HARBEN
HIGH PRESSURE WATER TECHNOLOGY

HEALTH AND SAFETY MANUAL

Read before operating equipment

Harben® high pressure jetters and systems have been designed to the highest standards so that they will work safely and reliably for many years. It is important that you take time to read the safety information provided here so that you understand how to make the most of the equipment and how to use it safely. Harben® jetters are powerful pieces of industrial equipment and should only be operated by competent users who understand that serious injury or death can occur through misuse.

The jetters described here are intended to be used for high pressure jetting and pumping applications.

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Additional accessories can be purchased from Harben®, such as: floor cleaners, jetting guns and jet pumps which extend the range of work that can be carried out with the jetter. Safety information relating to individual accessories is provided later in this section.

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Change	Changes	Date	Signature
1	NEW ADDITION	9/19	SAS
2	GENERAL EDIT	4/20	DMM
3	CREATE PART NUMBER. GENERAL EDIT	5/20	GT
4	Updated manual to code. Added tire safety	6/20	GT
5	UPDATED LOGOS	5/23	JB

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1. General Safety Information

- Safety procedures throughout this manual must be adhered to. In the case of conflicting or ambiguous instructions contact your Site Manager or Safety Manager before commencing work.
- **Any person operating, working with, or passing near the jetter must wear the appropriate Personal Protective Equipment (PPE).**
- The jetting supervisor should make this safety manual available to operators or persons working with the jetter and should ensure they read and understand it prior to operating the jetter.
- **Prior to any adjustments being carried out the jetter must be shut down, de-pressurized and equipment isolated.**
- All maintenance requirements in this manual should be adhered to as minimum maintenance requirements. Maintenance records should always be kept up to date. Maintenance should be carried out by competent persons only.
- Guards which are located within the jetter must be fitted and must not be loosened or removed while the jetter is operational. Should it be necessary to remove any guard for access, it must be re-fitted and secured before start-up.
- Within this manual are three symbols based on the severity of the warning. These warnings can range from minor injury to death if the instructions are not followed to avoid these situations. These symbols will be referenced across all of the operation manuals. The symbols are as follows:
    -  : This is the symbol for **CAUTION**. This means that if an accident were to happen, it would cause minor to moderate injury.
    -  : This is the symbol for **WARNING.** This means that if an accident were to happen, it could result in a serious injury or possible death.
    -  : This is the symbol for **DANGER**. This means that if an accident were to happen, it will result in death or serious injury. This will only be shown for the most extreme cases.
- It is imperative that these symbols are paid attention to as to avoid any sort of injury.

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2. General Use of High Pressure Jetters

- All persons using high pressure jetting equipment must be fully conversant with relevant operating instructions, safety notes and codes of practice.
- Operators must be competent in all aspects of jetter use.
- Erect suitable cordons at least 30 feet from the jetting operation to restrict all unauthorized access.
- All high-pressure water jetting operations should be under the control of a fully trained supervisor, who is aware of the potential hazards to operators and passers-by.
- Check the makeup of the jetting team complies with the relevant Code of Practice.
- Warning notices, **'DANGER - HIGH PRESSURE JETTING'** should be displayed at all possible access points to the jetting area.
- Before starting the jetter, ensure that you, and anyone else who may be in control at any time, are fully aware of its controls and their function.
- **It is especially important that operators know how to stop the jetter in case of an emergency. This will prevent any chance of possible injury.**
- Ensure that all the pre-operational checks have been completed.
- Do not operate the jetter near any persons or animals
- **Before starting the machine, perform a safety training session at the machine and refer to all safety aspects.**
- Legionnaire's Disease – leaving warm water in jetter tanks to stagnate for long periods could create conditions for Legionnaire bacteria to multiply. Clean jetter tanks out at least every 6 months with water above 70°C (160°F) to prevent algae and bacteria forming.

3. Hazards Associated with the Misuse of High-Pressure Equipment

- Never use a jetter that is not regularly serviced according to the manufacturer's recommendations. If not properly serviced, malfunctions and failures can occur which can damage the machine and potentially any people around it.
- **WARNING!** When a jetter is used to clean drains and sewers that are contaminated with a hazardous substance, it is possible these may be entrained in the resulting aerosol and inhaled by operators. Always use respiratory protection when this situation occurs. Serious injury can occur if protection is not used.
- **DANGER! Do not spray flammable liquids – there is a risk of explosion. This can cause serious injury or death.**
- **DANGER! Ensure the correct fuel is used on all occasions or there is a risk of explosion. This can cause serious injury or death.**
- **WARNING!** Never start the jetter when it may be frozen. Operating a jetter while frozen could cause high speed ice bullets to be ejected from the jetter hose on machine start up. This can cause serious injury in this situation.
- **CAUTION!** Never start jetting a drain, sewer, or pipe unless the jet nozzle is safely inside the drain and pointing in the direction that you intend it to travel. This can cause potential injury as the hose can eject from the drain and hit the operator.
- When drain jetting a drain, sewer, or pipe whose inside diameter is not small enough to prevent the hose from turning back on itself, a drain jet extension (a piece of straight rigid tube equivalent to the pipe diameter) should be fitted between the end of the hose and the nozzle.
- Always use a safety leader hose at the beginning of the main jetting hose to alert operators when the jet nozzle is nearing the manhole entrance.
- Always consider the use of a tiger tail hose feed guide to protect the jetting hose from abrasion and prevent premature failure.
- Be aware that high pressure hoses can generate static electricity which may need to be controlled when working in hazardous areas.

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- **DANGER! Never direct a high-pressure water jet at electric power lines or electrical equipment as serious injury or death from electrocution could occur.**
- **CAUTION!** When jetting drains or pipes, exposed hoses can create a danger to people using the equipment as well as the public. Tripping on the hose and hose failure creates hazards to anyone nearby. These hoses must be covered to protect everyone in the area from injury.
- Before starting work, check and ensure the drain jets have no blocked holes or nozzles as this may cause the pumping system to over pressurize which could result in burst disc failure or bursting the jetting hose.
- **WARNING!** Never attempt to unblock a fully blocked drain or pipe before considering the consequence of releasing the blockage (e.g. flooding, explosive ejection, drain nozzle ejection) and having a plan to safely deal with it.
- Never attempt to clean drains or pipes in one pass because this could lead to debris build up behind the jet nozzle causing a pressure build up in the drainage system. **Be aware that a pressure build-up in the drain or pipe could cause the jet nozzle to be unexpectedly ejected back towards the operator.**
- Never enter the manhole to either place the jet nozzle into or extract it from the drain entrance unless the required confined space regulations have been met.
- Never work in a manhole where explosive gases may be present with a radio remote control transmitter that is not designed for use in hazardous areas.
- Never use the hydraulic hose reel facility as a winch to retract a jetting hose that has become stuck in the drain or pipe. Damage to the hose could be caused that will make subsequent hose failure more likely.
- Never operate the hydraulic hose reel with the trailer disconnected from the towing vehicle.
- Never allow jetting hoses to become kinked and always remove from service any jetting hose with an outer cover that has worn through to the reinforcing braid.
- Never use the high-pressure jetting hose for any purpose other than sewer, drain or pipe cleaning, e.g. winching vehicles or other plant.
- Only use jetting nozzles and/or accessories that have been calibrated for the jetting machine pump performance or else unexpected system over pressurization could occur.

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- ⚠ Never attempt to clean a drain or pipe with a nozzle that has more forward force than rear force. **It will be ejected back toward the operator and could cause injury.**
- Never attempt to clean a drain or pipe with a chain flail type jet that has unequal chain lengths as this could lead to severe vibration and high-pressure hose failure.
- ⚠ When using a venturi jet pump never place your fingers into the pump inlet as they could be trapped by the vacuum and cause injury. Always secure the free end of the pump hose securely and ensure adequate drainage is in place to deal with high volumes of pumped water.
- Never use a dry shut type jetting gun or foot control valve on a jetter that does not have a pressure unloader valve as this could result in burst disc failure or bursting the jetting hose.
- When using a dry shut type system be aware that high pressure can be retained in the jetting hose even after the machine has been shut down. Always discharge pressure in a safe manner after machine shut down.
- ⚠ Never point the gun at anyone as injury from high pressure water will occur if the jet stream meets body parts.
- ⚠ Never work on a slippery surface because the reaction force of the jetting gun could cause you to become unstable and lose your footing.
- ⚠ Never work from a ladder as the reaction force of the jetting gun could cause the ladder to fall backwards from the working area causing possible injury.
- ⚠ Never work from scaffolding unless it is designed, erected, and managed by competent persons and it is adequately secured to prevent it being pushed over by jetting gun reaction forces.
- ⚠ When using the jetting gun to clean hard surfaces be aware that splash back could contain hard debris travelling at high speed.
- ⚠ When using the jetting gun to clean contaminated surfaces be aware that splash back could contain dangerous contaminants.
- Never use the jetting gun to clean a surface that could be damaged by the water jet.
- Always ensure that an adequate area is cordoned off around the working zone so that flying debris and contamination cannot injure passers-by.

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- Be aware that water jetting guns fitted with oscillating or rotating jet heads can produce higher hand arm vibration levels than simple fixed head jets. Monitoring these levels may be required under national health and safety regulations.
- ⚠ When using a jetting gun or nozzle to clean at floor level wear suitable protective footwear.
- ⚠ Never use a high-pressure jetting gun to clean down PPE while you or others are still wearing it as serious injury and death could result.
- ⚠ Never use a high-pressure jetting gun to wash or cool down livestock as serious injury and death could result.
- ⚠ Drainage systems may carry bacteria which can cause severe illness or death. Avoid exposing eyes, nose, mouth, ears, hands, cuts or abrasions to wastewater or faecal matter during drain cleaning operations. After working around drainage systems help protect yourself by always washing hands, arms, and other areas of the body with hot, soapy water and, if necessary, flush mucous membranes with clean water. Disinfect soiled equipment by washing surfaces with a hot soapy wash using a strong detergent.

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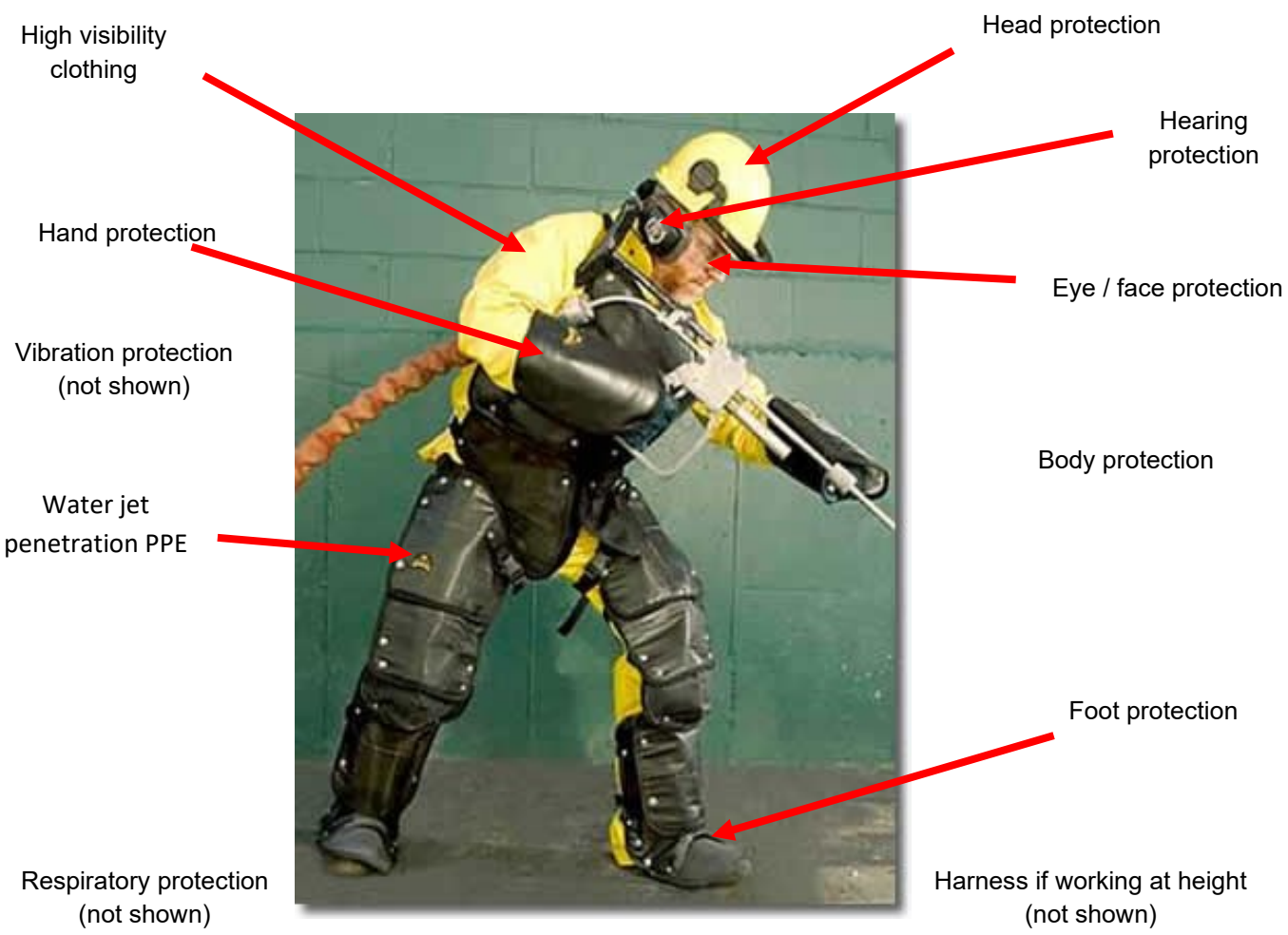
4. Personal Protective Equipment

Before operating jetting equipment all persons must carry out a risk assessment to determine the type and level of PPE required by each member of the jetting team. This could include:

- Ear protection – noise levels can be high
- Head and eye protection – a helmet with chin guard and visor is recommended
- Waterproof hand protection
- Waterproof clothing
- Waterproof safety boots with toe protection



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5. Pressure Safety Devices

- Pressure relief valves should be checked for functionality and certified by the manufacturer or their authorised representative at least every 6 months.
- Pressure discs (burst discs) should be replaced at least every 6 months to ensure continued safe operation and only manufacturer's original replacements should be used.
- Under no circumstance should a fake part be used in place of a manufacturer's pressure disc (burst disc).
- Pressure burst discs will need to be replaced once they rupture. If the machine gets to a pressure that exceeds the disc, it will rupture to prevent any damage to the machine because of excess pressure. The different types of burst discs are in Section 5.4 of the Operation and Maintenance Manual.
- When replacing the pressure burst disc, make sure that the flat side of the disc is facing out. The bevelled side will be facing in towards the pump.
- Avoid using warm water in your pump as it can soften the pressure disc and cause it to prematurely burst.

6. High Pressure Hoses

Hose assemblies require careful handling to provide long service life and to guard against potentially dangerous failure. **Serious injury and death can result from the failure of a hose assembly that is damaged, worn out, wrongly assembled, or installed incorrectly.** This list provides tips on how to preserve your hoses and prevent injury.

- Do not kink the hose
- Do not pull on loops
- Do not excessively stretch the hose
- Do not squash the hose
- Do not twist the hose
- Do not cut the hose
- Use a hose feed guide
- Do not kink the hose at the hose fitting

The following checks must be made before use:

- High pressure jetting hoses must be checked along their entire length at the start of each shift to ensure that they are free from external damage. Hoses with exposed or broken reinforcing braid or damaged couplings may fail without warning and should be replaced immediately.
- Before use check end fittings and couplings for damage to threads, sealing faces and rounding of connection nuts. Only use the correct size spanner to tighten the hose fitting. Pipe wrenches or adjustable spanner type tools with serrated teeth must not be used.
- Hoses that have been used must not be re-ended under any circumstances. (Check national regulations which may vary)
- ⚠ Water appearing from the hose, coupling or connector, often first sighted as a fine mist, indicates the hose is damaged and could burst or a joint is loose or defective. Stop the jetter immediately. **No attempt should be made to adjust any hose, coupling or connector while that part of the system is under pressure as it could cause potential injury.**
- Only rewind the hose when under a low pressure. A tightly wound hose at a higher pressure could crush the hose reel.

- ⚠ Do not use the hydraulic hose reel as a winch to pull a stuck hose out of a drain.

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7. Freezing Conditions

- If the equipment has been frozen, it is essential that the whole system is first thoroughly thawed, then cautiously flushed without any nozzle or other restriction attached to the high-pressure hose.
- ⚠ Ice Bullets – ice may be trapped in the system. No attempt should be made to force the ice out by starting the engine. Ice can be ejected from the hose at high speed as the pump is started. Ice "bullets" can be ejected from the hose at speed with possible lethal consequences.

8. Pump Bleed Screws

- ⚠ Never open pump bleed screws when pump is running on high pressure. High pressure fluid will jet from the bleed screw hole and it could cause injury.
- Always bleed the air from the top hoses when the jetter is in idle only.

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9. Exhaust Gases and Fire Prevention

Our jetters use diesel- or gas-powered engines depending on the equipment that is purchased.

- ⚠ Engine exhaust fumes can be very harmful if allowed to accumulate in enclosed areas. Only run the engine in a well-ventilated location.
- The exhaust gas from the muffler is very hot. To prevent a fire do not expose dry grass, mowed grass, oil of any other combustible materials to exhaust gas. Always keep the engine and muffler clean.
- To avoid a fire be alert for leaks of flammable substances from hoses and lines. Be sure to check for leaks from hoses or pipes, such as fuel and hydraulic fluid by following the maintenance check list.
- ⚠ To avoid a fire, do not short across power cables and wires. Check to see that all power cables and wirings are in good condition. Keep all electrical connections clean. Bare wire or frayed insulation can cause a dangerous electrical shock and personal injury.
- When running Van Pack jetters always ensure that the rear of the van is well ventilated and that the side and rear doors are always open.
- ⚠ **DANGER! Ensure the correct fuel is used on all occasions or there is a risk of explosion. This can cause death or serious injury.**

10. Adequate Drainage (Wastewater)

- Ensure that there is adequate drainage of the jetted water. Large puddles should never be allowed to accumulate, particularly on suspended floors.
- The weight of accumulated wastewater can create a hazard.

  1,000 litres of water weighs 1,000 kgs

  300 gallons (US) of water weighs 2,500 lbs

- ⚠ Excess amounts of water on the floor create a risk of losing your footing. This can cause personal injury if you slip.

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11. Daily Checks

To ensure the equipment is safe to use carry out all daily checks before you operate the jetter. These can include:

- Water filter cleanliness
- Fuel level
- All jets are clean and free from debris
- All jetting hoses are free from damage and abrasion
- Wheel nuts are tight
- Loose parts are secured
- Tires are not worn
- Tire pressure is correct
- Towing hitch is not worn
- Pump oil level
- Gearbox oil level
- Engine oil level

See Operation and Maintenance manual for Specific details

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12. Explosive Atmospheres

Water jetting within enclosed areas that have not been gas-freed or inerted may create a risk of ignition of flammable vapor by an electrostatic charge generated by the action of the water jet.

- Equipment used in explosive atmospheres must be certified to the correct ATEX level. Check before commencing work.
- Check earthing (grounding) requirements for machines and hoses before use.
- **DANGER! If the area is not gas-freed, an electrostatic charge could ignite the flammable vapor and cause an explosion. This can cause serious injury or death.**

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13. Trailer Jetters

- Always park the trailer on level ground.
- Always put the handbrake on or chock the wheels before removing from the towing vehicle.
- Never operate the hydraulic hose reel unless the trailer is hitched to the towing vehicle.
- Do not move the trailer to remove a hose from a drain.
- If the trailer is fitted with prop stands, always deploy and secure stands before use.
- Make sure that the appropriate size ball is used for towing the trailer.
- Read the Operation and Maintenance Manual before operating any equipment.
- Always perform daily checks before moving the trailer. These are shown in Section 11.
- Contact Harben® if there are any defects in the trailer.

14. Drain and Pipe Cleaning

- ⚠ When a jetter is used to clean drains and sewers that are contaminated with a hazardous substance, it is possible these may be entrained in the resulting aerosol and inhaled by operators. Consider using respiratory protection.
- Never start jetting a drain, sewer, or pipe unless the jet nozzle is safely inside the drain and pointing in the direction that you intend to travel.
- When drain jetting a drain, sewer or pipe with an inside diameter that is not small enough to prevent the hose from turning back on itself, a drain jet extension (a piece of straight rigid tube equivalent to the pipe diameter) should be fitted between the end of the hose and the nozzle.
- Always use a safety leader hose at the beginning of the main jetting hose to alert operators when the jet nozzle is mearing the manhole entrance.
- Always consider the use of a tiger tail hose feed guide to protect the jetting hose from abrasion and prevent premature failure.
- Be aware the high-pressure hoses can generate static electricity which may need to be controlled when working in hazardous areas.
- ⚠ When jetting drains or sewers if there is a danger to the public from hoses laying across public walkways, they must be covered in such a way as to protect against injury from hose failure and tripping hazards.
- Before starting work, check and ensure the drain jets have no blocked holes or nozzles as this may cause the pumping system to over pressurize which could result in burst disc failure or bursting the jetting hose.
- ⚠ Never attempt to unblock a fully blocked drain or pipe before considering the consequence of releasing the blockage (e.g. flooding, explosive ejection, drain nozzle ejection). Make sure to have a plan to safely deal with it.
- Never attempt to clean drains or pipes in one pass because this could lead to debris build up behind the jet nozzle causing a pressure build up in the drainage system. Be aware that a

pressure build up in the drain or pipe could cause the jet nozzle to be ejected at speed back towards the operator.

- ⚠ Never enter the manhole. Place the jet nozzle into or extract it from the drain entrance unless the required confined space regulations have been met.
- ⚠ Never work in a manhole where explosive gases may be present with a radio remote control transmitter that is not designed for use in hazardous areas.
- Never use the hydraulic hose reel facility as a winch to retract a jetting hose that has become stuck in the drain or pipe. Damage to the hose could be caused that will make subsequent hose failure more likely.
- Never allow jetting hoses to become kinked and always remove from service any jetting hose with and outer cover that has worn through to the reinforcing braid.
- Never use the high-pressure jetting hose for any purpose other than sewer, drain or pipe cleaning e.g. winching vehicles other plant.
- Only use jetting nozzles and / or accessories that have been calibrated for the jetting machine pump performance or else unexpected system over pressurization could occur.
- Never operate the hydraulic hose reel with the trailer disconnected from the towing vehicle.
- ⚠ Never start the jetter when it may be frozen. Operating a jetter while frozen could cause high speed ice bullets to be ejected from the jetter hose on machine start up.
- ⚠ Never attempt to clean a drain or pipe with a nozzle that has more forward force than rear force. **It will be ejected back toward the operator and could cause injury**.
- Never attempt to clean or pipe with a chain flail type jet that has unequal chain lengths as this could lead to severe vibration and high-pressure hose failure.
- ⚠ Drainage systems may carry bacteria which can cause severe illness or death. Avoid exposing eyes, nose, mouth, ears, hands, cuts or abrasions to wastewater or faecal matter during drain cleaning operations. After working around drainage systems help protect yourself by always washing hands, arms and other areas of the body with hot, soapy water and, if

necessary, flush mucous membranes with clean water. Disinfect soiled equipment by washing surfaces with a hot soapy wash using a strong detergent.

- One-man operations should only be attempted when the jetter is fitted with a suitable remote-control system that allows the operator to control the machine and the water jet stream.
- The use of “jump or pulse jets” in drain cleaning applications may expose the operator to vibration levels more than the exposure limits action value if the jetting hose is handled. Water jetting hose should not be handled while the “jump or pulse jet” is in operation for more than 25 minutes per 8-hour day.

15. Jetting Guns

- Never exceed the recommended maximum for reaction force (250N with shoulder stock and 150N without shoulder stock). Other national standards may apply.

  Current guidance in the USA is that reaction forces should not exceed 1/3rd of the operator's bodyweight for extended periods of time.

- Never shorten the barrels of the jetting gun below 1-1m from the nozzle tip to center of the trigger assembly.
- Never lock the safety trigger in the ON position
- ⚠ Never point the gun as anyone as injury from high pressure water will occur if the jet stream meets body parts.
- ⚠ Never work on a slippery surface because the reaction force of the jetting gun could cause you to become unstable and you could lose your footing.
- ⚠ Never work from a ladder as the reaction force of the jetting gun could cause the ladder to fall backwards from the working area causing possible injury.
- ⚠ Never work from scaffolding unless it is designed, erected, and managed by competent persons and it is adequately secured to prevent it being pushed over by jetting gun reaction force.
- ⚠ When using the jetting gun to clean hard surfaces be aware that splash back could contain hard debris travelling at high speed.

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- ⚠ When using the jetting gun to clean contaminated surfaces be aware that splash back could contain dangerous contaminates.
- Never use the jetting gun to clean a surface that could be damaged by the water jet.
- Always ensure that an adequate area is cordoned off around the working zone so that flying debris and contamination cannot injure passers-by.
- Be aware that the use of water jetting guns fitted with oscillating or rotating jet heads can produce higher hand arm vibration levels than simple fixed head jets. Monitoring these levels may be required under national health and safety regulations.
- ⚠ Never work on a slippery surface. You can lose your footing which can lead to injury.
- ⚠ When using a jetting gun or nozzle to clean at floor level wear suitable protective footwear.
- ⚠ Never use a high-pressure jetting gun to clean down PPE while you or others are still wearing it as serious injury and death could result.
- ⚠ Never use a high-pressure jetting gun to wash or cool down livestock as serious injury and death could result.
- ⚠ **DANGER! Never direct a high-pressure water jet at electric power lines or electrical equipment as serious injury or death from electrocution could occur.**
- ⚠ **DANGER! Do not spray flammable liquids – there is risk of explosion.**
- When using the jetting gun, the pressure needs to be "set" for proper use. To do this, follow the following steps:

  1. Depress the trigger. This allows the water to come through under pressure as the engine is throttling up.
  2. Once the desired pressure is reached (i.e. 3500 psi), the gun can be used off and on without over pressurizing the system.
  3. Perform this procedure for setting the pressure to any desired psi.

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16. Tube Cleaning

- Manual tube cleaning is not recommended by Harben®.
- If our jetting units are used to power automatic and semi-automatic tube cleaning equipment specific safety instructions must be obtained from the tube cleaning equipment manufacturer prior to use.

17. Floor Cleaners

- ⚠ Never adjust the operating pressure when the unit is running.
- Never use the floor cleaner over uneven or damaged surfaces.
- Never raise the floor cleaner from the floor when under pressure.
- ⚠ Over pressurising the floor cleaner could lead to it becoming dangerously unstable.

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18. Jet Pumps

- ⚠ When using a Venturi jet pump never place your fingers into the pump inlet as they could be trapped by the vacuum and cause injury. Always secure the free end of the pump hose securely and ensure adequate drainage is in place to deal with high volumes of pumped water.
- Make sure the appropriate discharge hose is used as required by debris being removed (i.e. rubber hose whne gravel/rock is being pumped)

19. Dry Shut Guns and Foot Valves (Additional to Jetting Guns Info)

- When using a dry shut type system, be aware that high pressure can be retained in the jetting hose even after the machine has been shut down. Always discharge pressure in a safe manner after machine shut down.
- Never use a dry shut type foot control valve on a jetter that does not have a pressure unloader valve as this could result in burst disc failure or bursting the jetting hose

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Toll Free: (800)-327-5387 Tel: (770)-889-9535 Fax: (770)-887-9411
email: sales@harben.com web: www.harben.com

20. Electric Machines

- Harben electric machines operate at voltages of up to 690 volts and 200 amps. Only trained, competent electricians should install units and carry out any maintenance works.
- If working on any maintenance schedules related to the electrical installation, the electrical supply must be isolated. Lock and tag if necessary.
- Do not get water within the electrical cabinet. If water may have entered the electrical cabinet, the power should be isolated immediately and an investigation carried out via a trained operator.
- Care should be taken when working around any electrical cables. If any of the cables are damaged, the power should be isolated immediately and an investigation carried out via a trained operator.

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21. Tire Safety

Tire safety is very important with the trailers that are used. They need to be maintenance and monitored for the equipment to work properly. Daily checks are needed to make sure everything goes smoothly, and that the operator can stay safe. Basic maintenance includes:

- Checking the tire pressure daily: Always check when the tires are cold or have sat for three hours. The correct tire pressure will be on the side wall of the tire.
- Monitor Tire Tread: Tire tread is very important to any tire. When the tread gets below 1/16 of an inch, the tire needs to be replaced. Tread indicators on the bottom of the tire will show when it needs to be replaced
- Tire Balancing: Tires must be aligned and balanced to prevent any shaking and vibrations while the trailer is moving.
- Tire Repair: If a hole occurs in the tire, plugging or patching the tire is a simple option but should not be permanent. This can only work if the tire is in the tread not on the sidewall.

To help prevent any accidents, a few steps can be performed before moving the trailer and while the trailer is moving:

- Check the pressure in each tire. Accurate cold tire pressure can only be measured if the trailer has sat for longer than three hours.
- Inspect the tire for any foreign objects that may be in the tire or around the tire.
- Make sure each valve has a cap and that they are on tight.
- Examine the tire for any uneven wear patterns on the tread and.
- Do not go over the maximum trailer capacity listed on the placard.
- Avoid any potholes in the road. If they are not avoidable, drive slowly over them.
- Avoid curbs and foreign objects in the road.

The components on the trailer need to also be checked and maintained for the safety of the operator and equipment.

- Ensure the breakaway cable is intact before moving the trailer.
- Make sure the brakes on the trailer are serviced regularly and work properly when plugged into the truck.
- Make sure the trailer hitch is attached to the truck properly and that the trailer is attached to the hitch properly.
- Check all lights on the trailer to ensure they are working properly.

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