Remove the highlighted bolt on both boom Steer wheels assy.

Do not remove the upper bolt which is used to set wheel tracking in "transport" mode.



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PRODUCT INFORMATION - 006

WEED-IT, PAV BYPASS RETURN BALL VALVE, NEW LABEL

Only applicable to WEEDit dual line or single line – dual tank sprayers.

Best practice is to always disengage the centrifugal pump before moving the PAV return ball valve position from Spot to Main or visa-versa as there is a risk of dead-heading the plumbing system.

- It's not a common problem as changing the PAV return will often be done when …
    - the pump is not running or
    - the pump is running slowly and hence there is little or no flow through the PAV's bypass return line.
- However, with the introduction of the boom recirculation system, pumps are being operated at higher speed and hence the risk of failure has increased.

Therefore, all new dual tank WEED-IT's will be fitted with the new XD-204 label as per below.

*Note the new label shown below is **not to scale** / shown oversize.*