



ULTIMATE FIELD SPRAYER

OPERATORS HANDBOOK



ULTIMATE FIELD BUDDY SPRAYER

400L / 600L / 800L / 1000L

CONTENTS

01 Introduction & Models

02 Warnings

03 Product Risk Assessment

04 Troubleshooting

05 Operation

07 Spraying

09 Calibration Guides

10 Buddy Smart Reel Operation

14 Honda GX200 Engine

20 Cleaning & Maintenance

23 Ultimate Field Sprayer Breakdowns & Spare Parts

25 Buddy Smart Reel

26 Poly Manual Reel

27 GX200 Honda Motor & Pump

28 Maruyama 33L/min Pump

30 Maruyama 45L/min Pump

32 Turbo 400 Spray Gun Parts

33 Warranty

35 Warranty Registration



INTRODUCTION

Thank you for your purchase of a Rapid Spray Ultimate Field Sprayer. The Ultimate Field Sprayer is an Australian Made compact slip-on hose reel sprayer designed to optimise space and offer high performance spraying.

MODELS

Please note your unit may not have all the parts or accessories listed in this handbook. This handbook covers the following models (including any custom variations):

ULTIMATE FIELD BUDDY SPRAYER



- PUF0400L0330H3
PUF0600L0330H3
PUF0800L0330H3
PUF1000L0330H3
- PUF0400L0330R5, PUF0600L0330R5
PUF0800L0330R5, PUF1000L0330R5
PUF0400L0330R1, PUF0600L0330R1
PUF0800L0330R1, PUF1000L0330R1
- PUF0400L0450TR1, PUF0600L0450TR1
PUF0800L0450TR1, PUF1000L0450TR1
PUF0400L0450TR6, PUF0600L0450TR6
PUF0800L0450TR6, PUF1000L0450TR6

DISCLAIMER: In line with our policy of continuous improvement, the weights, dimensions and design may change slightly from what is shown in this operators handbook.

***WARNING:** Always obey vehicle and UTV/ATV manufacturer instructions regarding loading and operation. Please check weight restrictions. Serious death or injury can occur from improper usage. Rapid Spray accepts no liability for the unsafe operation of this unit.

WARNINGS

Read all warnings below and obey any instruction stickers or warnings on the spray unit. Failure to do so may result in serious bodily harm or death.

1. When mounting to any vehicle, ensure that you have read the Vehicle Owner's Manual and that you comply with all the weight restrictions as specified by the vehicle manufacturer, as overloading can cause injury or death. Remember that one litre of water weighs one kilogram. Ensure equipment is secure during transport.
2. To ensure your own safety and that of your employees or colleagues (if applicable) you must comply with all relevant environmental, work place health and safety legislation and codes of practice.
3. You must be in good mental health to operate this sprayer and not be under the influence of alcohol or any drugs that could impair your vision, physical strength, dexterity, judgment or other mental capacity.
4. Improper or careless use of this sprayer can cause serious injury. Minors should never be allowed to use this sprayer. This sprayer should not be used when bystanders or animals are in the area. This sprayer should never be used while children are in the area.
5. Before spraying, check the electrical and fuel systems for damage and deterioration. Replace parts as necessary. Do not modify the equipment or use any attachments other than those specified by the manufacturer.
6. Select and wear appropriate Personal Protective Equipment (PPE) in accordance with the label of the product you intend on using and your own safe work practices. PPE must still be worn while decontaminating your sprayer. Any accidental spills on the skin must be immediately be washed with clean water and soap.
7. Turn off the engine before filling the chemical tank. Spray during the morning or evening when it is cool. Intense sunlight will condense chemicals and may cause damage. Care should be taken when spraying in windy conditions as spray drift may contaminate the air and may affect the operator or damage adjacent non-target vegetation.
8. Spray only in well ventilated areas to keep away from flames or cigarettes. Keep all hoses and equipment away from the hot engine to avoid fire hazards.
9. Do not eat, drink or smoke while spraying to avoid ingestion of chemicals. Do not carry or store lunch boxes or other food and drink with spraying equipment.
10. Once the spraying operation has been completed, decontaminate the spray tank and spray accessories. Store any remaining chemicals in a safe place in a sealed container. Dispose of tank rinsing in compliance with the current environmental, work place health and safety regulations.
11. Never leave the sprayer unattended without turning off the engine and relieving the line pressure, and flushing the sprayer of any harmful chemicals.
12. Carry out maintenance as per the recommendations. Ensure that the unit is cool and securely stabilised on a level surface before commencing maintenance.

PRODUCT RISK ASSESSMENT

TASK	HAZARDS	RISK	CONTROL MEASURES
Partially fill the tank with water, start the motor and test the spray unit.	Manual handling; slips, trips or falls; petrol fumes; fingers jammed	Medium	Concentrate on tasks, follow safe manual handling techniques: don't lift on your own if > 20kg, bend knees, keep back straight; keep fingers clear; keep unit at least 8m away from overhead power-lines; fire extinguisher nearby; follow warning stickers on tanks; wear PPE for petrol and fumes (mask and gloves)
Check weather and ground conditions and select the appropriate PPE to suit the chemicals to be used.	Manual handling; slips, trips or falls.	Low	Put on PPE as per the chemical requirements in the Material Safety Data Sheet (MSDS) - coveralls, gloves and respirator; follow safe manual handling techniques: don't lift on your own if > 20kg, bend knees and keep back straight
Mix chemicals and fill spray tank units	As above; spray drift, chemical spillage, emission of vapours or flammability: weather; untrained visitors.	Medium	As above; user trained in the state's chemical mixing and administration course e.g. Chem Cert; follow the relevant Environment Protection Authority requirements, fire extinguisher present; keep visitors away from the job unless wearing full PPE
Use spray unit	As above; loss of load; work in heat & cold; noise; exceed load limit of vehicle; hose entanglement; terrain and slopes	High	As above; wear clothes to suit heat and cold; wear hearing protection if pump noise > 85 dBA; follow manufacturer's safe operation instructions for the vehicle and spray unit; don't overload - water weighs 1kg per 1L; secure load to vehicle; hose tidy
Clean up, maintenance and storage	As above	Low	As above; continue to wear PPE for clean-up, store tank in dry, well ventilated area
Buddy Smart Reel®			See Buddy Smart Reel® Operators Handbook
Pump / Motor			See pump / motor Operators Handbook

TROUBLESHOOTING

CONDITION	CAUSE	REMEDY
Pump will not prime / draw water	<ol style="list-style-type: none"> 1. Insufficient motor RPM 2. Air leak on suction plumbing 3. Blocked/ restricted intake hose 4. Filter cap disengaged 5. Filter gasket damaged / missing 	<ol style="list-style-type: none"> 1. Increase motor RPM until pump primes 2. Tighten/ replace fittings and hose clamps. Verify suction hoses are in good condition. 3. Remove blockage from suction line, ensure line is not kinked. 4. Lock filter cap into position. 5. Replace filter gasket.
Pumps runs but will not develop pressure	<ol style="list-style-type: none"> 1. Residue on pump valves 2. Worn regulator 	<ol style="list-style-type: none"> 1. Remove and clean pump valves 2. Install regulator service kit
Pressure drops / fluctuates during standard operation	<ol style="list-style-type: none"> 1. Restriction on suction line 2. Pump sucking air 3. Plugged filter 4. Damaged regulator 	<ol style="list-style-type: none"> 1. Inspect tank and suction lines and remove restriction 2. Tighten fittings 3. Remove and clean filter mesh and housing 4. Remove regulator stem and inspect for broken parts / pieces
Pressure gauge not registering	<ol style="list-style-type: none"> 1. Plugged with debris 	<ol style="list-style-type: none"> 1. Unthread, check and clean pressure gauge
Oil in pump or gearbox appears white and murky after operation	<ol style="list-style-type: none"> 1. Water or chemical has contaminated oil. 	<ol style="list-style-type: none"> 1. Check pump valves, seals and pump oil breather cap. Replace / fix if needed. 2. Replace oil if needed.
Hand gun loses pressure	<ol style="list-style-type: none"> 1. Debris in hose or nozzle 2. Pump losing prime 3. Pump pressure dropping / fluctuating 	<ol style="list-style-type: none"> 1. Unthread nozzle tip and clean 2. See 'Remedy' for 'Pump will not prime' 3. See 'Remedy' for 'Pressure drops / fluctuates during standard operation'
Buddy Smart Reel®		See Buddy Smart Reel® Operators Handbook
Pump / Motor		See pump / motor Operator's Handbook

OPERATION

BEFORE BEGINNING OPERATION

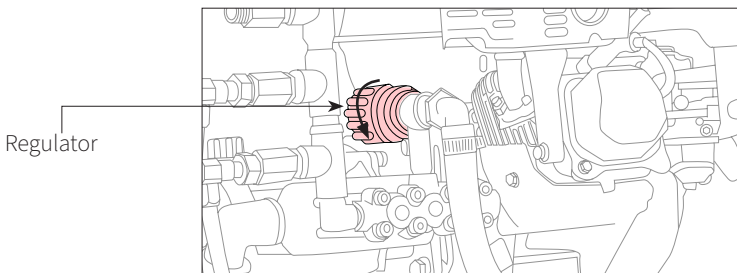
1. Familiarise yourself with the unit layout and general operation.
2. Inspect unit for any broken or damaged components and replace damaged components in necessary.
3. Familiarise yourself with the [MOTOR instruction / operators handbook](#) (supplied with the unit) and ensure you follow all warnings and instructions contained within.
4. Familiarise yourself with the [PUMP instruction / operators handbook](#) (supplied with the unit) and ensure you follow all warnings and instructions contained within.

WARNING! Motor is shipped without oil or fuel. Before operation, fill the motor with the correct oil and fuel as advised in the MOTOR instruction / operators handbook.

CAUTION! Before attempting any chemical spraying with your new unit, operate it with water only to familiarise yourself with the Ultimate Field Sprayer's features and capabilities and to ensure your sprayer has arrived in a safe working condition. Please contact your local dealer immediately should anything appear to have been damaged.

START UP

1. Half fill tank with clean water only and check for any loose fittings or leaks before continuing. **WARNING! Do not** switch on pump / motor without water in the tank.
2. Rotate regulator anti-clockwise to 'START' position.
(If Sting regulator fitted to your unit, move bypass lever to 'BYPASS' position and reduce pressure to 0 bar.)
3. Switch on the engine ignition and start engine in accordance with the motor instruction / operators manual.
4. Leave regulator in 'START' or 'BYPASS' position for 30 seconds or until there is no longer any air bubbles coming through the return line back into the tank. (The clear hose entering the top of the tank behind the pump).



OPERATION CONT.

MIXING & FILLING

Sites for mixing and filling the sprayer should be carefully chosen to be 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 following steps are given as a guide to mixing and filling the sprayer.

1. Read the product label and follow all directions carefully, taking special regard to the order in which the products are added to the tank.
2. Measure out the correct amount of chemicals, using clean measuring jugs used only for this purpose.
3. Half fill the sprayer with clean water and then add the measured chemical.
4. Rinse out the measuring jug and empty containers. Pour all rinsing's into the sprayer's tank and top up the tank with water to the required level.
5. Ensure thorough mixing by stirring with a suitable round edged paddle or start the pump with pressure regulator in the 'START' or 'BYPASS' position.
6. Wash off any spillage from the outside of the tank. Return part empty containers to a place of safety. Empty containers must be correctly rinsed and collected for safe disposal in compliance with current and local environmental legislation and codes of practice.

SPRAY OPERATION

CAUTION! Please ensure you have a full understanding how operating the pump, motor and sprayer works. See operators handbooks.

1. Complete the 'Start Up' procedure (pg. 5) and the 'Mixing & Filling' procedure.
2. To increase the spraying pressure, rotate the regulator knob to the desired pressure setting on gauge from between 10 - 40bar. Depress spray trigger.
(If Sting regulator fitted, to commence spraying, turn regulator lever from 'BYPASS' to 'PRESSURE' and depress the spray gun trigger.)
3. Adjust the spray pattern using the adjustable nozzle.
4. To stop spraying, release the spray gun trigger. The regulator will automatically allow spray solution to bypass through the return line and back to the tank.
5. Turn regulator clockwise to reduce pressure back to 'START' position.
(If Sting regulator fitted, return regulator lever to 'BYPASS' position. Reduce pressure back down to 0 bar / start position.)

SPRAYING

For effective spraying, ensure you have taken the following factors into account.

- 1.** Before commencing spraying, plan the work effectively to reduce potential contamination.
- 2.** Do not spray if the operator, bystanders, animals, watercourses or any non-target vegetation appears to be in danger from spray drift contamination.
- 3.** Work Rates
 - Speed of operation
 - Water points or nurse tanks
 - Rate of travel
 - Swath width
 - Spray volume applied
- 4.** Wind and drift
 - Wind speed
 - Wind direction
 - Airspeed at boom height
 - Wind direction and drift is controlled by;
 - » Reducing nozzle height
 - » Reducing pressure and using larger nozzles
 - » Fit low-drift nozzles producing larger droplets
- 5.** Work in parallel lines at the correct spacing when spraying large areas - this is better than move the spray gun from side to side in a swinging movement which has a high potential for damage from overdosing or over drift.
- 6.** Make sure your nozzles are calibrated. Non-calibrated spray nozzles can lead to inaccurate application rates, spray patterns and droplet size which can reduce chemical effectiveness. The first and most important step in sprayer calibration is to choose the correct nozzle type and size for your application. Speak to your local agronomist for further guidance and information.
- 7.** Maintain constant speed when spraying. Should you need to increase your spraying speed, larger delivery nozzles must be fitted. Re-calibrate as required.

SPRAYING CONT.

8. Field Work (for use with boom attachment - see diagram).
- Swath marking and spraying
 - Mark out to ensure proper pass matching - use flags, foam markers or tram-lines
 - Where large obstacles exist in the middle of an area to be sprayed, mark out and spray the area like a separate headland.
 - The perimeter of the field should be sprayed first. The width of two swaths will give adequate turning space at the ends of spray runs.
 - Never spray while turning.

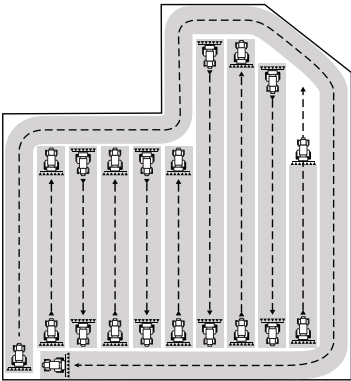


Diagram 1.0
Field Work Spraying Pattern

NOZZLES AND PRESSURE FOR DIFFERENT SPRAY VOLUMES

SPRAY VOLUME	DIAMETER	OUTPUT	PRESSURE	
(L/ha)	(mm)	(L/min)	(kPa)	(psi)
1000 - 2000	1.6	2.5	400	57
1500 - 3000	2.0	3.8	500	71
2000 - 4000	2.4	5.5w	600	85
3000 - 6000	2.8	7.8	700	100
4000 - 8000	3.2	8.6	800	114

CALIBRATION GUIDE

Accurate calibration is an essential element of any spraying function as it ensure that the pesticide is applied at the rate as recommended by the product manufacturer. Application in excess of the recommended rate is prohibited, can damage crops and is uneconomical. View the products packaging for recommended spraying applications.

Calibration must always be carried out:

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

NOTE: When calibrating a sprayer, appropriate personal protective wear should be worn.

STEP-BY-STEP CALIBRATION GUIDE		EXAMPLE
Read the label. Find the following:	Spray Volume (VOLUME) Product Dose Spray QUALITY	200L / hectare 50L / hectare Medium
Measure: Time / 100m	Measure time to spray 100m in seconds over land similar to that which will be sprayed.	41.9 seconds
Calculate: SPEED	Speed (km/h) = 360 divided by time (seconds)	$\frac{360}{41.9} = 8.6\text{km/h}$
Measure nozzle SPACING	Distance between each nozzle	0.5m
Measure: L/min OUTPUT	Output = VOLUME x SPEED x SPACE ÷ 600 (L/min) (L/hectare) (km/h) (metre)	200 x 8.6 x 0.5 ÷ 600 Output = 1.433L/min
Choose NOZZLE	Refer to nozzle manufacturers data charts or other sources and select the size and type of nozzle that will product the calculated OUTPUT and spray QUALITY	
Now, check the calibration on the sprayer.		
Check Nozzle OUTPUT	With water, check outputs of 4 or more nozzles using a calibrated jug or flow meter. Check all nozzles are aligned correctly and spray patterns are good.	Average Output = 41.9L/minute
Calibrate Sprayer	SPRAY VOLUME = OUTPUT x 600 ÷ SPEED ÷ SPACE (L/min) (km/H) (metre)	1.4 x 600 ÷ 8.6 ÷ 0.5 = 195

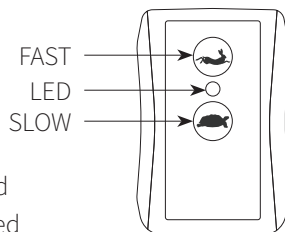
If, as in the example, the nozzle output and therefore, spray volume, is less than the recommended figures, increase the pressure and repeat calibration until target spray volume is reached.

BUDDY SMART REEL® (if applicable)

Please read the **Buddy Smart Reel® Operators Handbook** for full instructions, parts and maintenance instructions. Please note your Ultimate Field Sprayer may not require the following instructions. Only applicable to Buddy® Ultimate Field Sprayer units.

READING LED LIGHTS & SWITCH PANEL CODES

●	Slow flash	Unit in pairing mode
●	Very fast flash	Fast rewind button pressed
●	Intermediate flash	Slow rewind button pressed
●	Very fast flash	Battery low and fast rewind pressed
●	Intermediate flash	Battery low and slow rewind pressed



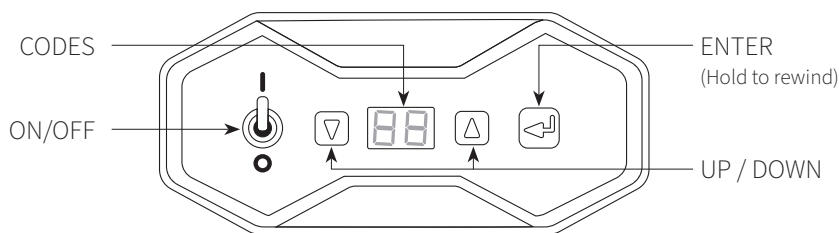
Your Buddy Smart Reel® is equipped with a display to indicate its current status. During operation of your reel you may observe the following messages on the display.

- = Reel powered correctly, on standby, ready to operate
- ⌂P = Reel has not been paired to a remote
- PA = Reel is in pairing mode
- LL = Supply voltage to reel is too low
- FA = Reel is rewinding at the fast setting
- SL = Reel is rewinding at the slow speed

Enter **SETUP MODE** press ▽ and ⬇ together for 5 seconds; display will change to **SU** (flashing).

- br = Auto braking, **ON** or **OF**. If **ON** then **Sd** setting is void.
- bu = Direction of rotation; **fr** = normal, **rr** = reversed.
- Lc = Battery low voltage cut out
Default = **9** for 12V battery; **18** for 24V system.
- sr = Slow speed RPM (this changes when MyPace is changed)
- fr = Fast speed RPM (Max speed before slowdown zone:
80 for 50m reel, **60** for 100 / 150m reels.
- SI = max current setting AMPs (default **20**)
- HP = Hose speed correction factor (depends on reel and hose size mostly; default **1.3**)
- Sd = Drag level (tension control) to reduce free spooling overrun (default **5**). Void if **br** is **ON**. Tension control levels from **1** (low) to **9** (high).

NOTE: For use with AC power adaptor, **br** must be **OF** and **Sd** must be set to **0** if the reel is not connected to a battery i.e. if only connected to an AC adapter power supply. This is because the electric braking generates power that must be directed to a suitable source like charging the battery. If no battery present, the AC power adaptor will be destroyed.





SETTING HOME POSITION (H)

To adjust length of slow down zone:





1. Switch power on and ensure reel is in standby (□)
2. Make sure the hose is wound to the desired stopping position. This may be where the hose stopper is almost touching the hose guide rollers for the smaller sprayer or further out for a larger sprayer if the spray gun holder is mounted away from the reel.
3. Press and hold both the Δ and ∇ buttons on the control panel until the display flashes with the current setting (approx. 5 seconds). This will be the letter **H** followed by a number from \square to **9** indicating how many revolutions before the stopping position the slowdown will occur.
4. If the current **H** value is suitable, just press the \downarrow (return button) and the hose position will be updated.
5. If you wish to change the slowdown position for your application, after step 3 above, press the ∇ button to reduce the **H** value or the Δ to increase it. Press the \downarrow button to save the setting.
6. To disable the slowdown zone, set the value to **H□**

OPERATION

1. Switch power to the Reel and confirm that the display shows \square .
2. Pull the hose out to the required length for spraying.
3. To retract hose at maximum speed, press the  button on the MyPace remote.
4. To retract the hose at a slower speed, press the  button on the MyPace remote. Always maintain a slight pull on the hose as it is rewinding to ensure a consistent layup of the hose on the spool.
5. Please note that the reel must not be connected to a pressure reading that is greater than 40 Bar.
6. Connect the spray gun to the fitting at the end of the hose.
7. In case of a misplaced remote the button on the switch panel will operate as a manual fast rewind.

SETTING / CHANGING CUSTOM SPEED MYPACE REMOTE

The MyPace function allows a custom rewind speed to be set and stored. It can easily be re-calibrated as often as needed to suit changing conditions in terrain, weather or each operator's personal preference.

1. Pull the hose out to at least 20m.
2. Press both   buttons on the MyPace handheld remote.
3. The Buddy® hose reel will begin to rewind at its minimum speed. The speed will gradually increase while both buttons remain pressed.
4. When the desired speed is reached, release the  button and the reel will continue at that set speed. (If both buttons are held for approximately 20 seconds the reel will reach maximum speed).
5. Releasing both buttons will cause the custom speed to be stored in the memory of the remote.
6. When the  button is pressed the reel will operate at the set speed.
7. The custom speed can be reset as often as needed by starting back at step 2.

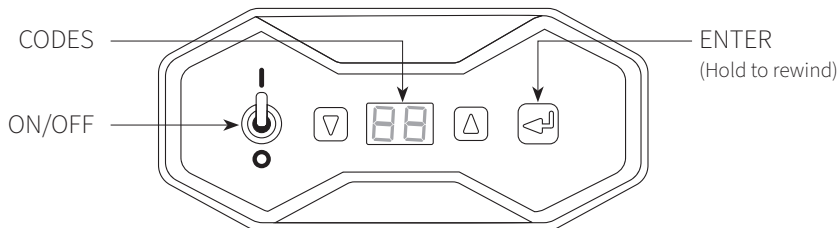


PAIRING MYPACE REMOTE TO BUDDY SMART REEL®

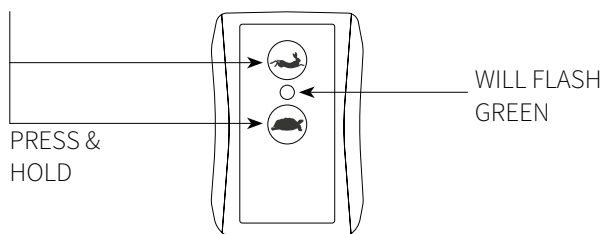
The MyPace handheld remote should be delivered already paired to the Buddy Hose Reel. If several reels have been purchased and it is not clear as to which remote is paired to which reel or if the remote has been replaced, the remote can be re-paired to the reel at any time.

How to pair the MyPace remote

1. Stand within reach of the Buddy Reel switch panel.



2. Ensure the reel is powered and switched on. (☐ will appear in the “Codes” section)
3. If your remote has no batteries, put in only ONE. If you battery has the batteries in already, remove ONE. With the remaining battery, insert halfway, so it’s ready to be fully pushed in when needed.
4. Press both buttons on the remote, and simultaneously push the remaining battery into place.



5. Green lights will flash slowly on the remote and the display on the switch panel on the reel will slowly flash PA.
6. Within 10 seconds, press the manual rewind button on the reel switch panel.
7. Successful pairing will be acknowledged by the display on switch panel flashing PA fast for a few seconds then return to a steady ☐. (The green light on the remote may continue to flash slowly for a few seconds then stop).
8. After the green light on the remote stops flashing, press either button to confirm that the reel is responding.

HONDA GX200 ENGINE

Please read the Honda® Owners Manual for full safety, operation, parts and maintenance instructions. Always follow manufacturers directions.

Please note your Ultimate Field Sprayer may not require the following instructions. Only applicable to Ultimate Field Sprayer which have the Honda GX200 engine installed. If you have a different type of engine, please refer to the Owners Manual or contact Rapid Spray.

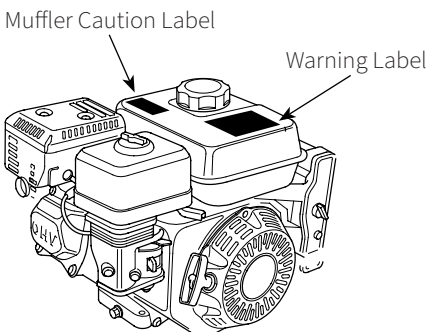
SAFETY INFORMATION

- Understand the operation of all controls and learn how to stop the engine quickly in case of emergency. Make sure the operator receives adequate instruction before operating the equipment.
- Do not allow children to operate the engine. Keep children and pets away from the area of operation.
- Your engine's exhaust contains poisonous carbon monoxide. Do not run the engine without adequate ventilation and never run the engine indoors.
- The engine and exhaust become very hot during operation. Keep the engine at least 1m (3 ft) away from buildings and other equipment during operation. Keep flammable materials away, and do not place anything on the engine while it is running.

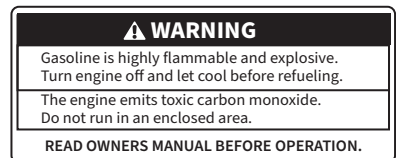
SAFETY LABELS

These labels warn you of potential hazards that can cause serious injury. Read it carefully. If the labels come off or become hard to read, contact your Honda servicing dealer for a replacement.

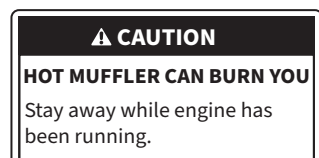
The 'SAFETY' label is packaged with the engine. See the manufacturer's instructions provided with the equipment. The 'SAFETY' label should be located on the fuel tank or packaged loosely with the engine.



WARNING LABEL

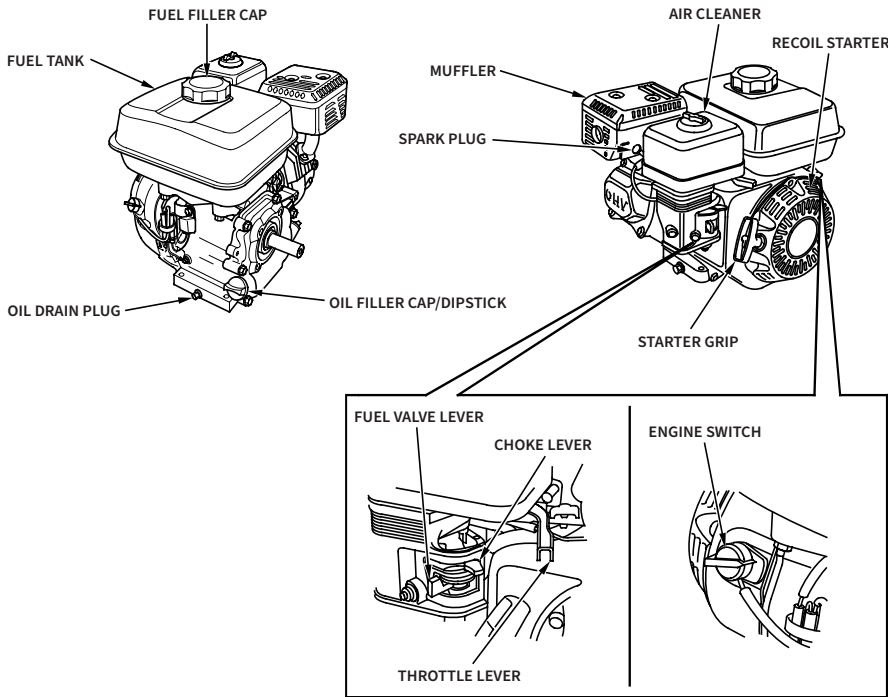


MUFFLER CAUTION LABEL



HONDA GX200 ENGINE CONT.

COMPONENT & CONTROL LOCATIONS



FEATURES

Oil Alert® System

The Oil Alert® system is designed to prevent engine damage caused by an insufficient amount of oil in the crankcase. Before the oil level in the crankcase can fall below a safe limit, the Oil Alert® system will automatically stop the engine (the engine switch will remain in the ON position).

If the engine stops and will not restart, check the engine oil level before troubleshooting other areas.

HONDA GX200 ENGINE CONT.

BEFORE OPERATION CHECKS

Is your engine ready to go?

For your safety, and to maximise the service life of your equipment, it is very important to take a few moments before you operate the engine to check its condition. Be sure to take care of any problem you find, or have your servicing dealer correct it before you operate the engine.

WARNING

Improperly maintaining this engine, or failure to correct a problem before operation can cause a malfunction in which you can be seriously hurt or killed.

Always perform a pre-operation inspection before each operation and correct any problem.

Before beginning your pre-operation checks, be sure the engine is level and the engine switch is in the OFF position.

Always check the following items before you start the engine:

Check the General Condition of the Engine

1. Look around and underneath the engine for signs of oil or gasoline leaks.
2. Remove any excessive dirt or debris, especially around the muffler and recoil starter.
3. Look for signs of damage.
4. Check that all shields and covers are in place, and all nuts, bolts and screws are tightened.

Check the Engine

1. Check the fuel level. Starting with a full tank will help eliminate or reduce operating interruptions for refuelling.
2. Check the engine oil level. Running the engine with a low oil level can cause engine damage.

The Oil Alert® system will automatically stop the engine before the oil level falls below safe limits. However, to avoid the inconvenience of an unexpected shutdown, always check the engine oil level before startup.

3. Check the air filter elements. A dirty air filter element will restrict air flow to the carburetor, reducing engine performance.
4. Check the equipment powered by this engine.

Review the instructions provided with the equipment powered by this engine for any precautions and procedures that should be followed before engine startup.

HONDA GX200 ENGINE CONT.

SAFE OPERATING PRECAUTIONS

Before operating the engine for the first time, please review the SAFETY INFORMATION section and the BEFORE OPERATIONS CHECKS on previous cards.

For your safety, do not operate the engine in an enclosed area such as a garage. Your engine's exhaust contains poisonous carbon monoxide gas that can collect rapidly in an enclosed area and cause illness or death.

WARNING

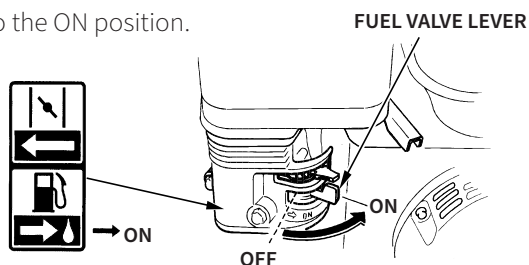
Exhaust contains poisonous carbon monoxide gas that can build up to dangerous levels in closed areas. Breathing carbon monoxide can cause unconsciousness or death.

Never run the engine in a closed or even partly closed area where people may be present.

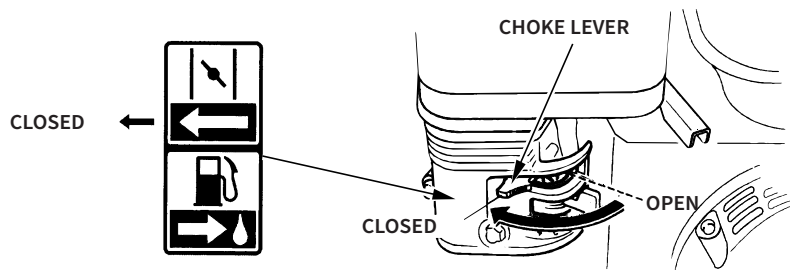
Review the instructions provided with the equipment powered by this engine for any safety precautions that should be observed with engine startup, shutdown or operation. Do not operate the engine on slopes great than 20°.

STARTING THE ENGINE

1. Move the fuel valve lever to the ON position.



2. To start a cold engine, move the choke lever to the CLOSED position.

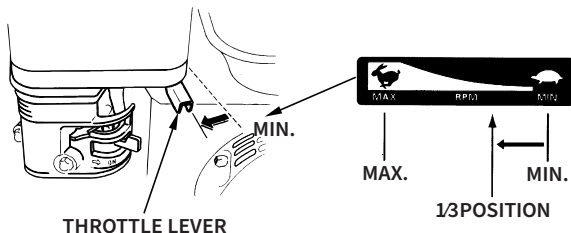


To restart a warm engine, leave the choke lever in the OPEN position.

HONDA GX200 ENGINE CONT.

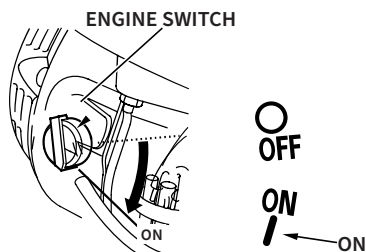
STARTING THE ENGINE cont.

3. Move the throttle lever away from the MIN. position, about $\frac{1}{3}$ of the way toward the MAX. position.

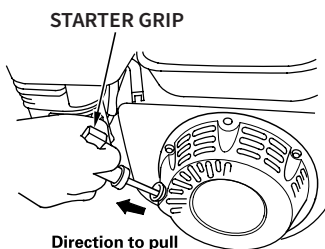


Some engine applications use a remote-mounted throttle control rather than the engine mounted throttle level shown here. Refer to the instructions provided by the equipment manufacturer.

4. Turn the engine switch to the ON position.



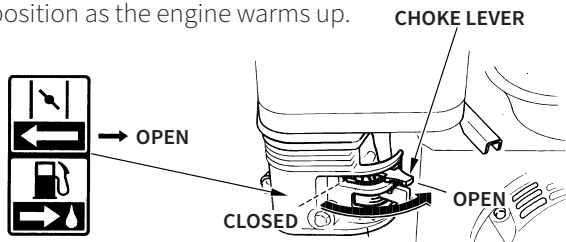
5. Pull the starter grip lightly until you feel resistance, then pull briskly in the direction of the arrow shown below. Return the starter grip gently.



NOTICE

Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.

5. If the choke lever was moved to the CLOSED position to start the engine, gradually move it to the OPEN position as the engine warms up.



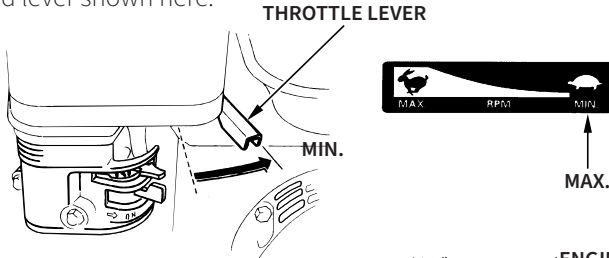
HONDA GX200 ENGINE CONT.

STOPPING THE ENGINE

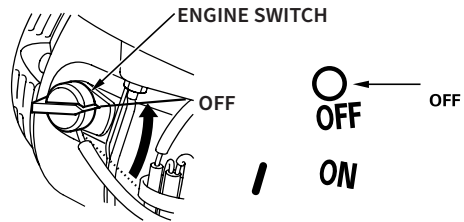
To stop the engine in an emergency, simply turn the engine switch to the OFF position. Under normal conditions, use the following procedure.

1. Move the throttle level to the MIN. position.

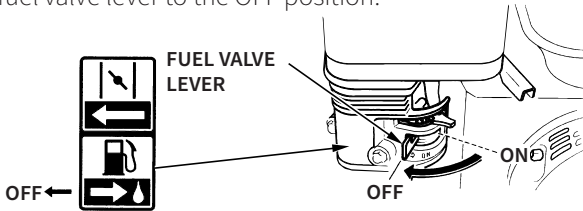
Some engine applications use a remote-mounted throttle control rather than the engine mounted lever shown here.



2. Turn the engine switch to the OFF position.



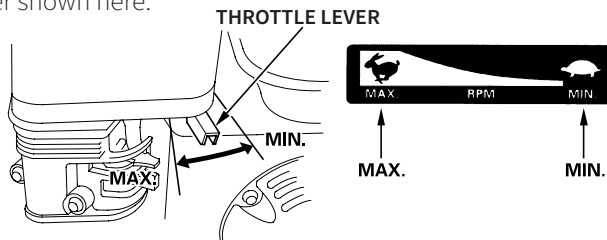
3. Turn the fuel valve lever to the OFF position.



SETTING THE ENGINE SPEED

Position the throttle lever for the desired engine speed.

Some engine applications use a remote-mounted throttle control rather than the engine mounted throttle lever shown here.



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CLEANING & MAINTENANCE

DECONTAMINATION

After use, the sprayer must be thoroughly decontaminated, inside and outside. Decontaminating the tank, including pumps, hoses and hand lance, avoids damage to crops from harmful spray residues and prevents sprayer corrosion and abrasion. As a guide, follow the decontamination procedure below:

1. After spraying, rinse all liquid out of the tank.
NOTE: When flushing the sprayer, pay attention to where the chemical will run. Always clean in an area that will not contaminate water sources or crops.
2. After draining the tank, rinse the inside by spraying clean water with a pressure washer.
3. Turn the pump off and fill the tank with clean water and a recommended cleaning liquid.
NOTE: to ensure any pesticide residue is removed from the tank, let the water and cleaning solution sit for 8 hours.
4. The suction filter mounted on the sprayer frame must be cleaned regularly. Unscrew the filter cover and remove the filter screen and gasket. Soak in clean water, brushing with a nozzle brush. Ensure gasket is in position when re-assembling.
5. The filter basket strainer is removed by lifting it out of the filler ring. Clean the basket strainer the same way as the suction filter. Replace the basket strainer by exerting a quick downward push ensuring the strainer has seated correctly.
6. Nozzles, nozzle filters, nozzle caps and gaskets should be cleaned by soaking in water, brushing with a nozzle brush and allowed to dry. Never blow through the nozzles with your mouth or use wire or pins to clear blockages. When re-assembling, ensure that the nozzle cap gasket is correctly positioned.
7. Ensuring all nozzles, filters etc. are back in place, flush the water through the entire system; turn the pump on and spray the clean water through the booms and hand lance.
8. When storing the sprayer, ensure that it is clean and dry. Keep in a well ventilated place.

CLEANING & MAINTENANCE cont.

Maintenance to pump and engine should be carried out regularly. Refer to pump and engine handbooks for Maintenance Schedule.

PUMP MAINTENANCE

Check pump Operators Handbook for maintenance schedule and further instructions.

- Check to make sure that all screws are tightened and that no parts are missing.
- Check to make sure there are no loose connections on hoses, nozzle, lance or valves.
- Thoroughly clean the nozzle and filter. Take the cap off the filter housing and remove filter screen for cleaning. Ensure filter screen is properly located before screwing cap back on.

INSPECT THE ENGINE - *All repairs to be carried out by certified Honda dealer.*

Check engine Honda Owners Manual for maintenance schedule and further instructions.

- Check to make sure there are no loose or missing screws in any part of the engine.
- Clean the air filter regularly - particularly if working in a dusty environment.
- Clean and adjust the spark plug as necessary.
- Clean the cooling fan, air intake opening and parts around the muffler.
- Check the engine oil and change it as necessary.
- Inspect the fuel line filter, check for fuel leaks.

LONG TERM CLEANING & STORAGE

- When storing the sprayer, ensure that it is clean and dry and kept in a ventilated place where it will not be subject to freezing temperatures. Frozen water may crack metal components and void warranty.
- Completely drain any water from the pump.
- Pull the recoil started handle slowly until there is no resistance.
- After removing the fuel from the tank, push the priming pump until fuel in the line runs out. Remove fuel from the tank once more.
- Check the engine oil and change if necessary.
- Set the throttle lever in the low speed position.
- Wipe away any dirt or dust.

CLEANING & MAINTENANCE cont.

MAINTENANCE SCHEDULE

Maintenance of your spray unit should be carried out regularly. See below table for suggested guidelines in ensuring your unit stays at optimum performance.

ITEM	FREQUENCY	TASK
PUMP & GEARBOX	Daily	Perform visual inspection of pump: ensure screws are tight and no parts are missing.
	Daily	Check oil level in sight gauge - top up if necessary (see pump Operators Manual for oil specifications).
	As needed	Replace pump and gearbox oil (see pump Operators Manual for oil specifications).
ENGINE	Daily	Perform visual inspection of engine: ensure screws are tight and no parts are missing.
	Daily	Check oil level on dip tube - top up if necessary (see engine Operators Manual for oil specifications).
	Daily	Inspect the fuel line and filter, check for leaks or contamination.
	Weekly	Clean air filter in accordance with engine manufacturers instructions (see engine tab).
	As needed	Replace engine oil (see engine tab for frequency and oil specifications).
HOSE REEL	Daily	Check hose and fittings for leaks or excessive movement. Replace damaged fittings and clamps.
	Every 6 months	Swap hose reel end for end to spread wear and increase hose lifespan.
GENERAL FITTINGS	Daily	Clean suction filter in warm soapy water using filter brush.
	Daily	Check hose and fittings for leaks or excessive movement. Replace damaged fittings and clamps.
	Daily	

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ULTIMATE FIELD SPRAYER BREAKDOWN & PARTS

Please consult with your local Rapid Spray dealership or contact the Rapid Spray service team on 1800 011 000 before replacing / altering parts.

Any unauthorized alteration, modification, attachments or repair to equipment may void the warranty as offered on Rapid Spray product or other componentry.

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Please read the Honda Engine Operators / Instruction Manual and Warranty Policy. All repairs should be carried out by a licensed Honda dealer or maintenance shop, or by any engine repair establishment or individual using parts that are “certified” to EPA standards.

Attempting to repair your Honda engine may void the warranty if engine not correctly repaired / altered.

Remember than an authorised Honda servicing dealer knows your engine best and is fully equipped to maintain and repair it. To ensure the best quality and reliability, use only new Honda Genuine parts or their equivalents for repair and replacement.

ULTIMATE FIELD SPRAYER OPTIONS

CUSTOM BUILT ULTIMATE FIELD SPRAYER

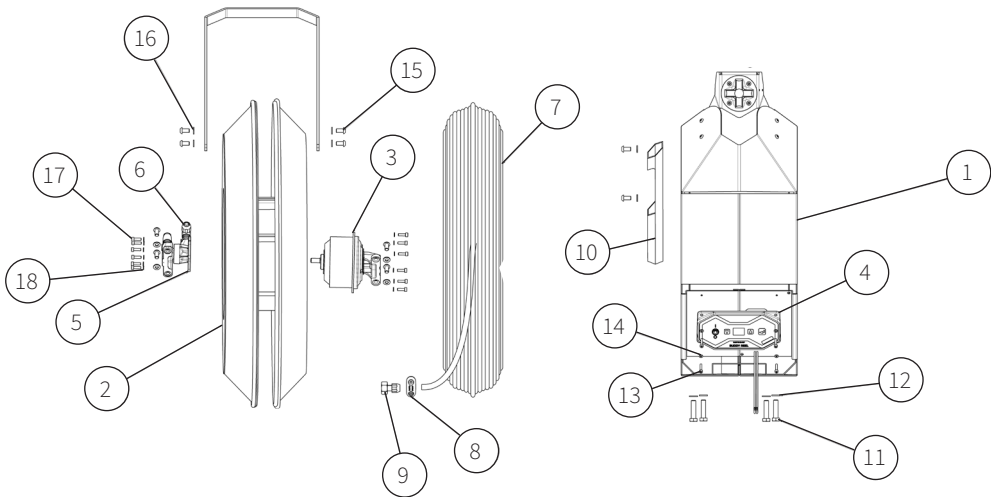
Your Ultimate Field Sprayer may have been customised with different pump, motor, spray guns, hose reels or other options included. It would be best to refer to the Operator Manuals included with this Ultimate Field Sprayer Handbook for specific operating, maintenance and servicing questions.

If you are unsure of where to find the information you are looking for, please contact the Rapid Spray Service Department on 1800 011 000 for help.

SPRAY ACCESSORIES

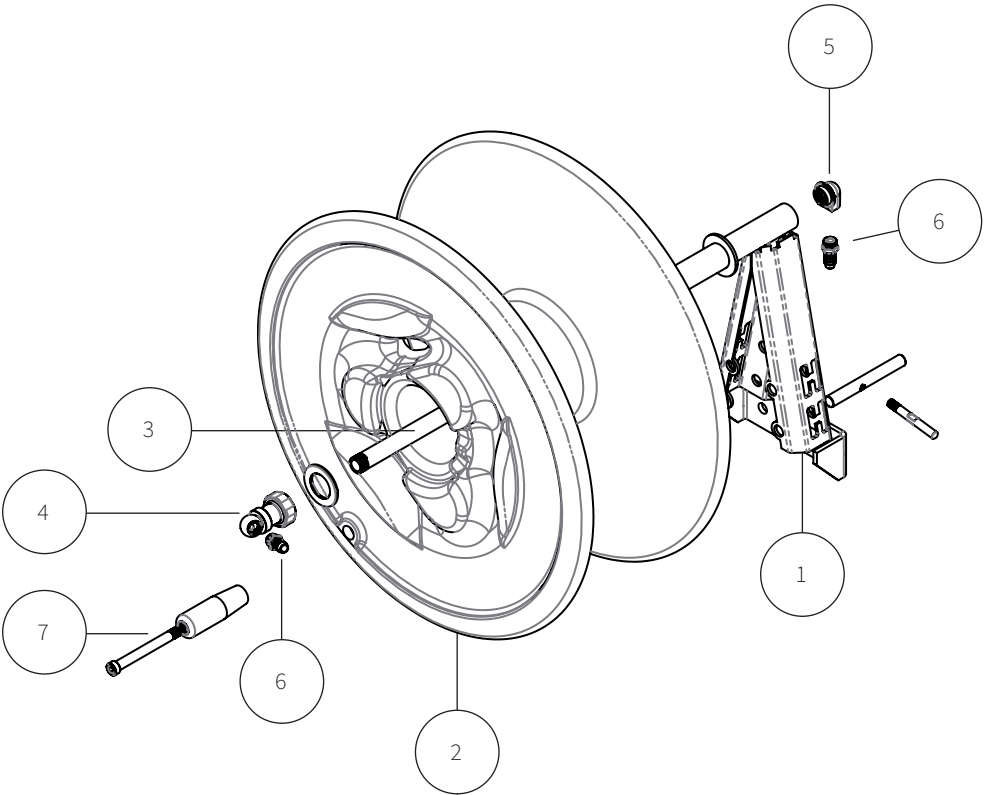
If you have purchased spraying accessories such as booms or boomless nozzles, please refer to instructions included with products regarding installation and mounting.

BUDDY SMART REEL BREAKDOWN



#	PART NO.	DESCRIPTION
1	ASRE10F	Steel Frame For 100m Big Buddy Reel
2	ASRE10SR	100m Big Buddy Reel Spool
3	CEMRH01224K	Buddy Motor with Hub Mount Fitted
4	ARIR2CICK	Buddy Smart Controller 915Mhz Kit
5	CFSBBF05	Buddy Swivel less fittings
6	CFBDE14K10N	Buddy 14mm fork B 10mm nylon elbow
7	CUNB10MMX100	12mm Black Nylon Spray Hose 100 Metres
8	AMCHO12MM	Hose Overwind Stopper For 12mm OD Hose
9	CFBDS1210NS	Buddy 10mm nylon 1/2 BSP nut and tail
10	ASKG01	Gun Bracket to Suit Buddy Reel
11	CHS10M03046Z	M10 x 30 4.6 zinc set screw
12	CHWS10MHZ	M10 3/8 spring washer zinc
13	CHAC04M020S	M4 x 20 socket hd capscrew 304
14	CHWS04MS	4 Spring washer 304
15	CHAB08M025	M8 x 25 Button HD Socket Screw 304
16	CHWS08MS	M8 Spring washer 304
17	CHAC05M016S	M5 x 16 socket hd capscrew 304
18	CHWS05MS	M5 Spring washer 304

RAPID POLY MANUAL HOSE REEL BREAKDOWN

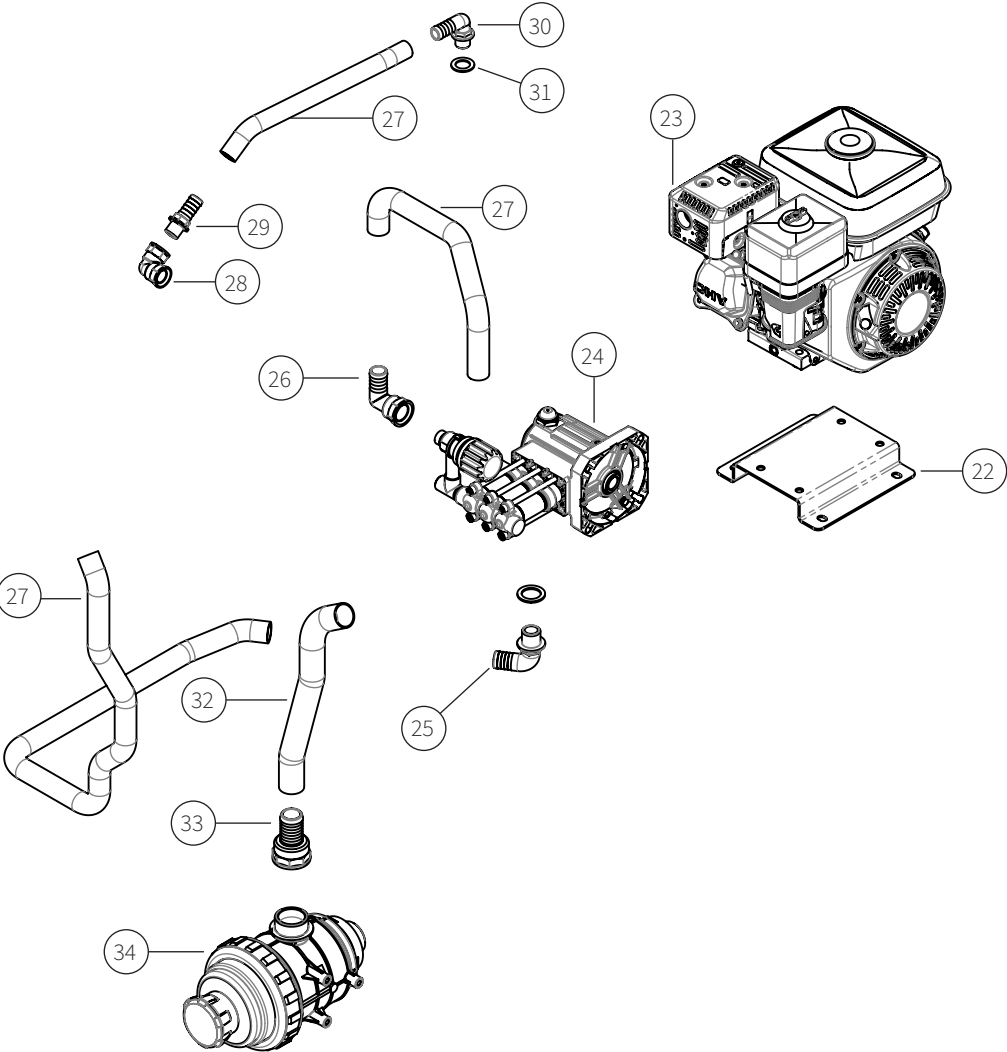


#	PART NO.	DESCRIPTION
1	ASR035	Side mount frame for 30 / 50m reel
2	AMATH050MYE	Bare Hose Reel 30 / 50m
3	CFPST10M210	Stainless Steel pipe 3/8" BSP
4	CFSBB10F06FA	3/8" - 1/4" BSP ball swivel
5	CFBE06F10F2	1/4" - 3/8" BSP female elbow
6	CFBS06M10B2	1/4" M BSP / 10mm Brass barb
7	CHHRB10M080	Rotating Handle

PUMP & MOTOR BREAKDOWN

MARUYAMA PUMP &
GX200 HONDA MOTOR

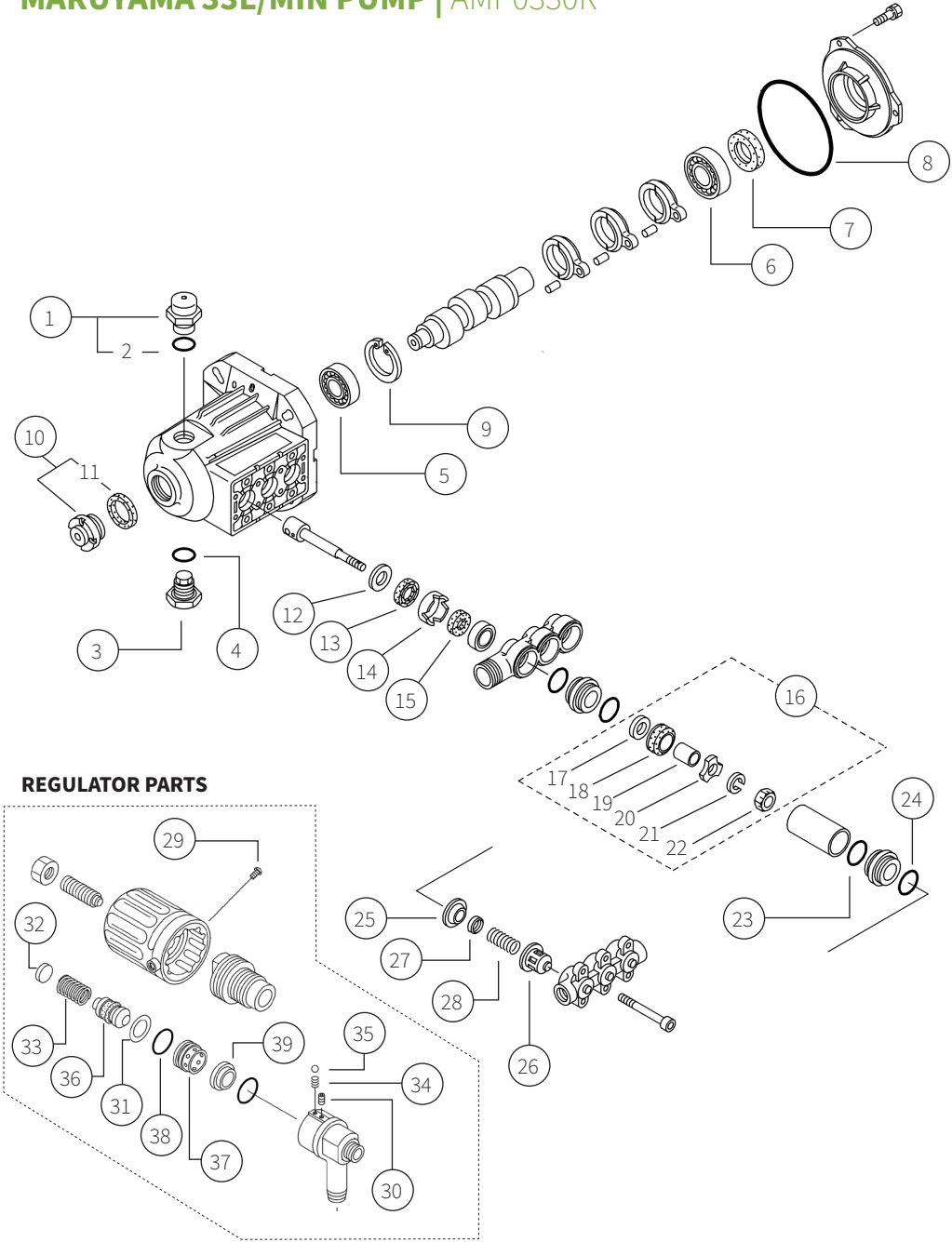
Figure 4.



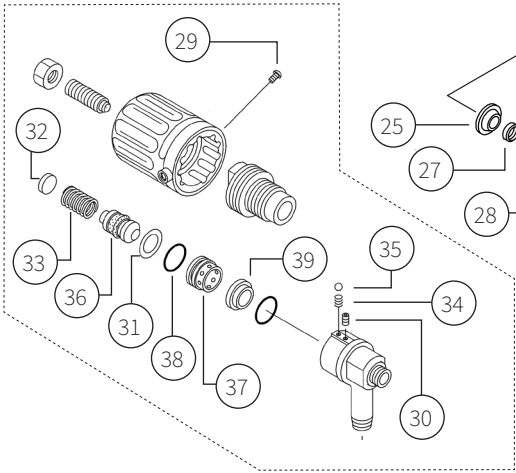
#	PART NO.	DESCRIPTION
Figure 4. 33L/min Maruyama & GX200 Honda		
22	ASFY00360EM	Engine mount
23	APHGX200	GX200 Honda Motor (<i>not for ind. purchase</i>)
24	APM0330R (Z)	Maruyama 33L/min pump (with motor)
	APM0450R (Z)	Maruyama 45L/min pump (with motor) (<i>not shown</i>)
	APL0340KKGH	Bertolini PA330 pump with GX200 Honda (<i>not shown</i>)
	APL0540KKGH	Bertolini PA530 pump with GX200 Honda (<i>not shown</i>)
	APL0750KKGH	Bertolini Poly 2073 pump with GX200 Honda (<i>not shown</i>)
25	CAP1132320	3/4" x 20mm 90° hose tail
27	CUUC19MM	19mm clear suction hose / metre
30	CFNE20M20B	3/4" x 20mm Poly barb elbow
32	CUUC32MM	32mm clear suction hose / metre
33	CAP1090632	T6 F fitting fork to 32mm barb
34	CAP31324E2	Suction filter Shut-off Valve - T6 port



MARUYAMA 33L/MIN PUMP | AMP0330R

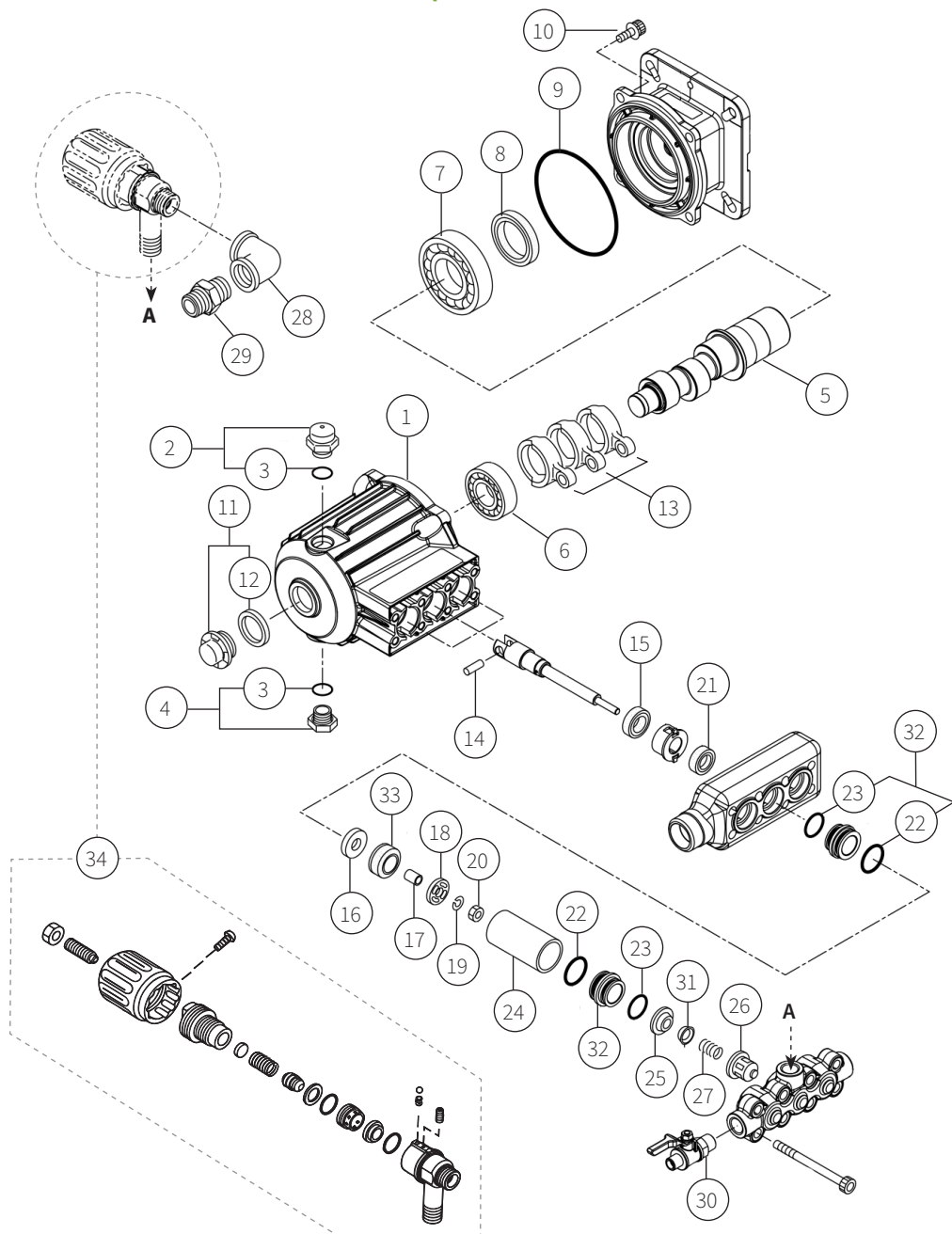


REGULATOR PARTS



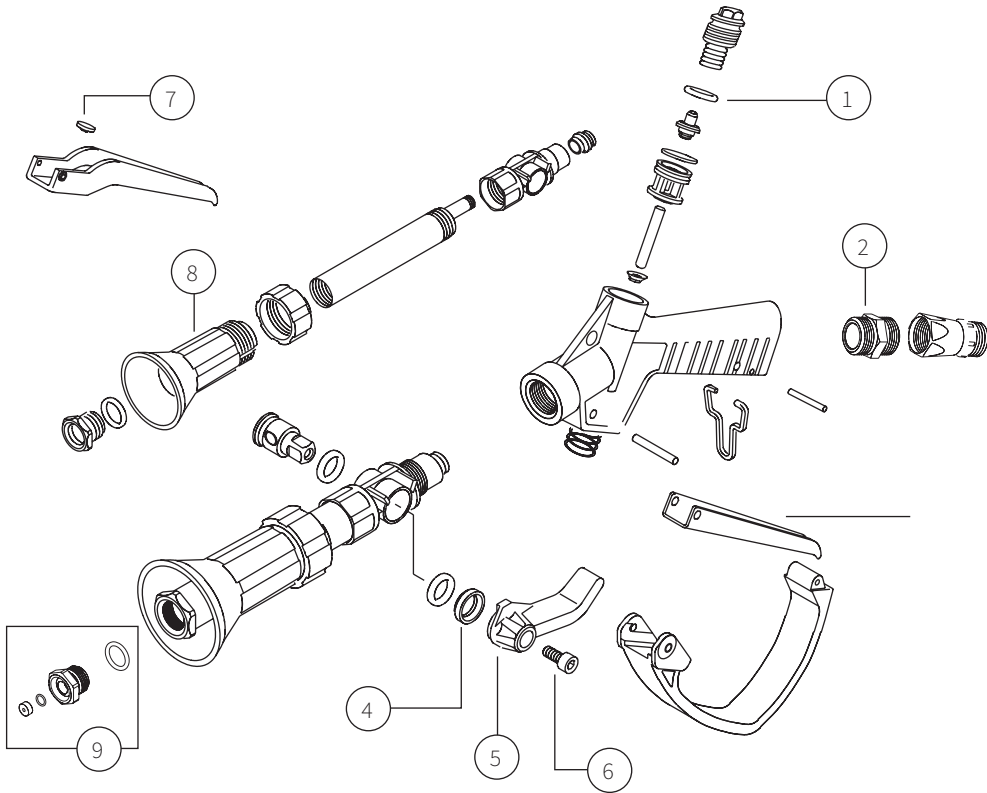
#	DESCRIPTION	QTY
1	CPUXK330S - Oil Filter Cap incl. #2	1
2	O-Ring P20	1
CPUXL330V - Valve Repair Kit		
3	Plug	1
4	O-Ring P20	1
5	#6204 Bearing	1
6	#6006 Bearing	1
7	D30428 Oil Seal	1
8	S100 O-Ring	1
9	Snap Ring	1
10	Oil Gauge incl. #10-2	1
11	Packing	1
12	17x24xT1.2 Washer	3
13	S10.5247 Oil Seal	3
14	Seal Retainer	3
15	10x19x5 Oil Wick	3
16	A Block incl #16-1 - 16-7	3
17	Inlet Valve Set	3
18	Piston Packing Set	3
19	6x8.5x10.5 Spacer	3
20	Piston Retainer	3
21	M6 Spring Washer	3
22	M6 Nut	3
CPUXK330G - Plunger Kit		
18	Piston Packing Set	3
22	M6 Nut	3
23	P21 O-Ring	6
24	P22 O-Ring	6
CPUXK330S - Seals Kit		
25	Valve Seat	3
26	Valve Sack Retainer	3
27	16x1.5 Valve	3
28	0.6-15L Spring	3
CPUXK330R - Regulator Repair Kit		
29	M3xP0.5x5 Screw	2
30	M4x6 Hexagon Socket Screw	1
31	16x21x0.7T Washer	1
32	15xT2.5 Spring Seat	1
33	3.0-31L Spring	1
34	0.6 - 7L Spring	1
35	5/32 Valve Ball	1
36	Piston Assembly	1
37	Sleeve	1
38	P16 O-Ring	1
39	Valve Seat	1

MARUYAMA 45L/MIN PUMP | AMP0450R



#	CODE	DESCRIPTION	QTY
1	131417	Crankcase	1
2	566227	Cap Oil Filler	1
3	566348	O-Ring P20	5
4	811174	Plug Assembly (inc. 3)	1
5	661793	Crank Shaft	1
6	049363	Bearing #63 / 22	1
7	126962	Bearing #6208	1
8	125351	Oil Seal	1
9	014043	O-Ring S110	1
10	127285	Screw M8 x 25	4
11	566356	Oil Gauge (inc. 12)	1
12	566359	Packing 25 x 34 x T2	5
13	049364	Rod Connecting	3
14	049366	Pin Piston 10 x 19.5	3
15	047215	Oil Seal SC16267	3
16	027813	Machined Disc 6 x 24 x T3.8	3
17	027499	Spacer (Sleeve type) 6 x 8.5 x 11	3
18	566374	Retainer Piston	3
19	566375	Washer Lock M6	5
20	566376	Nut Nylon Insert M6 (see. 24 468469)	5
21	566379	U-Packing	3
22	043781	O-Ring Cylinder 24.2 x 2.3	6
23	566384	O-Ring P22	6
24	103954	Cylinder Pipe 28.5 x 32 x 56	3
25	566386	Machined Tapered Disc	3
26	566240	Retainer Spring 310	3
27	566391	Spring 0.6 - 15L	3
28	864012	Elbow 1/2	1
29	040389	Nipple PT1 / 2XPF1/2	1
30	833094	On / Off Lever	
31	566389	Machined Disc Discharge	
32	566784		
33	468469		
Regulator / Relief Valves			
34		MS170 Relief Valve	

TURBO 400 SPRAY GUN | AHG103



#	PART NO.	DESCRIPTION
1	CRP2360236	O-Ring 121
2	CRP1626095	½" BSP Ring Nut
3	CRP239024	Metal Trigger (only suits Turbo 400 guns)
4	CRP26150614	O-Ring (orange lever)
5	CRP269026	Regulator Trigger
6	CRP26190220	Screw for orange lever
7	CRP2980140	Insert 8x4.8
8	CPLP102C	Plastic Shroud only

#	PART NO.	DESCRIPTION
	CPLK102R	Complete Repair Kit for Turbo 400 Spray Gun
	CLPK102S	M30 Seals Kit
	CLPK102V	Viton Seals Kit
9	CPLP102N15 / 23 / 35	1.5mm / 2.3mm / 3.5mm Nozzle Kits

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WARRANTY

WARRANTY POLICIES AND PROCEDURES

The following warranty is the only warranty applicable to RAPID SPRAY products, and to the maximum extent permitted by law, overrides any other conditions or warranties Expressed or implied on RAPID SPRAY products.

Other than legislative obligations to the contrary, RAPID SPRAY will not be liable for and incidental or consequential damages arising from the ownership or use of a product. No person, including any dealer or representative of RAPID SPRAY is authorized to make any representation or warranty on behalf of RAPID SPRAY in addition or inconsistent with these provisions. Purchasers to whom these provisions apply agree to hold RAPID SPRAY not liable for claims by their customers in excess of the obligations of RAPID SPRAY expressly set forth herein.

NOTE: All tank and spray systems must have their warranty activated by returning warranty card located at the end of this document or registering online within 21 days of purchase by the end user.

THE WARRANTY

All products sold by RAPID SPRAY are guaranteed to be free from defect in materials workmanship or manufacture for a period of 12 months from the initial date of purchase, excepting the following exclusions;

Any parts/products found by RAPID SPRAY to be defective, either in material or workmanship will be replaced or repaired within this period, at no cost to the initial purchaser if following conditions are met:

- The item has been operated in accordance with all instructions and warnings provided
- Item is still owned and operated by the original purchaser - proof of purchase is required to obtain warranty



See <https://www.rapidspray.net/resources/warranty-registration> to register your Ultimate Field Sprayer for warranty.



The following things are expressly excluded from the above warranty.

ABUSE	Failure as a result of neglect, such as improper operation. Lack of maintenance or continued operation after discovery of a defect that leads to further damage
ALTERATIONS	Any unauthorized alteration, modification, attachments or unauthorized repair to equipment.
CLEAN-UP TIME	RAPID SPRAY does not pay for cleaning of products, parts or accessories or work area before or after the warranty repair.
DAMAGE	Damages or machine/component failure caused by carelessness/recklessness or accidental damage, improper operation, excessive speed, inappropriate storage or transportation.
ENVIRONMENTAL CONDITIONS & APPLICATION	Deteriorated or failed components such as o-rings, diaphragms, hoses, seals and connections damaged by corrosive chemicals, dirt and sand, excessive heat, moisture or other environmental impacts. Warranty determination on these type of failures will be made by RAPID SPRAY, only after inspection of the failed component.
INABILITY UNSUITABILITY	In no event shall RAPID SPRAY be liable to any person for indirect or consequential damages or for injury or commercial loss resulting from any use or inability to use any RAPID SPRAY product.
MAINTENANCE	Component failure due to failure to perform maintenance services such as, oil and grease changes/top-ups, failure to clean tanks, pumps filters, nozzles and spray lines. Failure to tighten or replace loose or missing bolts, nuts, fittings, shields and covers.
NON-GENUINE PARTS	Use of parts other than RAPID SPRAY parts for repair of warranted items will automatically negate any warranty. Warranted components must be replaced with genuine parts.

WARRANTY REGISTRATION

You can register online at www.rapidspray.net/resources/warranty-registration or complete all the details below and post this form back to:

Rapid Spray, PO Box 3119, Singleton NSW 2330

Model Serial No

Purchased From
(Dealer Name & Town)

Purchaser's Name

Purchaser's Address

.....

Purchaser's Phone Number

Email Address:

Disclaimer: If you don't want us to keep you informed of new products, please tick the following circle: ☐

To help us help you further, please complete the following:

Purchaser's Age

- ☐ Up to 25
- ☐ 25 - 40
- ☐ 41 - 55
- ☐ Over 55

Principal Usage

- ☐ Commercial farm
- ☐ Hobby farm
- ☐ Industrial
- ☐ Other.....
- ☐ Town council
- ☐ Hire company
- ☐ Home

What influenced you to purchase a Rapid Spray product?

- ☐ Received Catalogue
- ☐ Newspaper advertisement
- ☐ Magazine advertisement
- ☐ Dealer recommendation
- ☐ Friends recommendation
- ☐ Better features than competitor product
- ☐ Quality & reliability
- ☐ Price
- ☐ Past experience with Rapid Spray products
- ☐ Other.....

What other Rapid Spray products do you use?

- ☐ Hand / Backpack Sprayers
- ☐ Cartage / Spray tanks
- ☐ Diesel refuelling units / tanks
- ☐ Fire fighting
- ☐ UTV / Field sprayers
- ☐ Pumps, motors and controllers
- ☐ Chapin / Jacto sprayers
- ☐ Other.....



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NOTES

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Call us on 1800 011 000 or
visit www.rapidspray.net

35 Enterprise Cres, Singleton NSW 2330
PO BOX 3119 Singleton NSW 2330

Telephone: 1800 011 000
Facsimile: 02 6571 2951

Rapid Spray Liquid Management Systems

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