



TranTank[®]
INTERNATIONAL

Operator's Product HandBook

SpotPro[™] & SpotPro[™] Deluxe Field Sprayer



“HELPING TO DEVELOP AND PROTECT THE LAND”

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Disclaimer

All information, illustrations, and specifications contained in this manual are based on the latest product information available at the time of this publication's printing. TransTank International (TTi) reserves the right to alter and substitute specifications and methods at any time, in line with our commitment to continuous improvement.

No patent liability is assumed with respect to the use of information contained within this manual. While every precaution has been taken in the preparation of this manual, TTi assumes no responsibility for errors or omissions.

Thank you for purchasing a TTi SpotPro™ Motorised Spot Sprayer (SpotPro), which will provide many years of reliable service when operated and maintained in accordance with this manual.

TTi manufacture a range of SpotPro units, from 200 through to 400 litre tanks, supplied with a petrol operated pump and hose reel, with optional spray boom arrangements available. This manual describes the operation, driving stability and maintenance procedures applicable to all units, noting additional requirements to options where necessary.

All TTi SpotPro tanks are rotationally moulded from quality polyethylene, purpose designed and manufactured to high standards. The SpotPro is a compact portable unit for the back of a utility or trailer, while the SpotPro Deluxe is purpose designed for Utility Terrain Vehicle (UTV) tub-mounting. SpotPro units are designed for herbicide or pesticide spraying.

The SpotPro units are supplied complete, tested and ready to mount to your vehicle. TTi warrants that the SpotPro has been designed and built for its intended purpose as a water or pesticide/herbicide spray unit.

The owner is responsible to ensure that the equipment is operated in accordance with this manual, with Australian WorkSafe requirements, applicable road rules and local council regulations. TTi is not liable for any loss, injury or death resulting from the failure to observe all safe working regulations as required by law.

Included with your SpotPro unit is the following documents:

- Operator's Handbook (this manual, which includes the Warranty Registration Card)
- Integral Spray Marshall and Honda petrol pump manufacturer's handbook
- Tank Quality Check Form. This is your verification that the unit has been quality checked, and verifies the serial number affixed to the unit.

Safety

This manual is intended for use by personnel experienced in the use of this and similar equipment. Read and understand this manual before attempting to operate or perform routine maintenance on this equipment. Your safety is of prime priority.



A WARNING highlights an essential operating or maintenance procedure, practice, condition or statement, which, if not strictly observed, could result in injury or death of personnel, or long-term health hazards.



A CAUTION highlights an essential operating or maintenance procedure, practice, condition or statement, which, if not observed, could result in damage or destruction of equipment.



A NOTE highlights or clarifies an essential systems description, operating or maintenance procedure, condition or statement.

General Safety Instructions

1. This unit is designed and manufactured solely for the purpose of carrying and spraying herbicides and pesticides. Under no circumstances should it be used for any other purpose. It must never be used for transporting fuel.
2. Only authorised and trained personnel are to operate this equipment. Operators must have read and fully understood this manual before operating the SpotPro unit.
3. Do not operate the SpotPro unit anywhere near bystanders, livestock, watercourses or any non-targeted vegetation that may be in danger from spray drift contamination.
4. Wind direction and speed must be taken into account, as windy conditions may endanger the operator or damage to adjacent non-target vegetation. Avoid spraying on hot and sunny days or when wind speed exceeds 6.5km/h.
5. Do not operate this equipment while under the influence of alcohol or any drugs that could impair your capabilities in any way.
6. Personal Protection Equipment (PPE) must be worn when operating the petrol pump on the SpotPro unit. Exposure to excessive noise over an extended period can cause impairment or loss of hearing.
7. PPE appropriate to the chemicals being used must be worn at all times when operating the SpotPro. As a minimum, the PPE should include coveralls, gloves and boots. A face shield and PVC apron are recommended depending on the task. It is recommended that the following documents should be read and understood by the operator:
 - Australian Standard for Chemical protective clothing AS3765
 - Australian Standard for Respiratory protection devices AS1715
8. Ensure the capacity of the vehicle is suitable for the loaded mass of the SpotPro. Refer to the vehicle's operator manual for safe working loads, correct securing points and relevant safety instructions. Do not exceed the carrying and braking capacity as specified by the vehicle manufacturer. As a guide, one litre of water weights one kilogram (kg), therefore a full 400 litre SpotPro will weigh in excess of 490kg.
9. The unit must be securely restrained on the vehicle. Ensure all fasteners are tightened and secure before operation.
10. Care should be taken at all times, particularly when operating on rough or steep terrain. Drivers should be aware of fluid surge affecting the vehicle's centre of gravity.
11. The SpotPro must never be left unattended while being filled with fluids.
12. Do not operate the pump when there is no fluid in the tank.
13. Do not disconnect any hoses, nozzles or filters while the equipment is operating. Disconnecting any components while under pressure may result in uncontrolled fluid discharge which may be hazardous.
14. At completion of the operation, switch the pump off and relieve any residual pressure by squeezing the spray gun trigger or opening an optionally fitted spray boom valve.
15. At completion of the operation, decontaminate the SpotPro tank and spray lines. Drain any residue chemicals and store in a sealed container. Dispose of any unwanted chemicals and tank rinse residue in accordance with current environmental and workplace health and safety regulations.
16. The SpotPro has safety labels affixed to various locations on the unit. These labels should be kept clean and legible, and replaced if damaged.
17. Any unauthorised modifications to this equipment may affect its function and create a serious safety risk. Any unauthorised modifications will void any warranty on the unit.

General Information

Specifications

Tank	UV stabilised, impact resistant polyethylene tank available in 220 and 400 litres (SpotPro) or 200 and 400 litres SpotPro Deluxe)
Standard Equipment	Honda petrol engine GX35 with Spray Marshal 12L/min pump
	Pressure regulator
	30m hose with hose reel with spray gun
Options	Hot dipped galvanised steel frame (SpotPro Deluxe)
	Versatile Spray Boom (with Hayman Reece HitchIt)
	#2 Boomless Nozzle (with Hayman Reece HitchIt)
	BoomTech Nozzle Kit (with tailgate bracket)

Description

The TTI SpotPro Sprayer Unit is designed to carry and distribute herbicides and pesticides using a self-contained pump and various fluid dispensing systems. The SpotPro is configured in two different styles:

- SpotPro – 220 or 400 litre tank, designed for utility or trailer trays
- SpotPro Deluxe – 200 or 400 litre tank, designed for UTV trays.

The SpotPro units have the following features, refer to Figure 1 and Figure 2.

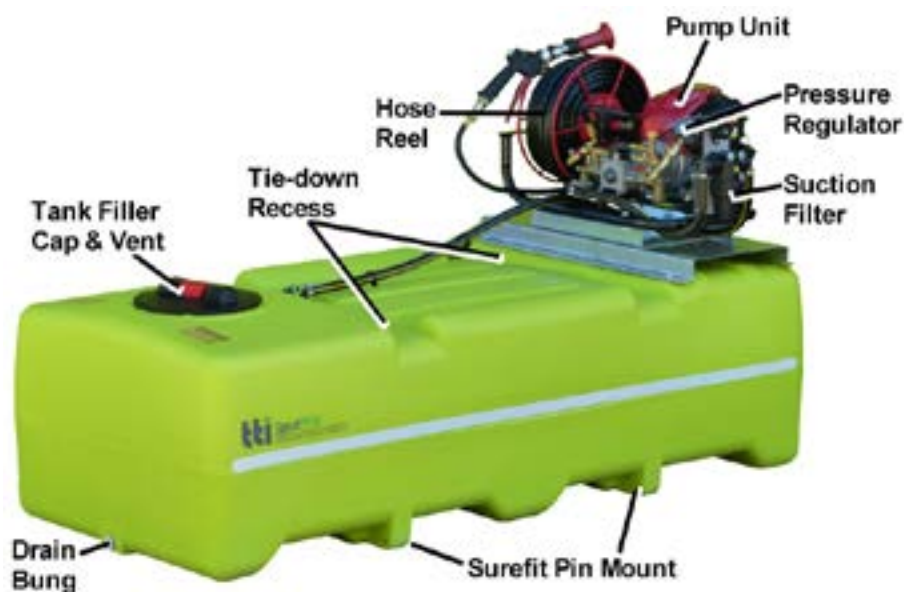


Figure 1 – Component Identification – SpotPro 400L

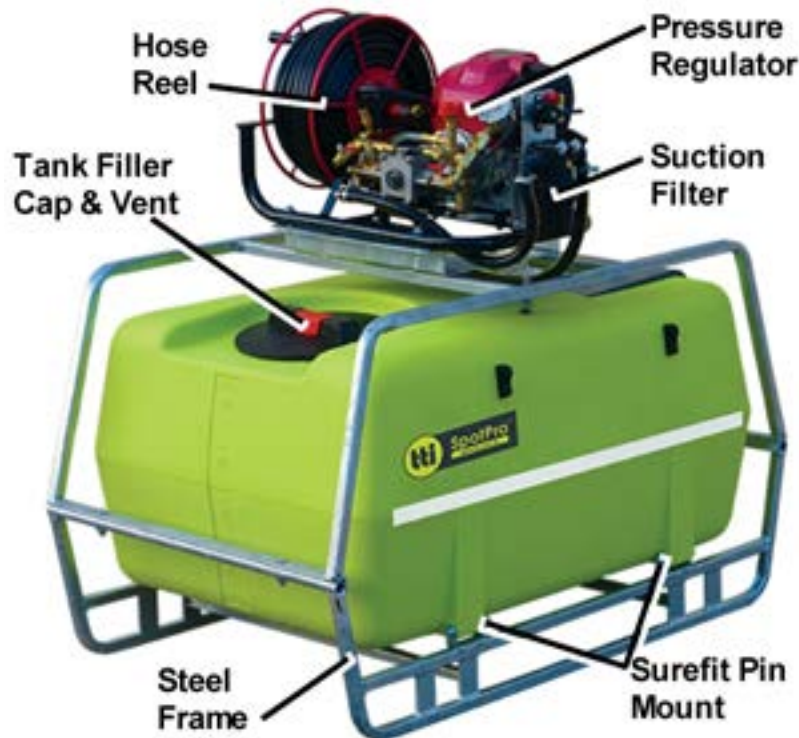


Figure 2 – Component Identification – SpotPro Deluxe 200L Tank

All TTI tanks are constructed from UV stabilised, impact resistant, virgin material polyethylene. The tank is fully drainable and is fitted with an internal basket strainer under the filling cap.

The SpotPro Deluxe tanks are mounted in an integral steel frame using the Surefit pin mount on the base of the tanks. The standard SpotPro units have the Surefit pin mount on the base of the tanks, and either one (220L) or two (400L) tie-down recesses in the tank, for securing to the vehicle.

Pump Unit

All SpotPro units are fitted with a 12L/min Spray Marshal pump with a Honda GX35 recoil (pull) start petrol engine.

If the spray gun or spray boom is not in operation when the pump is running, the fluid bypasses back into the tank via the hose operation lever adjacent to the pressure regulator.

30m Hose Reel and Spray Gun

An optional manually operated hose reel containing 30m of 10mm diameter hose is connected to a trigger actuated spray gun with adjustable nozzle. The hose is pulled out manually from the reel and retracted using the handle on the side.

The nozzle adjusts from jet through to mist sprays by rotating the nozzle head. When the trigger is squeezed, the fluid is discharged; when the trigger is released, the fluid bypasses back into the tank.

Pressure Regulator

A pressure regulator and pressure gauge are fitted to the pump discharge flange to control line pressure and prevent pump cavitation. The regulator is adjustable depending on the operation requirements – for boom spraying, the regulator is to be set to approximately 3 bar; with spot spraying via the hose reel the regulator is set to approximately 5 bar.

Suction Filter

Adjacent to the pump a filter is installed on the suction line. The filter has a removeable filter element for easy cleaning.

Versatile Spray Boom

An optional 1.2m Versatile spray boom can be mounted to the back of the vehicle using the optional Hayman Reece HitchIt attachment. The spray boom has three adjustable centre nozzles and two off-centre end jets to provide a range of spray volumes and patterns, which can achieve a 4m width swath.

The spray boom is operated by a manual valve to start up or stop spray operations. When the valve is closed, the fluid bypasses back into the tank.

Boomless Nozzle Kit

An optional brass boomless nozzle kit can be mounted to the optional HitchIt attachment, which fits any 50mm Hayman Reece tow hitch. The nozzle is available in four sizes and is ideal for blanket spraying, especially in rough country spraying and for locust control. By swapping nozzle plates, the nozzle can be used for either a 90 or 180-degree spray swath.

BoomTech Nozzle Kit

An optional BoomTech nozzle kit can be mounted to the vehicle or trailer with a tailgate bracket. The BoomTech has two volume adjustable nozzles, ideal for fence lines, orchard, blanket and end row spraying.

Manually Operated Valve

A manually operated valve is fitted to feed to the spray boom. The valve switches from the hose reel feed to the spray boom feed.

Frame

The chassis frame of the SpotPro Deluxe units is an all steel, fully welded construction and hot dip galvanised for corrosion resistance.

Machine Limitations

The SpotPro is subject to operating limitations. It is the operator's responsibility to ensure that this equipment is being operated safely and within these limitations.

Driving Stability

The SpotPro unit is heavy when filled with fluid. To maintain stability while operating this unit:

- Ensure the vehicle tyres are inflated to their correct pressure at all times. Underinflated tyres can cause excessive lateral motion of the tyre, which may cause a rollover.
- Allow extra room for braking and turning when the tank is full.
- Ensure any side gradient (slope) is accounted for, especially when the SpotPro tank is full, as the vehicle may have a higher centre of gravity.

Spray Boom Calibration

Accurate calibration is an essential element of any spraying function as it ensures that the chemical is applied at the rate specified on the product label. Application in excess of the recommended rate may be dangerous, can damage crops and is uneconomical.

Calibration must be carried out:

- When spraying for the first time with new spray equipment
- At the beginning of each season
- After changes of nozzle tips, spraying pressure or vehicle speed
- After every 100 hectares of spraying

PPE appropriate to the chemicals being used must be worn at all times when calibrating the SpotPro. As a minimum, the PPE should include coveralls, gloves and boots. A face shield and PVC apron are recommended.

Calibration Procedure

Check the label on the chemical container for the application rate and recommended spray nozzle type, refer to Figure 3, which shows the TeeJet AIXR nozzle application chart. To apply a specific rate of chemical to the target surface, work out the:

- total sprayer output,
- travel speed, and
- the swath width.

Using these parameters, the application rate is calculate as follows.

Measure Total sprayer output [L/min]

Set the pressure at the correct level for spraying determined by the type of nozzles. All nozzles used for spraying should be left on. For initial trials, set the pressure regulator at approximately 2 bar and adjust as needed.

- Fill the spray tank with clean water, refer to Filling the SpotPro Tank procedure below. Run the sprayer at the correct pressure with all nozzles operating.
- Place a measuring jug under first nozzle for one minute, then measure how much water is in the jug.
- Repeat for all nozzles. Nozzle output should not vary by more than 10%. If it does, the nozzle could be worn or damaged and should be replaced.
- Add all the jug measurements to find the total sprayer output in litres per minute.

Measure the travel speed [km/h]

The normal speed for spraying with small boom sprayers is 4–10 km/h. The slower the travel, the higher the application rate. Adjust travel speed to suit ground conditions.

Measure how many seconds it takes to travel 100 metres with the sprayer attached and half full.

Calculate your travel speed by inserting the time in seconds into the following formula: *Travel speed (km/h)*
= distance travelled in metres (say 100m) x3.6 / Time taken (in seconds)

Calculate spray application rate [L/Ha]

First, measure the swath width in metres. For general broadcast spraying, the swath width is equal to the number of nozzles multiplied by the nozzle spacing. For band spraying the swath width is equal to the total of all the band widths. Calculate the application rate using the following formula:

Application rate (L/ha) = (600 x total sprayer output (L/min)) / (swath width (m) x travel speed (km/h))

Example: If total sprayer output is 5 L/min, speed is 8 km/h, and swath width is 6m, Application rate = (600 x 5 = 62.5 L/ha)/(6 x 8)

If the application rate is less than specified, increase the pressure and repeat calibration to achieve the correct rate. Once the required rate is achieved, note the following parameters for future reference when using this chemical:

- Nozzle Fitted
- Type (Drop Size)
- Application Rate
- Spray Pressure
- Forward Speed.

Nozzle Icon	Pressure (bar)	Drop Size	LERAP Ratings	Capacity One Nozzle in L/Min	l/ha 50 cm								Cap Part Number	
					5 km/h	6 km/h	7 km/h	8 km/h	10 km/h	12 km/h	16 km/h	18 km/h		20 km/h
	1.0	XC	—	0.34	81.6	68.0	58.3	51.0	40.8	34.0	25.5	22.7	20.4	T1A41A-CELLR
	2.0	C	—	0.48	115	96.0	82.3	72.0	57.6	48.0	36.0	32.0	28.8	
	3.0	C	—	0.59	142	118	101	88.5	70.8	59.0	44.3	39.3	35.4	
	4.0	M	—	0.68	163	136	117	102	81.6	68.0	51.0	45.3	40.8	
	5.0	M	—	0.76	182	152	130	114	91.2	76.0	57.0	50.7	45.6	
	6.0	M	—	0.83	199	166	142	125	99.6	83.0	62.3	55.3	49.8	
	1.0	XC	—	0.46	110	92.0	78.9	69.0	55.2	46.0	34.5	30.7	27.6	T1A41A-CELLR
	2.0	VC	—	0.65	156	130	111	97.5	78.0	65.0	48.8	43.3	39.0	
	3.0	C	—	0.79	190	158	135	119	94.8	79.0	59.3	52.7	47.4	
	4.0	M	—	0.91	218	182	156	137	109	91.0	68.3	60.7	54.6	
	5.0	M	—	1.02	245	204	175	153	122	102	76.5	68.0	61.2	
	6.0	M	—	1.12	269	224	192	168	134	112	84.0	74.7	67.2	
	1.0	XC	**	0.57	137	114	97.7	85.5	68.4	57.0	42.8	38.0	34.2	T1A41A-CELLR
	2.0	VC	**	0.81	194	162	139	122	97.2	81.0	60.8	54.0	48.6	
	3.0	VC	**	0.99	238	198	170	149	119	99.0	74.3	66.0	59.4	
	4.0	C	**	1.14	274	228	195	171	137	114	85.5	76.0	68.4	
	5.0	C	**	1.28	307	256	219	192	154	128	96.0	85.3	76.8	
	6.0	M	—	1.40	336	280	240	210	168	140	105	93.3	84.0	
	1.0	XC	**	0.68	163	136	117	102	81.6	68.0	51.0	45.3	40.8	T1A41A-CELLR
	2.0	VC	**	0.96	230	192	165	144	115	96.0	72.0	64.0	57.6	
	3.0	VC	**	1.18	283	236	202	177	142	118	88.5	78.7	70.8	
	4.0	C	**	1.36	326	272	233	204	163	136	102	90.7	81.6	
	5.0	C	**	1.52	365	304	261	228	182	152	114	101	91.2	
	6.0	M	—	1.67	401	334	286	251	200	167	125	111	100	
	1.0	UC	***	0.91	218	182	156	137	109	91.0	68.3	60.7	54.6	T1A41A-CELLR
	2.0	XC	**	1.29	310	258	221	194	155	129	96.8	86.0	77.4	
	3.0	VC	**	1.58	379	316	271	237	190	158	119	105	94.8	
	4.0	VC	**	1.82	437	364	312	273	218	182	137	121	109	
	5.0	C	**	2.04	490	408	350	306	245	204	153	136	122	
	6.0	C	—	2.23	535	446	382	335	268	223	167	149	134	
	1.0	UC	***	1.14	274	228	195	171	137	114	85.5	76.0	68.4	T1A41A-CELLR
	2.0	XC	***	1.61	386	322	276	242	193	161	121	107	96.6	
	3.0	VC	**	1.97	473	394	338	296	236	197	148	131	118	
	4.0	VC	**	2.27	545	454	389	341	272	227	170	151	136	
	5.0	C	**	2.54	610	508	435	381	305	254	191	169	152	
	6.0	C	—	2.79	670	558	478	419	335	279	209	186	167	
	1.0	UC	***	1.37	329	274	235	206	164	137	103	91.3	82.2	T1A41A-CELLR
	2.0	XC	***	1.94	466	388	333	291	233	194	146	129	116	
	3.0	VC	***	2.37	569	474	406	356	284	237	178	158	142	
	4.0	VC	**	2.74	658	548	470	411	329	274	206	183	164	
	5.0	C	**	3.06	734	612	525	459	367	306	230	204	184	
	6.0	C	—	3.35	804	670	574	503	402	335	251	223	201	
	1.0	UC	—	1.82	437	364	312	273	218	182	137	121	109	T1A41A-CELLR
	2.0	XC	—	2.58	619	516	442	387	310	258	194	172	155	
	3.0	VC	—	3.16	758	632	542	474	379	316	237	211	190	
	4.0	VC	—	3.65	876	730	626	548	438	365	274	243	219	
	5.0	VC	—	4.08	979	816	699	612	490	408	306	272	245	
	6.0	C	—	4.47	1073	894	766	671	536	447	335	298	268	
	1.0	UC	—	2.28	547	456	391	342	274	228	171	152	137	T1A41A-CELLR
	2.0	UC	—	3.23	775	646	554	485	388	323	242	215	194	
	3.0	XC	—	3.95	948	790	677	593	474	395	296	263	237	
	4.0	VC	—	4.56	1094	912	782	684	547	456	342	304	274	
	5.0	VC	—	5.10	1224	1020	874	765	612	510	383	340	306	
	6.0	VC	—	5.59	1342	1118	958	839	671	559	419	373	335	

E: Always double check your application rates. Tabulations are based on spraying water at 21°C.

DROPLET SIZE CATEGORIES

XF EXTREMELY FINE	VF VERY FINE	F FINE	M MEDIUM	C COARSE	VC VERY COARSE	XC EXTREMELY COARSE	UC ULTRA COARSE

Droplet size may vary with nozzle capacity, spray angle and spray pressure.

Figure 3 – AIXR Application Chart

SpotPro Operating Instructions

Before first use

Your SpotPro Spray Unit is delivered fully assembled and ready to be fitted onto the vehicle. Before use, it needs to be set up using the following instructions:

- Complete the warranty registration online at www.tti.com.au/warranty-registration, or use the Warranty Registration Card at the back of this handbook.
- Store this handbook, along with the Tank Quality Check Form and pump unit's manual in a safe and easily accessible place for future reference.



WARNING! The operator must fully understand all aspects of this handbook. Do not operate the SpotPro if you are unfamiliar with its operation until you have read this handbook.

- Read and thoroughly understand this handbook, paying particular attention to all safety requirements, before using the SpotPro for the first time.
- Check that all fittings, valves and hoses are secure following transit, and are not damaged in any way.
- Inspect the tank for any damage or abrasions that may occur during transit.



CAUTION! The unit must be securely mounted to the vehicle. Failure to do so may result in the unit moving or falling off the moving vehicle. Warranty is conditional on the unit being correctly mounted.

- Position your SpotPro unit onto the vehicle and mount securely. Tie-down straps can be located into the tie-down recesses on the SpotPro tank – the 220L tank has one recess, the 400L tank has two. The tie-down straps must be rated to at least the total mass of the unit when filled with fluid. Alternatively, the tanks incorporate the Surefit pin mount holes on its base, to enable a bolt and bracket system to secure the unit to the vehicle. The 400L unit has four Surefit mount points, the 22L unit has two, refer to Figure 4.

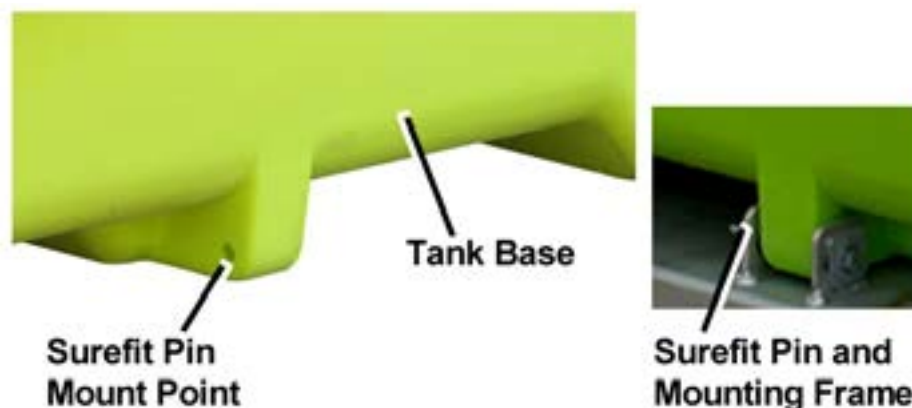


Figure 4 – Component Identification – SpotPro Deluxe 200L

- For the SpotPro Deluxe, the integrated tank frame may be either bolted to the vehicle or secured by tie-down straps.



CAUTION! The engine must be inspected and prepared in accordance with the manufacturer. Failure to fulfil this requirement may void the engine's warranty.

- Prepare the pump engine in accordance with the Honda manual supplied with your SpotPro unit. Fill the fuel tank with fresh unleaded petrol.
- Where the optional spray boom is ordered (refer to Figure 5), install it to the vehicle and connect the hose to the manually operated valve at the pump manifold.
- It is recommended that at first use, the SpotPro is filled with water for spray boom calibration purposes and for the operator to become familiar with the characteristics of the unit.

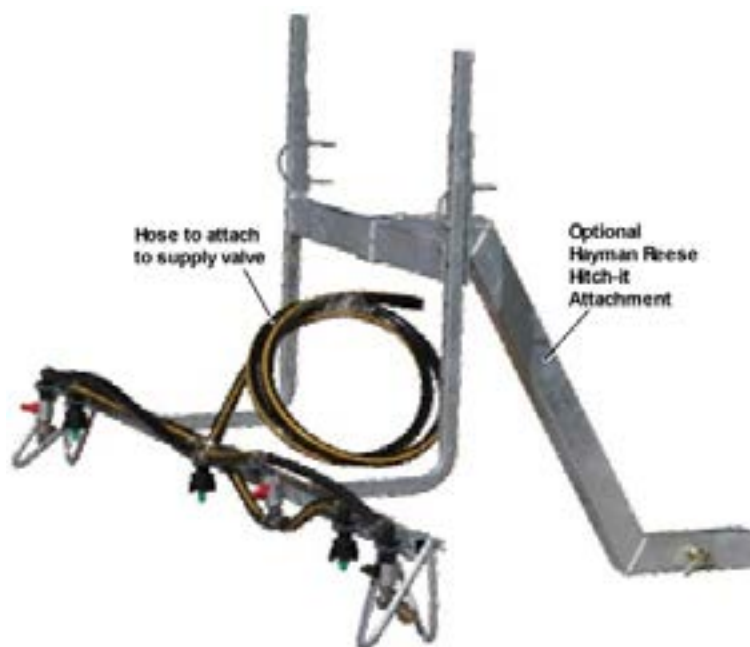


Figure 5 – Spray Boom Arrangement

Filling the SpotPro Tank



WARNING! Ensure the filling area is in an open, well ventilated space if filling with chemicals. Follow the instructions provided with the chemicals or the applicable Safety Data Sheet.

Mixing and filling the SpotPro should be undertaken at a carefully chosen site, away from any risk of spillages draining into water courses or into environmentally sensitive areas. Children and animals must always be kept away from mixing and filling operations.

The unit's tank is filled as follows:

- Open the tank filler by twisting and lifting the cap.
- Withdraw the internal basket strainer and inspect it for any debris. Clean it if required and reinstall it into the top of the tank.

- Follow the chemical manufacturer's instructions and safety precautions carefully, taking note of the order in which the products are added to the tank.
- Measure the correct quantities of chemicals using clean measuring containers specifically for this purpose only, then add the chemicals to the tank.
- Rinse out the measuring containers and any empty containers and pour the all rinsing's into the SpotPro tank.



CAUTION! Do not overfill the tank. This may result in chemical spillage.



CAUTION! The SpotPro must never be left unattended while being filled with fluid.

- Top up the tank with water to the required level, ensuring it is not overfilled.
- Thoroughly mix the contents by stirring with a suitable paddle or starting the pump with the pressure regulator knob turned anti-clockwise to the BYPASS ("0" pressure) position.
- Upon completion of filling the SpotPro tank, replace the filler cap and twist to tighten.
- Wash off any spillage from outside the tank.
- Close the chemical supply containers and store appropriately. Any empty containers must be thoroughly rinsed and set aside for collection and disposal in compliance with environmental and work safety requirements.

Operating Instructions

The SpotPro is started and operated as follows, refer to Figure 6:

- Position the vehicle at a suitable point of the operations area.
- Confirm the tank contains the required chemical or water quantity.



NOTE! Ensure the pressure regulator is set to the minimum position.

- At the pump, check that the pressure regulator is set to the minimum position by turning the knob fully anti-clockwise.

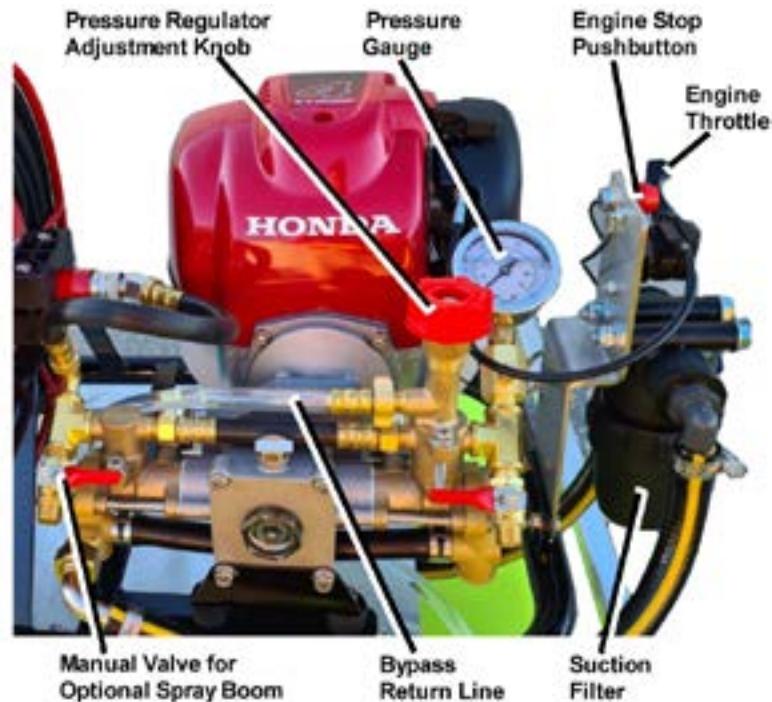


Figure 6 – Pressure Regulator

- Check that the optional spray boom valve is in the CLOSED position.
- Start the pump, refer to Petrol Pump Operation procedure below.
- Turn the pressure regulator knob clockwise to the required pressure – approximately 3 bar for spray boom operation, and 5 bar for hose operation. Refer to the calibration procedure described above for the actual required pressure setting for spray boom operation.
- For spraying operations, refer to:
 - Spray Boom Operation
 - Hose Spray Operation

Petrol Pump Operation

The SpotPro's Honda GX35 petrol pump engine is started as follows, refer to Figure 7:

- Turn the fuel tap to ON.
- Set the choke lever to the closed position.



CAUTION! Ensure the engine's throttle is set to idle if the engine is cold. Do not adjust the throttle to maximum speed until the engine has warmed up.

- Check that the remote-mounted throttle (located above the suction filter) is set to the idle position. If restarting a warm engine, the throttle can be left at normal engine operating speed.
- Grasping the pull-start handle, firmly pull to start the engine. This may need to be repeated 2-3 times. If the engine fails to start, refer to the supplied pump manual.

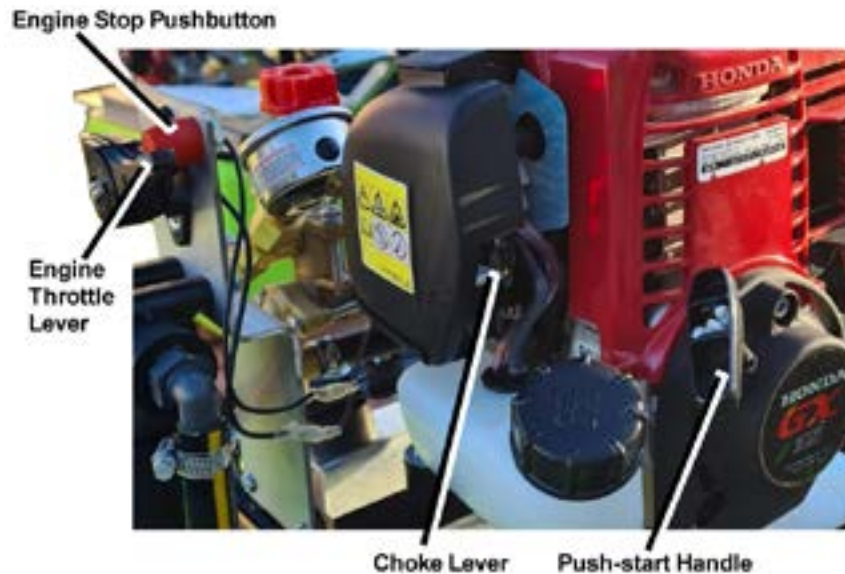


Figure 7 – Petrol Pump Details

- Once the engine starts, slowly move the choke lever to the open position.
- When the engine has warmed up, slowly increase the engine speed to a medium setting, which should result in the required performance while minimising the fuel consumption and excessive engine noise.
- When the engine needs to be stopped, press the red STOP button adjacent to the engine throttle lever.



CAUTION! Ensure the engine's grease cups are turned in every two hours of engine operation.

- Check the two grease cups located at the back of the pump, refer to Figure 8. Rotate the grease cups 2-3 turns clockwise every two (2) hours of operation. Once the grease caps are fully wound in, undo and refill with general purpose grease.



Figure 8 – Petrol Pump's Grease Cups

If the SpotPro is not going to be used within the next few hours, shut the system down as follows:

- Set the engine throttle lever to the idle position.
- Turn the fuel tap to OFF.

Spray Boom Operation



WARNING! Before commencing spraying, plan the work effectively to minimise potential contamination of adjacent areas.



NOTE! The optional spray boom, boomless spray nozzle or BoomTech nozzle are all operated in the same way.

Set up and operation of the optional spray boom arrangements is conducted as follows:



CAUTION! Do not spray in windy conditions, where spray drift contamination may occur. Spray drift can be reduced by lower nozzle height, lower pressures or by fitting larger nozzles.

- Set the required spray selection by opening or closing the individual control valves on the spray nozzle lines, refer to Figure 9 for the VersatileBoom option.
- Position the vehicle at the starting point of the operations area.

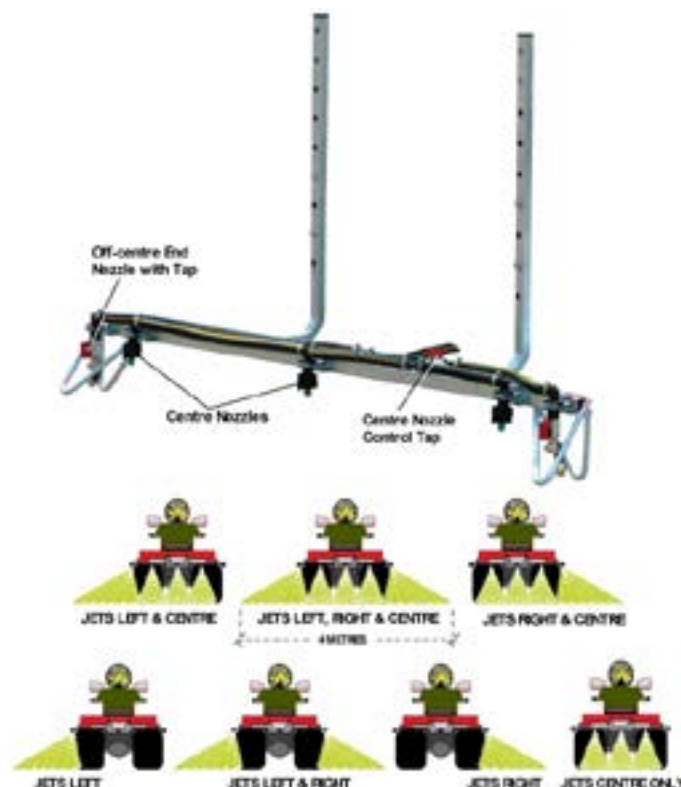


Figure 9 – Spray Boom Details

- Start the pump's engine, refer to the Petrol Pump Operation section.
- Adjust the throttle to the required speed and turn the pressure regulator knob to the required setting, as determined during calibration.
- Open the manual valve feeding the spary boom (or other optional spray devices).
- Immediately commence driving the vehicle at the speed determined during calibration to achieve the required spray outcome.
- At the end of each swath or before turning around, shut off the spray boom by closing the manual valve. When commencing the next swath, open the valve again.

Hose Spray Operation

Set up and operation of the hose spray system is conducted as follows:



CAUTION! Suitable PPE must be worn by the operator when conducting manual hose spraying operations.



CAUTION! Do not spray in windy conditions, where spray drift contamination may occur.

- Position the vehicle at a suitable point of the operations area.
- Check that the pressure regulator is set to minimum by turning anti-clockwise. Start up the pump (refer to Petrol Pump Operation for the start up procedure,). The fluid will now be circulating through the system and returning to the tank via the bypass circuit.



CAUTION! Ensure not to over-run the hose when pulling it out from the reel, as this may damage the hose or the fittings.

- Pull the hose to unwind it from the SpotPro's reel.
- Set the pressure regulator to approximately 5 bar – this can be fine-tuned as required.. This will now pressurise the hose.
- Aim the hose's spray gun in the required direction and squeeze the trigger. Adjust the spray pattern by operating the lever on the spray gun handle, refer to Figure 10.
- Use a constant speed when spraying and release the trigger at the end of each swath or change of direction, to prevent overdosing. Work in parallel lines when spraying large areas, rather than swinging from side to side.
- At the end of the task, release the spray gun trigger and press the pump's OFF button.
- Aiming the spray gun in the required direction, squeeze the trigger to release the residual pressure in the hose, which will result in a small amount of fluid discharging.



Figure 10 – Spray Gun (typical)

- With the hose pressure released, the hose is ready to stow back on the SpotPro. Turn the handle at the side of the hose reel to wind it onto the spool, guiding the hose as necessary to ensure even distribution across the width of the reel.

Clean-up and Decontamination

After use, the SpotPro unit must be thoroughly decontaminated inside and outside – including the pump, hoses, boom and spray gun – to avoid damage to crops from any harmful spray residues. Decontamination also prevents sprayer corrosion and abrasion.

Cleaning the SpotPro should be undertaken at a carefully chosen site, away from any risk of spillages draining into watercourses or into environmentally sensitive areas.

The recommended decontamination procedure is as follows:



WARNING! Suitable PPE must be worn by the operator when cleaning and decontaminating the SpotPro unit. Follow the instructions provided with the chemicals or the applicable Safety Data Sheet.



WARNING! Ensure the cleaning area is in an open, well ventilated space, and any flushing water is captured to prevent runoff into watercourses or into environmentally sensitive areas.

- After spraying operations are complete, drain any residual fluid via the bung located at the bottom of the tank. Capture and dispose or store any fluid in accordance with environmental and work safety requirements.
- Rinse out the tank with several changes of water, plus a recommended cleaning fluid. Where it can be reached internally, use a brush to scrub the inside of the tank.
- Operate the SpotPro unit with clean water, using both the spray boom and hose (as applicable), to ensure no chemical residue remains.
- Unscrew the suction filter cover and remove the filter screen and gasket. Soak the filter screen in clean water, brushing carefully with a nozzle brush. When re-assembling, ensure the gasket is in position.

- Ensure that the tank's basket strainer is free from chemical residue or debris.
- Nozzles, nozzle filters, nozzle caps and gaskets should be cleaned by soaking in water, brushing with a nozzle brush and allowed to dry. Do not blow through the nozzles or use wire or pins to clear any blockages.

If the SpotPro is to be stored for an extended period, thoroughly clean and decontaminate the unit as described above. Ensure it is allowed to dry, the tank and all lines empty and not pressurised then store it in a well ventilated area.

Maintenance

Your SpotPro Spray Unit requires minimal maintenance but regular cleaning and checks will ensure safe and reliable service over its lifetime. Periodic checks and inspections will identify any potential issues, enabling timely rectification and minimising downtime.

Periodic Checks

The following checks and cleaning operations should be undertaken on a regular basis (at least annually). The frequency of these activities will depend on the nature of the operating environment and the operational hours of the Storm unit.

- Clean the unit and inspect it for any signs of damage or wear. Replace any safety labels if they are damaged or illegible.
- Check all fittings are firmly secured, tighten if necessary.
- Unwind the hose from the reel fully to check that hose is in good order. Pressurise the line and check operation of spray gun nozzle. Rewind the hose onto the reel, ensuring it retracts all the way.
- Check the engine's oil level weekly. Top up if required.
- Check for any signs of fuel or oil leaks around the engine. If detected, investigate and rectify.
- Check the engine fuel line filter, clean or replace as necessary.
- Clean the engine's air filter regularly, especially if working in a dusty environment.
- If the SpotPro is to be stored for an extended period, thoroughly clean and decontaminate the unit as described above. Ensure it is allowed to dry, the tank and all lines empty and not pressurised then store it in a well ventilated area.

Maintenance Schedule

The following tasks are to be conducted in accordance with each of the schedules. All scheduled tasks are to be undertaken concurrently. For example, at the three month maintenance interval, all tasks listed are to be undertaken, in addition to the daily, weekly and monthly tasks.



NOTE! Maintenance is important. Keep a record of all maintenance tasks conducted on the SpotPro unit.

TTi recommends photocopying these schedules in order to keep a detailed log of all maintenance tasks. A copy of these schedules will be required to support any warranty claim.

Daily Tasks

The following tasks are to be undertaken daily, or prior to each use, of the SpotPro unit.

No.	Task	Notes
1	Inspect the SpotPro unit for any signs of damage or wear	Clean, repair or replace
2	Check fuel	Top up as required
3	Inspect engine's air filter and housing for dust	Clean, replace as necessary

Weekly Tasks

The following tasks are to be undertaken each week or 10 operating hours, whichever occurs first.

No.	Task	Date	Signed
1	All Daily tasks		
2	Remove and clean the petrol engine's air filter		
3	Check engine oil level, top up as required		

Monthly Tasks

The following tasks are to be undertaken each month or 20 operating hours, whichever occurs first.

No.	Task	Date	Signed
1	All Daily and Weekly tasks		
2	Check hose and hose reel by unwinding fully		
3	* Change pump engine oil (and filter, if fitted) (first change, thereafter every six months or 100 operating hours)		

Three Monthly Tasks

The following tasks are to be undertaken every three months or 50 operating hours, whichever occurs first.

No.	Task	Date	Signed
1	All Daily, Weekly and Monthly tasks		
2	Inspect the petrol engine air filter, replace if clogged or damaged		
3	Check all hoses, fasteners, nozzles and fittings		

Six Monthly Tasks

The following tasks are to be undertaken every six months or 100 operating hours, whichever occurs first.

No.	Task	Date	Signed
1	All Daily, Weekly, Monthly and 3-Monthly tasks		
2	Change engine oil (and filter, if fitted)		
3	Inspect spark plug		

Twelve Monthly tasks

The following tasks are to be undertaken every twelve months or 200 operating hours, whichever occurs first.

No.	Task	Date	Signed
1	All Daily, Weekly, Monthly, 3-Monthly & 6-Monthly tasks		
2	Replace the petrol engine's air filter		
3	Drain and flush the fuel tank		
4	Replace the engine's fuel filter		
5	Replace the spark plug		

Two-Yearly tasks

The following tasks are to be undertaken every 24 months or 500 operating hours, whichever occurs first.

No.	Task	Date	Signed
1	All Daily, Weekly, Monthly, 3-Monthly, 6-Monthly and 12-Monthly tasks		

Maintenance Tasks

The following tasks must be undertaken on a periodic basis to ensure your SpotPro's ongoing reliability.



CAUTION! In dusty, dirty or smoky environments, cleaning, inspection and servicing of the unit on a regular basis is essential. The cleaning, inspection and servicing must be undertaken more frequently in harsh conditions to avoid damage or destruction of equipment.

The frequency of these activities will depend on the nature of the operating environment and the operational hours of the SpotPro but as a minimum, the following tasks should be undertaken annually.

Petrol Driven Pump

- Refer to the supplied pump engine's manual, drain and replace the engine oil in accordance with the manufacturer's recommendations.
- Clean engine's air filter regularly, especially if working in a dusty environment.
- Unscrew the suction filter cover (refer to Figure 6) and remove the filter screen and gasket. Soak the filter screen in clean water, brushing carefully with a nozzle brush. When re-assembling, ensure the gasket is in position.



NOTE! Ensure the engine's grease cups are turned in every two hours of engine operation.

- On the Honda GX35 engine, check the two grease cups located at the back of the pump, refer to Figure 8. Rotate the grease cups 2-3 turns clockwise every two (2) hours of operation. Once the grease caps are fully wound in, undo and refill with general purpose grease.



Figure 11 – Grease Caps Maintenance

Manual Hose Reel

- Fully unwind the hose and inspect for any signs of damage or wear, replace as necessary.
- Inspect and clean the hose spray gun, replacing seals and nozzles as required.

Trouble Shooting

If a fault develops with the FireCombat, the following trouble shooting table provides guidance to identify and rectify the problem.

Pump

Problem	Possible cause	Remedy
Pump will not prime	Insufficient motor speed	Increase motor speed
	Air leak on suction line	Tighten or replace fittings
Pressure drops under load and pump is noisy	Insufficient motor speed to prevent clutch slippage	Increase motor speed
Pressure drops or fluctuates during operation	Suction line restriction	Remove restriction
	Pump sucks air	Tighten or replace fittings
	Residue on valves	Disassemble and clean valves, replace any broken valve springs as necessary
No pressure	Residue on valves	Disassemble and clean valves, replace any broken valve springs as necessary
	Broken regulator spring	Replace regulator spring

Risk Assessment

Task	Hazard	Risk	Control Measure/Mitigation
Check weather conditions	Manual handling; slips, trips or falls	Low	<ul style="list-style-type: none"> Wear PPE as per chemical requirements SDS – coveralls, gloves, safety footwear, glasses & respirator Follow safe manual handling techniques: don't lift on your own if >20kg, bend knees & keep back straight.
Mix chemicals (if applicable) and fill spray tank	As above, spray drift, chemical spillage, emission of vapours or flammability: weather, untrained visitors	Medium	<ul style="list-style-type: none"> As above User trained in relevant chemical mixing & administration course, e.g, Chem Cert; Follow relevant Environmental Protection Authority requirements; Fire extinguisher nearby; Keep visitors away from job location unless wearing full PPE.
Check the Spray Unit and carry vehicle is safe before use. Use spray unit as per instructions in manual	As above; loss of load; heat & cold; noise; exceed load limit of vehicle; hose entanglement; exhaust fumes; terrain & slopes;	High	<ul style="list-style-type: none"> As above wear clothes to suit heat & cold; Wear hearing protection if noise >85 dBa; Follow the manufacturer's safe operation instruction for the vehicle and the spray unit Don't overload - water weighs 1kg for every 1 litre Secure load to vehicle; Keep hose tidy; Put unit brakes on.
Clean up, maintenance & storage	As above	Low	<ul style="list-style-type: none"> As above; Continue to wear PPE for clean up; Store unit in a dry, well ventilated area.

Warranty

Warranty Policy

TTI will, at its option, repair or replace without charge any part covered by this warranty which is found to be defective in material and/or workmanship within one (1) year after date of sale to the original retail purchaser. If the product is used for rental purposes, this warranty is limited to ninety (90) days.

Upon request, the customer will make the defective part available for inspection and/or return the defective part to TTI, transportation charges prepaid. All parts and components are covered by this warranty except the following, which are warranted separately by their respective manufacturers:

- engines
- gearboxes
- pumps
- regulators

TTi does not assume any warranty obligation, liability or modification for these items, which are covered exclusively by the stated warranty of the respective manufacturers.

What this Warranty Does Not Cover?

This warranty does not cover:

1. defects caused by depreciation or damage caused by incorrect mounting, normal wear, accidents, improper maintenance, improper use or abuse of the product, alterations or failure to follow the instructions and warnings provided.
2. Any charges for making service calls, clean up time and transport charges.
3. The use of non-genuine parts on equipment supplied by TTI. This will automatically negate any warranty.

How to Obtain Service Under this Warranty?

Warranty service can be arranged by contacting your dealer, or by contacting TTI directly on 1800 816 277.

Proof of warranty registration and date of purchase may be required to verify warranty coverage. Any defective parts returned to TTI must be accompanied by a Return Goods Note. This form can be obtained by contacting Product Support on 1800 816 277 or emailing ProductSupport@tti.com.au.

Warranty Limitations

Warranty limitations are as follows:

1. There is no other express warranty. Any warranty that may be implied from this purchase including merchantability and fitness for purpose is hereby limited to the duration of this warranty and to the extent permitted by law. Any and all implied warranties are excluded.
2. TTI will not be liable for any incidental, consequential or special damages and/or expenses in connection with the purchase or use of this equipment, to the extent permitted by law.
3. Only the warranty expressed in this limited warranty shall apply and no dealer, distributor or individual is authorised to amend, modify, or extend this warranty in any way. Accordingly, additional statements, whether oral or written, do not constitute warranties by TTI, and should not be relied upon.



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