



Aussie Eco-Clean

RAPTOR 16

INSTRUCTION MANUAL

Feb 2012



**Electric Drive
Hydroblaster**



ATTENTION: Operators must read this manual and understand it completely before using the machine.

TABLE OF CONTENTS

-1 Safety First	Page 3
-2 Specifications	Page 4
-3 Safety Precautions	Page 6
-4 Personal Protective Equipment	Page 7
-5 Operator's Hand Signals	Page 8
-6 Assembly & Operating Instructions	Page 9
-7 Troubleshooting	Page 11
-8 Accident Reporting	Page 12
-9 Emergency Medical Information	Page 13
-10 Spare Parts List	Page 14
-11 Warning	Page 15
-12 Daily Checklist	Page 15
-13 Monthly Service	Page 15

Before attempting to operate your machine please read this Instruction Manual thoroughly following all directions carefully. By doing so you will ensure safe operation of the unit and will enjoy long and trouble free service from your heavy duty water blaster.

WARRANTY COVERAGE

The Aussie Eco-Clean Raptor has a two year warranty from date of purchase. This warranty covers any defect which occurs due to faulty workmanship or material under normal use. Please keep your receipt as proof of purchase. This warranty specifically excludes the following:

- Damage resulting from debris or mineral deposits contained within the water supply to the machine.
- Leaking hoses when the outer cover of the hose has been abraded or the hose has been kinked.
- Damage to o-rings and valves, etc. caused by the use of cleaning chemicals or compounds.
- Replacement of parts damaged due to fair wear and tear.
- Misuse, negligence, alteration, accident or breakage.
- Failure of the machine due to lack of normal maintenance services (The owner is responsible for the performance of regular maintenance services, as specified in the Operator's Manual).
- Damage and/or progressive damage caused by the failure to inform Australian Pump Industries Pty Ltd, or the closest Authorised Australian Pump Agent or Distributor, within seven days of the defect becoming apparent.
- Repair or modification by an unauthorised service person.
- Australian Pump Industries Pty Ltd specifically excludes from warranty responsibility any consequential loss or damage including on-site servicing, loss of time, loss of use of the machine, hire costs of a replacement machine or inconvenience..
- Where possible return faulty goods to the place of purchase. No products can be returned to us without prior permission. The reason for return must be clearly stated.

N.B. Warranty is not transferable to third parties in the event of sale of the machine within the warranty period. Please note that any parts used in warranty repairs are guaranteed for a period limited by the original warranty of the parent product.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

The benefits under the Aussie Pump warranty are in addition to other rights under Australian Consumer Law.

STANDARD EQUIPMENT

Before proceeding with assembly of your new Aussie Eco Clean blaster, check that all parts listed below are included.

- 1 Gun handle assembly and high pressure hose
- 1 Lance and nozzle assembly
- 1 Inlet hose connector assembly

HIGH PRESSURE SETTING

The high pressure pump is factory set to operate at its rated pressure. DO NOT ADJUST. Tampering with the pressure regulator will void warranty and can be dangerous.

WARNING:

If pressure drops off, check nozzle for wear. Nozzles should be replaced on a regular basis (every month for machines in regular use, every 3 months for machines used intermittently). Using the machine with the incorrect nozzle size or worn nozzle will void warranty and can be dangerous to the operator.

WARNING: To comply with Australian and New Zealand standards, operator's of 5000psi machines and larger need to complete operational and safety training courses and be duly certified in order to comply with Occupational Health & Safety requirements.

SAFETY FIRST

ATTENTION OPERATOR

Please read the Operating and Safety Instructions in this manual thoroughly before using your Aussie Raptor water blaster. Please note that safety procedures must be followed carefully. Non-compliance can result in severe injury or even death.

SAFETY CLOTHING

Wearing protective clothing is essential for the use of B-class machines (5000psi and above). Eye protection, gloves, body protection, steel capped boots and ear protection equipment are essential. For details see page 7.

WATER BLASTING OPERATION

While using the Aussie Predator, take special care to ensure the gun and nozzle are never pointed at any person or animals. Severe injury or death may result. For details and other warnings see page 5.

BACTERIA WARNING

In the event that some person or persons may be sprayed by high pressure water, it is important medical personnel be advised as unusual infections with microaerophilic organisms can occur. For details see *Emergency Medical Information* page 14.

SPECIFICATIONS

Cleaning Parameters

Max Water Delivery (Pump) : 16 litres per minute
 Max Output pressure (Pump) : 7,250 psi

Motor Specs

Motor manufacturer : Nicolini
 Capacity : 18.5kW
 Starting System : Electric via key start
 Alternator : 36 amp
 Battery : 12 volt DC

Pump

GHC16/50S

Max input temperature : 60°C
 Max RPM : 1450rpm
 Pistons : 3 x solid ceramic
 Head : stainless steel

ACCESSORY INFORMATION

Ensure that all accessories are rated to 7,300 psi (500 bar) before using with the Aussie Raptor.
 Suitable accessories available from Australian Pump Industries;

- 1) Aussie CTN500-020 (12 LPM version) or CTN500-025 (16 LPM version) 500 bar rated Turbo Master turbo head. (1/4" M to 1/2" M nipple required to fit to lance.) Also available as a complete kit with lance, gun, nozzle & nipple to allow quick coupling to hose (CTN500-__ _GLK)



- 2) Aussie Grit blast Kit

TPS450 500 bar grit blast head, 1/4" F BSP (C4700.18)
 Probe 580mm, 20mm hose barb (C4604.01)



Note: Available as a complete kit with lance, gun, nozzle & nipple to allow quick coupling to hose (TPS450/__ _GLK).

- 3) Aussie 500 bar gun, lance & shoulder rest.

RL84 500 bar spray gun, 1/2" F BSP (MPA30540000)
 RL800 500 bar s/s 800mm single lance, 1/2" M (MPA30500080)
 RL1250 500 bar s/s 1250mm single lance, 1/2" M (MPA30500092)
 Shoulder rest, 300mm (MPA30501921)



HIGH PRESSURE WASH DOWN

The Aussie Raptor can be used for any high pressure water blasting application in construction, mining, ship cleaning, dry docks, graffiti removal or for any other difficult task.

HIGH PRESSURE PISTON PUMPS

Your high pressure Udor pumping system is the heart of your water jetter. The pump has been specially designed to be used with cold water (max 60°C) for pipe water jetting and high pressure wash down applications. Your high pressure Udor piston pump is designed to move a certain amount of water per revolution by its three solid ceramic pistons.

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

Please **do not** alter any valving on your pump; altering will void all warranty. For any malfunction of the high pressure pumping system, please contact Australian Pump Industries or the Distributor you purchased the unit from.

Because of safety/danger hazards with high pressure systems, only use approved high pressure hosing and components when replacing or repairing your Predator. For guidance on this, please contact Australian Pump Industries or the Distributor you purchased the unit from.

Once drain cleaning nozzles or wash down nozzles have worn, pressure loss will occur. Replacement of nozzles is necessary to maintain constant and maximum efficiency of your Raptor.

- Using worn nozzles will reduce unloader valve service life.

WARNING... Do Not Alter Pressure Setting

Altering the high pressure unloader device and safety valve may result in severe injury or death. Warranty will be void if any high pressure valve equipment has been altered by non-qualified staff. Over-speeding or over-pressurizing of the pump system is **dangerous** and can severely reduce the operating life of the machine. It may also result in injury or death!



**LOOK AFTER YOUR AUSSIE RAPTOR,
AND IT WILL LOOK AFTER YOU!**

SAFETY PRECAUTIONS - IMPORTANT

1. Never direct the spray jet at any person or animal.
2. Never direct spray jet at any surface that may contain asbestos material.
3. Never hold a finger over the high pressure nozzle.
4. Never direct the spray jet at the machine itself or any electrical equipment.
5. After use release the pressure in the high pressure hose by operating the pistol trigger.
6. When not in use always switch off the engine and disconnect from water supply.
7. Certain components become very hot when in use. Switch off the blaster and ALLOW TO COOL before touching.
8. Do not attempt any mechanical repair. If you have a problem with your machine contact your local dealer or Aussie Pumps service division, phone 02 8865 3500
9. Never supply any liquid other than clean water to the water inlet.
10. Never pull the high pressure hose if it has formed kinks or nooses. Never pull the hose over sharp objects.
11. Use only chemical cleaning agents (detergents) approved for power washing when using the chemical injection facility.
12. Never use the chemical injection facility to introduce solvents, e.g. paint thinners, petrol, oil, etc.
13. Do not attempt to disconnect any hose or coupling with pressure still in the hose.
14. Do not operate the machine whilst standing on ladders, use a platform tower or scaffolding.
15. Children should not be allowed to use the machine.
16. We recommend the use of safety goggles when using the machine, particularly with the sand blasting attachment, or any application where loose particles of stone or grit, etc, may be blown around by the high pressure spray.



PERSONAL PROTECTIVE EQUIPMENT



'Wear protective clothing'

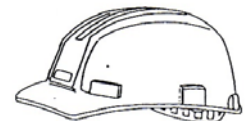
General

Appropriate personal protective equipment should be worn where:

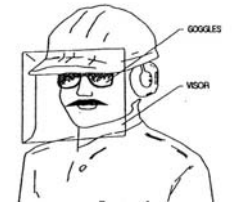
- 14 hazards cannot be otherwise prevented or suitably controlled, e.g. by engineering or administration controls, total enclosure or substitution; and/ or
- 15 complete protection is essential, e.g. in some occupational environments with uncertain levels of hazards.

The provision and use of personal protective equipment does not reduce or replace the need for proper Occupational Health and Safety prevention measures, such as engineering or administrative controls to be undertaken. Recommendations of such preventative measures should always be fully explored before considering issue of personal protective equipment. Where personal protective equipment is issued, instruction and training should be provided regarding its correct use and maintenance.

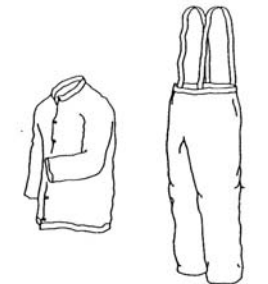
■ **Head Protection.** Where appropriate suitable head protection complying with AS/NZS 1808 should be worn.



■ **Eye Protection.** Eye protection complying with AS/NZS 1337 (adequate for the purpose and of adequate fit on the person) should be worn at all times when in the vicinity of water blasting operations. Where liquid is liable to cause eye damage, full visor and goggles are recommended.



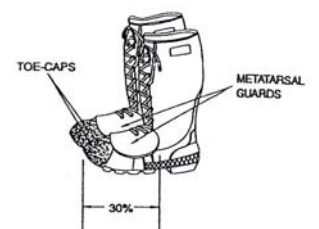
■ **Body Protection.** All persons should wear suitable waterproof clothing complying with AS 3765.1 or AS 3765.2 as appropriate, having regard to the type of work being undertaken. Liquid or chemical-resistant suits should be worn where there is an assessed risk to health or of injury that can be prevented by such equipment.



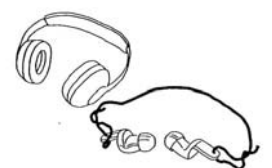
■ **Hand Protection.** Adequate hand protection complying with the recommendation/s of AS/NZS 2161.2, AS/NZS 2161.3 or AS/NZS 2161.5 should be worn when there is an assessed risk of injury that can be prevented by such equipment.



■ **Foot Protection.** All persons should wear appropriate occupational protective footwear complying with AS/NZS 2210.2. A metatarsal and lower leg guard should be used by water blasting operators where it is assessed that the risk of foot injury can be prevented by such equipment. AS/NZS 2210.1 provides guidance for the selection of footwear.



■ **Hearing Protection.** Suitable hearing protection complying with AS 1270 should be worn at all times when the noise levels exceed limits set by regulatory authorities. All personnel and operators should receive instruction in the correct use and maintenance of hearing protectors so that noise exposure lies within the limits as recommended by the regulatory authority.



OPERATOR'S HAND SIGNALS

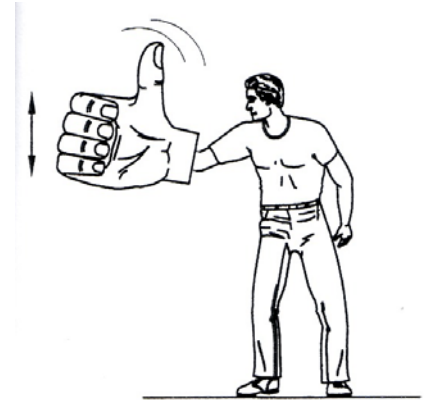


'Aussie Eco-Clean ...
Safety First!'

This section provides a set of hand signals for communication when carrying out water blasting operations.

■ **Pressurise System.**

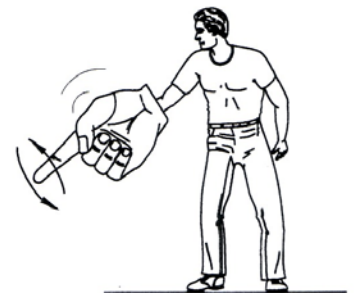
Thumb pointing upwards, the rest of the hand closed. From the shoulder height the arm moves up and down.



■ **Raise Pressure.** First finger pointing up, the rest of the hand closed. The hand is moved in a circular motion.



■ **Lower Pressure.** First finger pointing down, the rest of the hand closed. The hand is moved in a circular motion.



■ **Depressure System.** Form a fist. Move the arm back and forth at shoulder height.



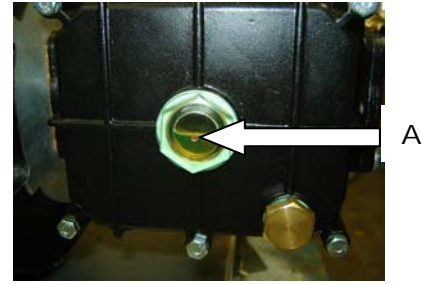
ASSEMBLY AND PREPARATION FOR USE

Check the oil in the (A) pump

With the machine on a level surface the oil level should be level with middle of side oil plug or sight glass. Do not overfill. If necessary top up with SAE30W pump oil.

Do not mix different grades of oil as this may affect the machine's performance.

If alternative oil is used first empty out existing oil by unscrewing drain plug in bottom of machine.



NOTE: Read this handbook thoroughly and follow all directions carefully before you begin using the machine

WARNING: Before operation ensure top mounted oil filler plug is replaced by breather. Failure to fit breather and keep clean can result in over-pressuring of oil chamber (crank case) and can “blow” oil seals. **This will void warranty.**

HIGH PRESSURE SETTING

The high pressure pump is factory set to operate at its rated pressure.

DO NOT ADJUST

Tampering with the pressure regulator will void warranty and can be DANGEROUS
WARNING

If pressure drops off check nozzle for wear. Nozzles should be replaced on a regular basis (every month for machines in regular use, every three months for machines used intermittently). Using the machine with the incorrect nozzle size or worn nozzle will void warranty and can be DANGEROUS to the operator.

Power lance

To assemble the lance, insert section 'B' into section 'A' and screw together.



High pressure hose

Connect the high pressure hose to the threaded water outlet on the side of the machine.

Water supply hose

Use a good quality hose (not supplied) of 13mm diameter and secure one end to the inlet hose connector securely using worm drive clip. This connection must be tight to avoid leaks.

Water supply is by means of mains supply. Secure the free end of the hose to your tap using a suitable tap adaptor (not supplied, available through all good hardware and garden supplies stores).

NOTE: A pump filter has been fitted to prevent the ingress of grit to the pump, ensure filter is clean before using machine. This hydro-blaster can be used with cold or hot water up to 60°C

OPERATING INSTRUCTIONS

Motor Operation

The power washer is supplied with an amperage cut-out switch. Do not adjust. Adjusting amperage cut-out switch voids warranty.

Operation

1. Turn on water supply. NOTE: Tap should be full on.
2. Pull the trigger to expel air from the system. Water will trickle from the end of the lance when air is expelled.
3. Start motor at amperage protection switch.
4. Check that there are no leaks in the line connections, pistol or power lance. Pressure begins when the pistol trigger is squeezed.



SAFETY ... IMPORTANT
EXCESS ATOMISED MOISTURE CAN ENTER SWITCHES & MOTOR CONNECTIONS AND OVER TIME MAY CAUSE FAILURE
KEEP THE MACHINE OUT OF MOISTURE LADEN ATMOSPHERES

CARE AND MAINTENANCE

AFTER EACH USE.....

If cleaning agents have been mixed with the incoming water, it is particularly important to flush the machine with clean water after use.

If there is a danger of freezing anti-freeze should be mixed with the flush water or the machine must be completely drained. After the final flush stop the machine. DO NOT allow the machine to idle for more than 15 seconds. This is particularly important when there is a danger of freezing. Do not run for longer without water supply.

STORAGE:

Store the washer in an upright position, preferably drained of water if there is a danger of freezing (or fill with anti-freeze).



WARNING DO NOT RUN EXCESSIVE BY-PASS
SWITCH MACHINE OFF WITHIN TWO MINUTES OF CEASING OPERATION AS EXCESSIVE BY-PASS CAN CAUSE HEAT BUILD UP IN PUMP & SUBSEQUENT DAMAGE. EXCESSIVE BY PASS RUNNING VOIDS WARRANTY!!

ASP SYSTEM..... AUSSIE SAFETY PROTECTOR SYSTEM

THERMAL DUMP All Aussie Eco-clean machines are fitted with this valve . This device protects the pump by dumping water to ground if the machine is left on bypass running.

AUSSIE SAFETY VALVE This device “blows off” excess pressure if unloader has been tampered with thus protecting the pump. Do not tamper with pre-set unloader and safety valve. **(This will void your warranty.)**

MAINTENANCE, SERVICE AND SPARES

Your Aussie Raptor has been designed to give you long and trouble free service. If, however, having carefully followed the instructions in this booklet, you have a problem which cannot be resolved by referring to the Troubleshooting Guide below, or if you require spare parts or servicing, contact your local dealer or Australian Pump Industries on Telephone No.: **(02) 8865 3500**.

TROUBLESHOOTING GUIDE

FAULT	CAUSE	REMEDY
Pump running normally but pressure low on installation	Pump sucking air Valves sticking, dirt in valves Unloader valve seat faulty Nozzle incorrectly sized Worn piston packing	Check water supply and possibility of air ingress Check and clean or replace if necessary Check and replace Check and replace Check and replace
Fluctuating pressure	Valves worn Valves blocked Pump sucking air Worn piston packing	Check and replace Check and clean out if necessary Check water supply and air ingress at joints in suction line Check and replace
Pressure low after period of normal use	Nozzle worn Suction or delivery valves worn Suction or delivery valves blocked Unloader valve seat worn Worn piston packing Cracked pistons as a result of dry running	Check and replace Check and replace Check and clean if necessary Check and replace if necessary Check and replace if necessary Replace pistons
Pump noisy	Air in suction Broken or weak suction or delivery valve spring Foreign matter in valves Worn bearings Excessive temperature of liquid	Check water supply and connections on suction line Check and replace if necessary Check and clean if necessary Check and replace if necessary Reduce temperature
Presence of water in oil	Oil seal worn High humidity in air Piston packing worn	Check and replace Check and change oil twice as often Check and replace if necessary
Water dripping from under pump	Piston packing worn Plunger retainer worn	Check and replace Check and replace
Oil dripping	Travel plug in use on pump Oil seal worn	Replace with breather plug Check and replace



**WARNING: CHECK OIL LEVEL IN PUMP REGULARLY
DO NOT OVERFILL**

ACCIDENT REPORTING FOR INDUSTRIAL APPLICATIONS

- Reporting.** All accidents or injuries, whether resulting in “lost time” or “no lost time” injuries, should be recorded in accordance with the recommendations of AS 1885.1.

Incidents that result in “near misses” should also be recorded as a means of providing a record of significant incidents that have the potential to result in serious injury at the workplace, so appropriate measures can be implemented to minimise or eliminate these potential hazards.

- Personal Injuries.** In the event that a person is injured by the impact of a water jet, the injury caused may appear insignificant and give little indication of the extent of the injury beneath the skin and the damage to deeper tissues. Although only a small hole may be present, quantities of water may have penetrated the skin and entered the flesh and organs causing serious injury.

- Medical Recommendation.** If an accident occurs where pressurised water penetrates or appears to have penetrated the skin, medical assistance should be sought immediately.

- Immediate First Aid.** Where medical examination is not immediately possible (e.g. in remote situations), appropriate basic first aid measures should be applied and the patient observed closely until medical treatment is available.

- Medical Alert Card.** All operators engaged in commercial and industrial water blasting operations should carry out an immediately accessible, waterproof medical alert card. This card should:

- outline the possible nature of injuries and post-accident infections that can be caused by high pressure water blasting;

- provide details of immediate first-aid treatment until medical treatment can be arranged; and

- provide the name or names of medicos (and contact phone numbers) who should be contacted for expert medical advice for the treatment of high pressure water blasting injuries.

In addition, the card may also:

- identify the worker; and

- outline medical information about the worker; e.g. blood type, allergies and conditions, such as asthma.

EMERGENCY MEDICAL INFORMATION



IMPORTANT

'Aussie Eco-Clean ...
Safety First!'



Immediate hospital attention should be given to personnel who sustain equipment related injuries while operating the system. In such cases, it is vital that medical personnel be apprised of all facts relevant to such injuries. Therefore, all operating personnel should be provided with waterproof emergency medical tags or cards describing the nature of their work and the possibility of injury inherent in the use of a water blasting device. The tag or card should also bear the following standard notice:

MEDICAL ALERT

This card is to be carried by personnel working with high pressure water blasting equipment. Obtain medical treatment immediately for ANY high pressure water blasting injuries.



AUSTRALIAN PUMP INDUSTRIES PTY LTD

7 Gladstone Road, CASTLE HILL NSW 2154
PO Box 6164, BAULKHAM HILLS NSW 2153
Ph: (02) 8865 3500 Fax: (02) 9894 4240

AUSTRALIAN PUMP INDUSTRIES PTY LTD

This person has been working with water blasting equipment at pressures to 7250psi (500bar) with a jet velocity of 3000fps (914mps). This should be taken into account during diagnosis. Unusual infections with microaerophilic organisms occurring at lower temperatures have been reported. These may be gram-negative pathogens, such as are found in sewage. Bacterial swabs and blood cultures may therefore be helpful. A local poison control centre should be contacted for additional treatment information.

WARNING

OVERSPEEDING

- Do not operate machine at over 1450rpm.
- Over speeding can cause serious pump damage.

EXCESSIVE BYPASS

- Do not run on excessive bypass. Switch machine off within five minutes of ceasing operation as excessive bypass can cause heat build-up in pump and subsequent damage. Excessive bypass running voids warranty.

HIGH PRESSURE SETTING

- The high pressure pump is factory set to operate at its rated pressure. **DO NOT ADJUST.** Tampering with the pressure regulator will void warranty and can be **DANGEROUS.**

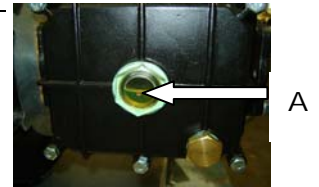
CHECK NOZZLE MONTHLY

- If pressure drops off, check nozzle for wear. Nozzles should be replaced on a regular basis (every month for machines in regular use, every three months for machines used intermittently). Using the machine with the incorrect nozzle size or worn nozzle will void warranty and can be **DANGEROUS** to the operator.

PRESSURE CLEANER DAILY CHECK LIST

IMPORTANT:

- Check pump oil level (A)..
NB. Pump oil level should be level with the middle of the side oil plug or sight glass. Do not overfill. If necessary, top up with SAE30W oil. Do not mix different grades of oil as this may affect the machine's performance. If alternative oil is used, first empty out existing oil by unscrewing drain plug in bottom of machine.
- Check nozzle for wear.
- Check all high pressure components for leaks:
 (a) Gun/Lance. (b) HP hose. (c) All fittings.
- Check water filter and clean if necessary.
- Check unloader, safety valve and thermal dump for leaks.



Warning: Ensure top mounted breather plug is kept clean. Blocked breather can result in pressurisation of the oil chamber and blown seals.

THREE MONTHLY REGULAR SERVICE

All professional machines need to be thoroughly serviced every three months. The service involved should include the motor manufacturer's recommendations (see separate Manual) and the following:

- Change pump oil
- Check filter for foreign debris.
- Check unloader, safety valve and thermal dump for leaks.
- Check all HP components for leaks: Gun/Lance, HP hose and all fittings.
- Replace nozzles.

*Reliable products ...
reliable people*

WEAR PROTECTIVE GOGGLES AND CLOTHING!



RELIABLE PRODUCTS ... RELIABLE PEOPLE

AUSTRALIAN PUMP INDUSTRIES

7 Gladstone Road, Castle Hill NSW 2154 PO Box 6164, BHBC NSW 2153
Ph (02) 8865 3500 Fx (02) 9894 4240