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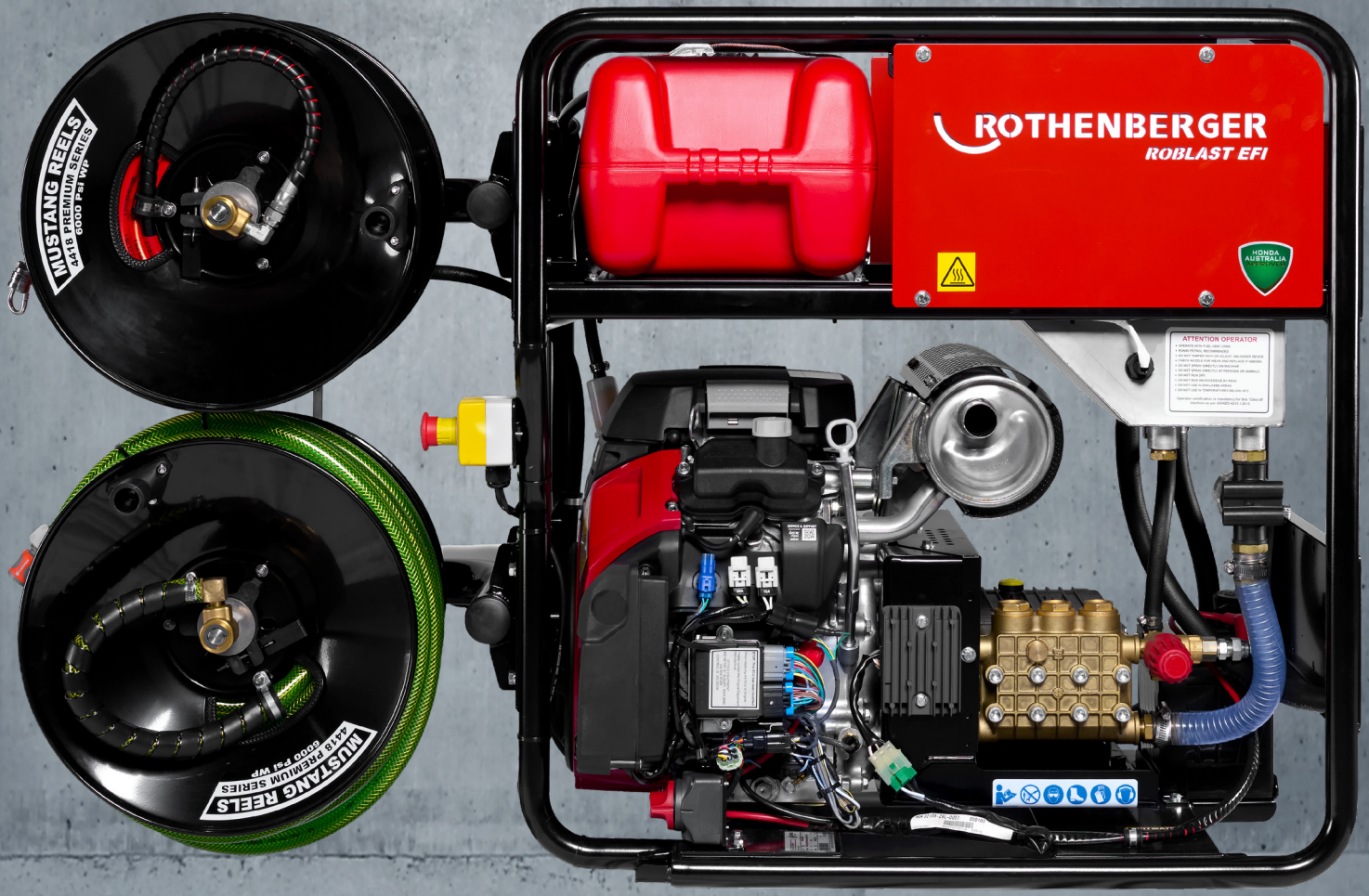
ROTHENBERGER ROBLAST EFI JETTER MANUAL



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SAFE JETTING

DRAIN CLEANING JETTER RISK ASSESSMENT

In accordance with the National Occupational Health and Safety Commission's requirements, the data detailed throughout this manual applies to all Class B Drain Cleaning Models.

DESCRIPTION:

Engine driven, high-pressured, drain cleaning jetters are designed and optimised for both domestic and professional drain cleaning applications.

Note: Certification of the operator is mandatory for Class B machines - refer to AS/NZS4233.1.1

RISK RANKING METHOD:

One's level of risk is defined as the combination of the likelihood of a specific and unwanted event occurring, coupled with the potential consequences that will be experienced should this event occur.

RISK RANKING TABLE:

In the adjacent table, the consequences, or 'loss outcomes' and their related likelihood assist in accurately determining the risk ranking attributable to each loss event. For example, a consequence labeled as 'Moderate with a likelihood determined to be 'Likely', yields an effective risk ranking of 17.

The table exhibits a risk ranking, ranging from 1 to 25, relevant to each set of probabilities and consequences. A ranking of 25 constitutes a highly likely, and thus very serious, event.

Consequently, a ranking of 1 signifies the lowest possible degree of risk, meaning that particular event is very unlikely to occur.

Specific controls must be taken in order to mitigate risk, and where possible, eliminate it completely.

Likelihood	Use the matrix to determine the risk	Consequences				
		Insignificant	Minor	Moderate	Major	Catastrophic
	Almost certain	High 11	High 16	Extreme 20	Extreme 20	Extreme 25
	Likely	Moderate 7	High 12	High 17	Extreme 21	Extreme 24
	Possible	Low 4	Moderate 8	High 13	Extreme 18	Extreme 22
	Unlikely	Low 2	Low 5	Moderate 9	High 14	Extreme 19
	Rare	Low 1	Low 3	Moderate 6	High 10	High 15

SEE NEXT PAGE FOR MORE INFORMATION

Risks associated with operating a drain cleaning jetter - for use on daily SAFE WORK METHOD STATEMENT

Potential Hazard	Risk	Risk Rating	Controls
Entanglement with jetting hose (tripping, falling)	Personal injury of the operator or bystanders	13	• Minimise trip hazards through use of hose reel • Ensure firm footing before starting jetter
High pressure water jet	Personal injury of the operator or bystanders	13	• Display jetting in progress warning notice near jetter • Wear eye protection & PPE • Use high pressure resistant gloves • Always point jet at area to be cleaned • Utilisation of barriers to ensure bystanders are kept away from work area • Stop jetting if person(s) enter working area • Never leave jetter unattended • Never point spray jet at person(s) or animal(s) • Never put your hand over the jetter nozzle whilst operating • Stop jetting if a malfunction occurs
Injury from whipping hose 1. at machine startup 2. as drain hose is withdrawn from hose 3. If coupling fails	Personal injury of the operator or bystanders	13	• When starting jetter, firmly hold end of hose pointing down to the ground (with no nozzle attached) • Markings on hose to indicate distance to end of hose • Train the operator • Use of safety plate over drain entrance • Connect hose restraint around junction of hose & gun or hose & remote mini reel
Suffocation	Fatality is the risk	18	• Do not operate engine without suitable ventilation • User to undertake confined spaces training
Manual handling	Personal injury	18	• Operator's manual • Staff training in manual handling • Long handled drain cover keys
High temperature (from engine muffler and other components)	Burns to the operator	11	• Warning sticker on engine • Keep clear of hot engine parts
Fire or explosion	Serious injury, burns	18	• Do not operate jetter in explosive atmosphere • Turn off engine & allow to cool before refuelling • Recharge batteries using correct charger • Wear eye & face protection when working near battery
Noise	Hearing damage	11	• Hearing protection
Dislodged particles in atmosphere	Sight damage	20	• Never clean asbestos with high pressure water • Use of eye protection
Electrocution if water contacts electricity	Personal injury	19	• Do not aim water jet at electrical equipment
Slipping	Personal injury	17	• Use of proper footwear on wet surfaces
Contact with foul water or sewage	Infection, illness from water splashes, ingested water	17	• Personal protective equipment such as gloves, overalls, boots, eye and/or face protection etc • Operator to use good basic hygiene
Contact with chemical cleaners used to clean drains	Skin contact could result in burns, skin irritation etc. Fumes from some chemicals may lead to respiratory issues	22	• Chemical cleaners to only be used as last resort when other methods have failed • Areas to be kept well ventilated • Staff to follow manufacturer's instructions at all times for use, storage & disposal of cleaners • Staff to wear the appropriate PPE • Respiratory protection

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We would like to ensure that you not only obtain the best possible results from your new machine, but that you also, more importantly, operate it in a safe and comfortable manner. In an effort to achieve this objective, this manual contains information on how to do so most effectively. We ask that you please read it carefully, and understand it clearly, before operating your machine.

Additionally, please note that the drain and sewer cleaning procedures must be followed diligently. If not, this could result in severe injury, and in some cases, death. Appropriate safety clothing and equipment must be used at all times.

Drain cleaning jetters utilise water at extremely high pressures in order to clear blockages containing inevitable build up, such as grease, sediment and tree roots, from clogged rains. The pressure is generated by restricting the flow of water with a nozzle at the end of an extremely flexible jetting hose.

The nozzle contains reverse facing, high-pressure, jets of water, and works to propel the hose along the drain, effectively clearing blockages, and flushing away the remaining debris.

FROST PROTECTION

If your environment increases the danger of the water freezing, the jetter and hose must be completely drained, or the system thoroughly flushed with antifreeze, as follows:

1. Run the machine until the float tank is almost empty.
2. Fill with 50% mix of water and antifreeze and run the pump until antifreeze appears at the high-pressure outlet.

WARNING: Do not use the jetter if there is a chance that ice has formed within the hose or pump.

SAFETY PRECAUTIONS

All individuals operating a high-pressure jetter must ensure that they are competent in doing so. To provide some basic guidance, we recommend the following precautions:

1. Never direct the spray jet at any person(s) or animal(s).
2. Never direct the spray jet at any surface that may contain asbestos.
3. Do not operate the jetter with a nozzle attached to the hose while the end of the hose sits outside of the pipe as the hose will whip out of control and likely cause injury.
4. Never hold a finger over the high-pressure nozzle as one's skin may be penetrated by the high-pressure water jets.
5. Never direct the spray jet at the machine itself, or any electrical equipment.
6. After use, release the pressure in the high-pressure hose by operating the hose reel ball valve, or gun trigger if operating a gun/lance.
7. Whilst not operating, always switch off the engine, depressurise all hoses, and disconnect the machine from the water supply.
8. Certain engine components become extremely hot when in use, such as the exhaust muffler and the cylinder head. Thus, switch off the engine and ALLOW TO COOL before touching or refuelling.
9. Do not attempt any mechanical repair on the machine. If you do have a problem with your machine, please contact ROTHENBERGER or their nominated service agent.
10. Never supply any liquid, other than clean water, to the water inlet.
11. Never pull the high-pressure hose if it has formed kinks or nooses. Additionally, never pull the hose over sharp objects and do not allow the hose to be driven over. A damaged hose must be professionally repaired or immediately replaced. Be sure to visually check all hoses prior to each and every use.
12. Do not join any jetting hoses together as couplings may fail or get jammed within the drains.
13. Use your machine only in a well-ventilated area.
14. Ensure the unit remains level during operation, as low oil levels may lead to engine damage.
15. Do not attempt to disconnect any hose or coupling whilst pressurised.
16. Do not operate the machine when standing on ladders. Rather, use a platform tower or scaffolding.
17. Wear safety goggles when operating the machine, particles of stone, grit, or other related substances may be blown around by high-pressured spray.
19. Remain alert and forever pay attention to what you are doing and to the machine that you are operating. Do not use the jetter while you are tired or under the influence of drugs, alcohol or any medication that may impair judgement.

WORK AREA SAFETY - MINIMISE HAZARDS

1. Keep your work area clean and well lit.
2. Set-up the jetter and establish your work area in such a way as to minimise the risk of injury from high-pressured water, chemical burns, infections, carbon monoxide, and other dangers.
3. Mark off the area, with physical barriers where necessary, in order to keep bystanders, passing traffic and non-essential personnel clear and safe.
4. Check for flammable or poisonous liquids, vapours and dust that have the potential to ignite. Do not operate the jetter until the area has been cleaned, and thus deemed to be safe for operation.
5. Check the condition of the drains before starting to jet. Drains that are in good condition will not be damaged by the jetting process. However, poorly maintained or constructed drains are highly susceptible to further damage, and these conditions may mean that the jetting is far less effective.

RISK ASSESSMENT

COMPLETE A RISK ASSESSMENT OF THE SITE & JOB BEFORE YOU START.
Please see risk assessment checklist for jetting equipment on page 3.

SAFE JETTING

STAY SAFE

SAFETY CLOTHING

It is vitally important that all persons operating the unit must wear protective clothing, such as safety goggles, face shields, gloves, overalls or raincoat, steel capped boots as well as ear protection equipment as applicable. Please refer to page 12 for further details.

ENGINE HAZARDS

Engines emit a toxic, carbon monoxide gas, that is both colourless and odourless. Therefore, you must not operate the jetter within an enclosed area.
Petrol is an extremely volatile, flammable and explosive substance when in the midst of certain environments. In order to effectively mitigate these risks, please adhere to the following guidelines:

- Turn off the engine and allow the mechanism to cool before refuelling.
- The refuelling of the unit must be completed in a careful and conscious manner. Please be sure to not overfill the tank, and use suitable equipment when carrying out this task, such as appropriate containers and funnels. Once the unit has been refuelled, ensure that the fuel tank lid is correctly closed and secured.
- Carefully check for and clean away any spills before starting the engine.

NOTE various parts of the engine will become hot whilst operational. These extremely hot surfaces can cause direct burns and lead to larger fires. Hence, you must ensure that all body parts are kept at a comfortable distance away from the hot areas of the engine. Additionally, remain conscious of the fact that these engine parts will take some time to cool down. For more information, please refer to page 3.

JETTER WARNING

Before commencing the operation of your drain cleaning jetter, ensure that you have read and fully comprehend this manual:

Note: Certification of the operator is mandatory for Class B machines - refer to AS/NZS4233.1.

The jetting hose has been purposefully marked at 1 metre from the end of the hose in an effort to ensure that the operator is notified when he or she is nearing the end of the jetting hose as it is being drawn from the drain or sewer line. The operator must shut off the water pressure flowing to the nozzle before removing the last metre of jetting hose from the sewer line or drainpipe. Failure to follow these guidelines may result in severe injury or death.

WASH DOWN OPERATION

Never spray any person(s) or animal(s) whilst operating your jetter with the wash down gun/lance. To do so would likely result in the severe injury or death of those sprayed.

BACTERIA WARNING

Sewer lines and drainpipes alike are susceptible to the often-inevitable build-up of bacteria and various other dangerous micro-organisms, which may prove infectious. If exposed to one's mouth, nose, ears, eyes, hands, open cuts or any type of abrasion, this can lead to severe illness or death. In order to adequately protect the operator against such threats, it is crucial that one's arms, hands, and other areas of the body are thoroughly washed with hot and soapy water immediately after any involvement with sewer lines. For further information, please refer to page 3.

Never eat or smoke whilst operating the jetter, as this may leave you vulnerable to the transfer of harmful micro-organisms.

PREPARATION FOR USE

PUMP / ENGINE

1. Be sure to diligently check the oil in the pump, and engine daily.

NOTE there are separate oil reservoirs for the pump and engine.

2. With the machine placed upon a level surface, the pump oil level should cover the red dot located in the oil level sight glass on the side of the pump.

If necessary, top-up the oil level (use non foaming type of oil [refer to pump manufacturers manual]). Be very careful to not mix different oil grades as this may prove detrimental to the machine's performance. If you are planning to use alternative oil, be sure to first empty the remaining oil by unscrewing the drain plug at the bottom of the pump.

3. After filling the oil to an adequate level, ensure that the breather plugs is fitted back to the pump.

4. Remember to carefully check the engine's oil level on a daily basis. Please refer to the engine manufacturer's separate handbook for further guidance.

OIL PROPERTIES

Oil loses its lubricity over time. Therefore, change the pump oil during regular service. Failure to carry out the regular maintenance voids warranty. For more information, refer to page 17.

BATTERY MAINTENACE

The ROTHENBERGER ROBLAST Jetter is fitted with a lead-acid battery. It may be necessary to run the jetter for at least 20 minutes to recharge the battery as required. If the battery is flat, it may be recharged using a battery charger. Contact a battery specialist for further assistance.

START UP PROCEDURE

1. Pull a sufficient amount of water supply hose off the reel and connect this to the water tap.

NOTE the water tank is fitted with a low water cut off switch. This means that the engine will not run if the water level drops below a certain point.

2. Turn on water supply

NOTE the tap should be fully on. Please ensure that there are no leaks throughout the supply hose and/or connections.

3. Ensure that the water tank is full, and the float valve has shut off.

4. Engage the battery isolator and check that the emergency stop button is reset.

5. Ensure that your main hose is connected to the safe starting connector.

NOTE If your jetter does not have a safety starting connector, you can hold an open-ended hose in your hand and simply point it downwards.

WARNING Ensure that no nozzle is fitted to the hose. It must be open flow.

6. Ensure that the ball valve is in the **OPEN** position.

7. Start the engine by turning the ignition switch to "START". Please refer to the engine manual for further details.

8. Once the engine has been started, close the ball valve, at which point the pump will now go into by-pass mode.

9. This engine is fitted with "Smart Governor" that reduces engine RPM when no load is detected (pump in by-pass mode).

NB! On cold start, it can take up to two minutes for "Smart Governor" to automatically reduce the engine RPM, because the engine needs to reach normal operating temperature.

SAFE JETTING

PREPARATION FOR USE cont.

OPERATION AS A DRAIN CLEANING JETTER

1. Refer to page 8 for start-up procedure.

2. Run out a significant length of jetting hose from the hose reel.

3. Push at least 3-metres of jetting hose through the hole located in the centre of the safety plate.

4. Attach the selected drain cleaning nozzle to the end of the jetting hose. Please be sure that the nozzle is **fully snapped into position**.

5. Place at least 1-metre of the hose length down the drain, using the hose markings as an accurate guide.

6. Proceed to cover the entrance to the drain with the safety plate.

7. Turn on the ball valve in order to activate the high-pressure jet nozzle.

8. Ease the hose down the drain, twist the hose to aid the nozzle in negotiating bends and turns. The nozzle will create a gentle pulling action against the hose. If it becomes stuck, a sharp tug should free it up.

9. For more jetting tips, please refer to page 13.

CHANGING NOZZLES

ALWAYS WEAR PROTECTIVE GLOVES

1. Ensure that the ball valve is turned to the OFF position before removing the hose from the drain.

2. Wait for the hose to depressurise.

3. Change the nozzle as required, ensuring that the replacement nozzle is correctly snapped into position.

WARNING: When removing the hose from the drain, be sure to turn the ball valve OFF before the 1-metre mark on the hose appears. The hose has been marked accordingly for your safety. Please reapply these marks as necessary.

Turning the Jetter OFF

1. Except for the last 1-metre, remove all of the jetting hose from the drain.

2. Turn the ball valve OFF.

3. Turn engine ignition key to “OFF”. Please refer to the engine manual for further details.

4. Release the pressure still in the hose by opening the ball valve. Wait until the hose is depressurised.

5. Pull out the remaining 1-metre of jetting hose and remove the nozzle.

6. Isolate the battery.

7. Disconnect the supply hose.

8. Diligently clean and carefully stow the jetting hose and nozzle. Connect end of hose to a safe starting connector.

OPERATION OF REMOTE MINI REEL

The Remote Mini Reel offers the user the option of remotely controlling the jetter.

1. Refer to page 8 for start-up procedure.

2. Run out a sufficient amount of jetting hose from the jetter reel in order to comfortably reach the drain access point.

3. Slip the hose restraint over the end of the jetting hose.

4. Connect the extended jetting hose to the inlet on the Remote Mini Reel and then secure the hose restraint to the connection point.

5. Ensure that the ball valve on the Remote Mini Reel has been closed.

6. Run out a sufficient length of jetting hose from the Remote Mini Reel.

7. Push at least 3-metres of jetting hose through the hole located in the centre of the safety plate.

8. Attach the selected drain cleaning nozzle to the end of the jetting hose, ensuring that it is correctly snapped into position.

9. Place at least 1-metre of hose down the drain, using the hose marking as an accurate guide.

10. Cover the entrance to the drain with safety plate.

11. Turn on ball valve on the jetter, and then turn on the ball valve on the Remote Mini Reel to activate the high pressure jet to the nozzle.

12. Ease the hose down the drain. Twist the hose to aid the nozzle in negotiating bends and turns. The nozzle will create a gentle pulling action on the hose. If it becomes stuck, a sharp tug should free it up.

NOTE the ball valve on the Remote Mini Reel controls the pressure to the nozzle, the ball valve on the jetter controls the pressure to the Remote Mini Reel.

EMERGENCY STOP BUTTON

As per safety standards AS/NZS4233.1, it's mandatory that all Class B Jetters be fitted with an emergency stop. This button should only be used in an emergency situation.

ROTHENBERGER recommends allowing engine to cool down, running with pump in by-pass mode for one minute before shutting off the engine.

If the emergency button has been used, it must be reset before the engine will start again. To reset, turn the button clockwise.

WARNING After activating the E-Stop, remember to turn the ignition key to the OFF position. Failure to do so could lead to a flat battery and shortened battery life.

SAFE JETTING

OPERATION AS A PRESSURE CLEANER (OPTIONAL)

1. Please refer to page 8 for the start-up procedure.

2. Slip the hose protector over the end of the jetting hose.

3. Fit the gun/lance assembly to the end of the jetting hose, use the hose restraint together with the shroud in order to cover the joint between the hose and gun, and secure the strap to the gun.

4. Open the ball valve to pressurise the hose.

5. Ensure you hold firm footing and brace for pressure.

6. Ensure there are no leaks throughout the line connections. Fix any leaks before proceeding to use the jetter.

7. Prepare yourself with the understanding that pressure begins when the trigger is squeezed.

ROTHENBERGER SAFETY PROTECTION

SAFETY VALVE: This device protects the pump as it releases excessive pressure if the unloader has been tampered with.
Please do not tamper with the preset unloader and safety valve. It is **very dangerous** to do so and will **void your warranty.**

ALTERING PUMPING SYSTEM MAY RESULT IN SEVERE INJURY OR DEATH
Warranty will be void if any high-pressure equipment has been altered by unauthorised persons. Over-speeding or over-pressurising of the pumping system can be **extremely dangerous** and will significantly reduce the life of your ROTHENBERGER ROBLAST Jetter. It may also result in injury or death.

ROTHENBERGER SAFETY PROTECTION

Your high-pressure pumping system operates as the heart of your drain cleaning jetter. Accordingly, the pump has been specifically designed to operate with cold water for pipe water jetting and high-pressure wash down applications.

High-pressure is created when the pump outlet is restricted with a nozzle. All high-pressure outlet connections, hosing and equipment is rated well above the maximum operating pressure of the pump.

Please be sure to never adjust the regulators on your pump. Doing so will **void your warranty**. Additionally, for any high-pressure pumping system malfunctions, please contact ROTHENBERGER, or an approved and qualified service centre.

Due to the obvious safety hazards that accompany the operation of high-pressure systems, be sure to use only approved and genuine high-pressure hoses and components when replacing or repairing your drain cleaning jetters. For further guidance around this, please contact ROTHENBERGER or the Distributor from whom you purchased your unit.

PERSONAL PROTECTIVE EQUIPMENT

Appropriate personal protective equipment should be worn where:

- Hazards cannot be prevented or otherwise suitably controlled, e.g. by engineering or administration controls, total enclosure or substitution.

- Complete protection is essential, e.g. in certain occupational environments containing hazardous levels that are uncertain

- Please note that the provision and use of certain personal protective equipment certainly does not reduce or replace the necessity of proper Occupational Health and Safety prevention measures, such as engineering or administrative controls, to be exercised. Such preventative measures should always be fully explored and implemented where applicable, well before considering the utilization of personal protective equipment. Where personal protective equipment is deemed necessary, and thus, issued, proper instruction and adequate training must be provided regarding its correct use and maintenance.

Head Protection

Where appropriate suitable head protection complying with AS/NZS 1801 should be worn.

Eye Protection

In compliance with AS/NZS 1337, eye protection, adequate for both purpose and individual fit, should be worn at all times when in the vicinity of any water blasting operations. Where the liquid is likely to cause eye damage, and thus, the individual operator is vulnerable, full visor and goggles are recommended.

Body Protection

In compliance with AS/NZS 3765.1 (or AS/NZS 3765.2 if working with hazardous chemicals) all persons should wear suitable waterproof clothing, applicable to the nature of work being done. Specifically, liquid or chemical-resistant suits should be worn where there is an assessed risk to health or of injury that can be prevented by such equipment.

Hand Protection

In compliance with AS/NZS 2161.2, AS/NZS 2161.3 or AS/NZS 2161.5, appropriate hand protection should be worn where there is an assessed risk of injury that can be prevented by such equipment.

Foot Protection

In compliance with AS/NZS 2210.2, appropriate occupational footwear should be worn at all times. Furthermore, a lower leg guard should be used by water blasting operators where it has been assessed that the risk of foot injury could be prevented by such equipment. Please refer to AS/NZS 2210.2 for guidance around the appropriate selection of footwear.

Hearing Protection

In compliance with AS/NZS 1270, appropriate hearing protection should be worn at all times where the level of noise exceeds the limits stipulated by regulatory authorities.

SAFE JETTING

OPERATING TIPS

We would like to provide you with some tried and tested tips and techniques to make your jetting experience an easier and more enjoyable one.

- Be sure to always use the safety plate as it will protect your jetting hose against damage from both sharp edges and rough surfaces present at the entrance to the drain. Remember, more damage is done to a hose upon the entering and exiting of the drain than anywhere else. Additionally, the safety plate prevents the jetting nozzle from accidentally existing the drain whilst under pressure.

- Begin your jetting with a long nozzle, such as the Predator, or for smaller drains, such as the Compressor.

- To combat extremely tight bends, remove the quick coupler from the hose, the cowling from the nozzle, and connect the head directly to the hose.

- Twist your jet hose in order to effectively maneuver it around tight bends and traps

- Once you have broken through the blockage, change to the Root Ranger in order to clear the tree roots from the sides of the drain. Additionally, when using the Root Ranger Turbine, the hose must be twisted in order to thoroughly clear the root choke from all sides of the pipe.

- To prevent the Root Ranger Turbine from entering side channels, simply push through the junction as quickly as possible, without twisting it. Doing so will maintain the turbine on a straight path.

- If your hose happens to become jammed, which is a fairly common occurrence, pull the hose hard and then let it go quickly so that it may snap back and loosen itself. Additionally, turn off the jet, pull the hose, and then turn the jet back on once more.

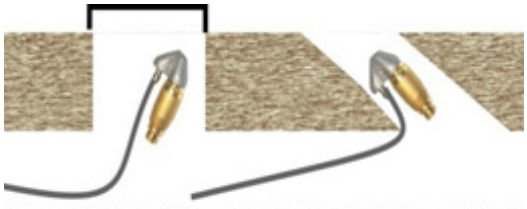
- When accessing a square junction down a shaft, a section of 50mm of pipe with an elbow on the end may help direct your nozzle up and into the desired location. Alternatively, you may run your hose through a section of flexible pipe, such as a 50mm ag drain, in order to assist in the directing and protecting of the jetting hose.

While the Root Ranger is considered top of the line, it will become stuck on a regular basis. In an effort to mitigate this:

- Attempt running the Root Ranger straight towards the blockage, without twisting the hose.

- Delay the twisting of the hose to when you are actually cutting the roots or retrieving the hose from the blockage. Such a practice will stop it moving up any branch drains, toilet pans and PVC capped inspection openings!

- When managing drain larger than 6”, be sure to add an extension to the Root Ranger in order to prevent it from becoming wedged.



HOSE WEAR

Jetting hoses must be checked daily for wear and tear, and immediately replaced if deemed to be damaged. ROTHENBERGER supply strictly premium quality, flexible jetting hoses on all jetters.
Never be tempted to use a lower grade hose.
STAY SAFE.

NOZZLES

There are 3 main types of penetrating nozzles; the Predator, the Negotiator, and the Compressor. Furthermore, these 3 nozzles come in different configuration options; 3 rear 1 forward, 6 rear 1 forward, and 6 rear only.

The Predator is a great starting choice for general purpose drain cleaning. It comprises a long-pointed nose used for penetrating deep into a choke and blasting out the debris.

The Negotiator has been purposely designed in a shorter manner in order to move more effectively around tight bends and traps. It is a nice multi-purpose nozzle for any drain cleaning application.

The Compressor is smaller yet again, and this nozzle is best used when attacking smaller blockages. A new extension may also be purchased for the Compressor.

The Root Ranger is used to clear what the other nozzles leave behind. It consists of 1 rear thrust port and an optional front jet. This nozzle will effectively clear almost anything from the drain and is the primary root cutter used by plumbers throughout the world.

NOZZLE WEAR

As drain cleaning nozzles or wash down nozzles have worn, pressure loss will occur. Regular nozzle replacement is imperative if you intend to maintain constant and maximum efficiency of your drain cleaning jetter.

NOZZLE SAFETY - RESPECT THE PRESSURE

- Do not hold any nozzle while pressurised.
- Do not allow any nozzle to leave the drain while pressurised.
- Hoses must be conspicuously marked at a nominal distance of 1 metre from the nozzle to indicate the location of the nozzle.
- Always use a safety plate or safety shield in case nozzle turns through 180° in the pipe and returns back to the entry.
- The bend radius of the hose, coupling & nozzle combined should be more than the internal diameter of the pipe. If not, a starter bar (a length of rigid pipe) should be fitted to increase the bend radius as necessary.

Root Ranger Turbo Nozzle

- Never use the Root Ranger nozzle in the drain with a diameter that is larger than 150mm (6”) without a fixed extension that equals the diameter of the pipe.
- The Root Ranger nozzle must be used in accordance with your own safe work place environment guidelines.
- Never allow an inexperienced operator to operate this nozzle.
- Clean Root Ranger nozzle after every use and then store in a safe place. Regularly remove the turbine barrel in order to clear debris. Any debris that are left in the barrel may damage the ceramic insert.
- Ensure the nozzle is not damaged and the jets are not obstructed.
- Never become lackadaisical whilst operating the Root Ranger nozzle! The jet of the Root Ranger has the capacity to cause massive injuries to your flesh and organs. Additionally, ensure a fast shut down procedure is ready and waiting whilst you are operating this nozzle.

Please note that dropping the Root Ranger may damage the ceramic insert.

SAFE JETTING

OPERATOR'S HAND SIGNALS

This section offers a set of hand-signals, or non-verbal communications, to be utilised when carrying out water jetting operations.

- **Pressurise System**
  Thumb pointing upwards with the rest of the hand closed. Starting at shoulder height, the arms move up and down.

- **Depressurise System**
  Formulate a fist. Starting at shoulder height, move the arm back and forth.

- **Raise Pressure**
  First finger pointing up with the rest of the hand closed. Move the hand in a circular motion.

- **Lower Pressure**
  First finger pointing down with the rest of the hand closed. Move the hand in a circular motion.

ACCIDENT REPORTING

- **Reporting**: All accidents or injuries, regardless of whether they are deemed to be 'lost time' or 'no lost time' injuries, must be recorded, thus adhering to the recommendations detailed in AS 1885.1. Additionally, incidents deemed to be 'near misses' must also be recorded in an effort to provide an accurate record of significant incidents that hold the potential to lead to a serious injury in the workplace. Consequently, appropriate measures may be implemented to minimise or even eliminate these potential hazards.
- **Personal Injuries**: In the event that a person is injured as a result of the impact caused by a water jet, the injury itself may appear insignificant and thus provide little explanation as to the extent of the injury sustained below the surface of the skin. While only a small hole may be present, quantities of water may have penetrated the skin, entering the flesh, deeper tissues and organs, causing serious injury.

Medical Recommendation

If an accident occurs in which pressurised water penetrates, or appears to have penetrated the skin, one must seek medical assistance immediately.

EMERGENCY MEDICAL INFORMATION

For those that sustain equipment related injuries whilst operating the system, immediate hospital attention is critical. In such cases, it is imperative that medical personnel be apprised of all facts relevant to the injury at hand.

Immediate First Aid

In situations where medical examination is not immediately possible, such as when an injury is sustained in a remote location, appropriate first aid should be applied, and the patient observed closely until medical treatment becomes available.

Medical Alert Card

All operators engaged in commercial and industrial water blasting activities should carry an easily accessible, waterproof medical alert card. This card should:

- Outline the likely nature of particular injuries and post-accident infections that may be caused by high pressure water blasting;
- Provide details of the necessary first-aid treatment that must be applied immediately and maintained until medical treatment may be arranged; and
- Provide the name(s) and phone numbers of medicos that should be contacted in order to obtain expert medical advice for the treatment of high-pressure water blasting injuries.

Additionally, the card may:

- Identify the worker, and;
- Outline medical information concerning the worker, such as one's blood type, allergies, and other unique conditions, such as asthma.

SERVICE RECORD

Refer to page 16 for details of service schedule. A service record must be maintained to keep warranty valid.

Date	Description of Work Done	Invoice #	Signed

SAFE JETTING

WARNINGS

OVER-SPEEDING & INSTALLATION GUIDE

- **Over-Speeding**: Do not operate the machine at over pre-set engine speeds as this can cause serious pump damage and will void the warranty.

INSTALLATION GUIDE

***Please note: This machine must be installed by a qualified installer.**
Below are the points to consider when installing your machine on a ute tray or van:

- Machine should be mounted on a flat, solid surface in a way that does not introduce any stress to the frame.
- Machine should be installed in a manner that allows access to the pump and engine for maintenance purposes.
- Machine shall not be installed in an enclosed environment that can overheat the engine and pump.
- Do not operate the machine while the frame is secured by transit-only tie-down points as this may lead to frame damage.

TRAILERS

We only recommend purchasing a ROTHENBERGER Trailer that has been specifically built for the ROBLAST EFI Jetter with the hose reels mounted to the deck of the trailer. If you intend on installing your jetter to a mobile plant trailer or any other than the ROTHENBERGER Trailer, you will void your frame warranty. However, if you insist on installing your Jetter to a trailer, here are some points to prevent damage to the frame:

- When mounted onto a trailer, you need to install it on a solid subframe to prevent the frame from twisting.
- If the machine is mounted on a trailer and is driven over rough and corrugated roads, it will increase the risk of damage to the frame as most trailers have leaf springs that won't absorb shock.
- We recommend mounting the reels on the deck of the trailer to reduce the weight from the frame.

Please remember that proper installation is essential for the safe and efficient operation of the ROBLAST EFI Jetter and should be installed by a qualified installer. Failure to adhere to these guidelines may lead to voiding the warranty and cause damage to the equipment.

JETTER DAILY CHECKLIST

1. Check pump oil level.
2. Check engine oil level.
3. Check nozzle for wear.
4. Check all high-pressure components for any leaks, damage, wear or corrosion, such as the gun/lance, jetting hose and connections, and all fittings.
5. Check the water filter and clean when necessary.

JETTER DAILY CHECKLIST cont.

6. Check unloader and safety valve for any leaks.
7. Check the hose marking that marks the last metre of the hose and replace if worn.

BEWARE of any abrasion on the hose and replace immediately if damaged. Remember to **STAY SAFE**.

HIGH-PRESSURE SETTING

- **High Pressure Setting**: The high-pressure pump is specifically factory set to operate at its rated pressure. **DO NOT ADJUST**. Tampering with the pressure regulator can be very **DANGEROUS**. Consequently, it will void the warranty.
- **CHECK NOZZLES & COUPLINGS WEEKLY, clean after each use**

  Furthermore, if the pressure does begin to decline, check the nozzle for expected wear. If you find that a nozzle is worn, it should be replaced immediately. Using the machine with an incorrect nozzle size can be very **DANGEROUS** to the operator and will void the warranty.

REGULAR SERVICE

All professional machines must be serviced thoroughly every 6 months, or 100 hours, whichever comes first. Use an approved and qualified ROTHENBERGER service agent. Furthermore, the service should include the engine manufacturer's recommendations. Please see the separate Engine Manual for further details, along with the following:

1. Change pump oil.
2. Change the engine oil if required. Please refer to the engine manual for schedule.
3. Check filter for foreign debris.
4. Check unloader and safety valve for leaks.
5. Check all high-pressure components, such as the hose, for leaks, damage, wear or corrosion, and replace when applicable.
6. Replace nozzles when necessary.

ROBLAST EFI TROUBLESHOOTING

All engines need fuel and spark to run, please go through this checklist and see if this helps to get your jetter up and running.

WATER

This jetter comes with a low water cut out valve that will prevent the engine from starting if the tank is empty. This feature protects the pump from running dry and overheating.

- Is the water supply connected to the water tank? Connect water supply.
- Is the tap turned on? Turn on tap, but flush before connecting to hose.

SPARK

The engine will provide current to the spark plugs when turning over. If there is no spark, several things can cause this:

- Remove spark plug and inspect for wear and see if it has spark.
- If there is no spark, check for other causes.
- If there is spark, go to the fuel diagnostics section.

FUEL

It is important that the correct fuel is used in your jetter. We recommend 95ULP. If the fuel is old or dirty, it will affect the performance of your machine.

- Is there fuel in your petrol tank?
- Is the fuel tap turned on?
- Is the fuel in your tank old? If not used for a while, the fuel can turn and smell like paint thinners. If so, flush the fuel tank.
- There may be water in your fuel. To check this, look inside your tank with a spark proof torch to see if there is any water sitting on the base of the tank. Please also check your refilling tank.

POWER

The battery can go flat if the ignition key is left in the on position after the last job, or if the jetter's master battery switch has been left on and the jetter has not been used for several weeks.

- Is the batter charged? Check with a volt-meter or see if engine kicks over.
- Does the engine kick over? Is there a clicking noise when you turn the key to start, or is the engine turning over?
- Can you hear a very slight 'click' noise near the front of the engine when the key is turned to the on position? If not, the fuel solenoid valve could be closed preventing any fuel from entering the carburettor.
- Check fuse behind the ignition box. If blown, replace the fuse.

HYDRAULICS

When the engine kicks over, it is pressurising the pump. This pressure makes it hard for the engine to start when valves are all closed.

- Are the valves closed that go to the main reel or mini reel? Open valves to relieve pressure.
- Does water come out of the hose? If yes, the engine is not under pressure. If no, check to see for blockages.
- Does the engine not turn over even though the battery is fully charged?
- This could be several problems:

1. If the fuel tank breather is left closed, the tank can heat up from the sun and expand and push fuel into the pistons and cause the engine to lock up.
   Remove spark plugs to inspect.
2. The piston bores could be full of water from rain getting into the exhaust pipe. Remove plugs to inspect.

ROBLAST EFI WARRANTY AND SERVICE TERMS & CONDITIONS

The following warranty and service terms apply to the ROBLAST 5000 EFI Jetter – Model RB5000. Please read and retain this document, together with your proof of purchase and service records.

1. Warranty Period
Subject to these terms:

- The driveline, Honda engine and Interpump pump are covered for three (3) years or 1,000 operating hours, whichever occurs first.
- All other machine components are covered for 12 months from the original date of purchase, excluding normal wear and tear.
- Mustang nozzles and accessories are covered in accordance with Mustang's applicable warranty terms and conditions.
- The warranty period begins on the original date of purchase. Proof of purchase may be required when submitting a warranty claim.

2. Honda Engine Warranty

- Warranty claims relating specifically to the Honda engine are administered and assessed through an authorised Honda service dealer, in accordance with Honda's warranty terms.
- ROTHENBERGER Australia will assist in directing the customer to the appropriate authorised repairer where required.

3. Servicing Requirements

- To maintain the three-year/1,000-hour extended machine warranty, the jetter must be serviced at intervals of no more than 100 operating hours, as recorded by the machine's hour meter.
- Servicing must be completed by Spitwater, an authorised Honda dealer where applicable, or another service centre approved by ROTHENBERGER Australia.
- The customer must retain all service invoices and records. These may be requested when assessing a warranty claim.
- Failure to complete or document the required servicing may affect warranty coverage where the lack of servicing contributed to the reported failure.

4. Back-to-Base Warranty
This warranty is provided on a back-to-base basis:
The machine must be delivered to Spitwater or another service centre nominated or approved by ROTHENBERGER Australia for inspection, servicing or repair.

- All warranty assessments, services and repairs must be booked in advance with the nominated service agent.
- Customers arriving without a confirmed booking may not be able to receive same-day assistance and may be required to return at another arranged time.
- Unless otherwise agreed in writing, the customer is responsible for arranging delivery of the machine to the nominated service centre. Responsibility for transport and related expenses will be determined in accordance with these warranty terms and the customer's rights under Australian Consumer Law.

ROBLAST EFI WARRANTY AND SERVICE TERMS & CONDITIONS

5. What the Warranty Covers
This warranty covers defects resulting from faulty materials or manufacturing during the applicable warranty period.
Where a valid warranty claim is accepted, ROTHENBERGER Australia will arrange, at its discretion and subject to Australian Consumer Law, for the affected component to be repaired or replaced through the appropriate authorised service agent.

6. What the Warranty Does Not Cover
This warranty does not cover:

- Normal wear and tear, including consumable or service items
- Damage caused by misuse, neglect, abuse or incorrect operation
- Damage caused by running the machine without an adequate water supply
- Contaminated, restricted or unsuitable water supply
- Incorrect fuel, fluids, lubricants or maintenance materials
- Failure to complete the required servicing
- Unauthorised modifications, repairs or alterations
- Damage caused by incorrect installation, transport, storage, freezing, accident or external impact
- Nozzles, hoses and accessories where failure results from normal wear, blockage, misuse or external damage
- Faults arising from operation outside the specifications contained in the operating manual

If inspection determines that the fault is not covered by warranty, the customer will be advised before any chargeable repair work is undertaken.

7. Making a Warranty Claim
Before delivering the machine to a repairer, the customer must contact ROTHENBERGER Australia and provide:

- The machine model and serial number
- Proof of purchase
- Current operating hours
- Service history and supporting invoices
- A description of the fault
- Photographs or video of the issue, where requested

ROTHENBERGER Australia will review the information provided and direct the customer to the appropriate authorised service agent. Final warranty assessment may require physical inspection of the machine.
Warranty claims will be assessed against these terms, the machine's service and operating history, the relevant component manufacturer's requirements and applicable Australian Consumer Law.

NOTES

NOTES

ROTHENBERGER
pipetool technologies at work

Jetter Accessories

ROTHENBERGER Nozzle Box.
Includes: Root Ranger Nozzle (RB5101), Predator Invader Nozzle (RB5102), Negotiator Thruster Nozzle (RB5103), Compressor Thruster Nozzle w/adaptor (RB5104/RB5105), Spare quick release (RB5100), Nozzle tip cleaner (RB5107), Nozzle spanner (RB5106)

Safety plate (RB5005), which prevents the nozzle from accidentally exiting the drain under pressure.

Hose restraint (RB5302), which prevents the hose from whipping in the event of a hose or coupling failure.

Remote Mini Reel (RB5002), a mobile hose reel that is fitted with 60 m of 1/4" lightweight Armadillo Redflex jetting hose.

Whip Hose (RB5004), 1/8" very flexible hose, ideal for small drains and tight bends, such as those measuring 40 mm or smaller, complete with a compressor nozzle and quick fit tail.

Drain Cleaning in Progress safety sign (RB5006), to visually warn those in the vicinity to exercise caution.

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