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# OPERATORS MANUAL

## TIPPING GEARS

Please consult Harsh if any issues arise as operating instructions are subject to change without prior notice.



FM 13737

**HARSH**<sup>®</sup>  
[www.harshuk.com](http://www.harshuk.com)

Registered office as above. Registered in England No. 2168135. VAT Reg. No. 475 4892 00

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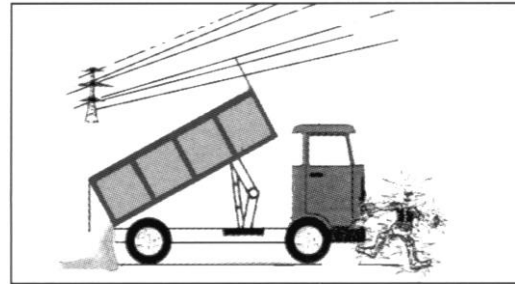
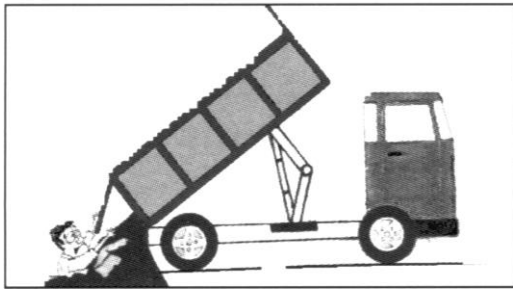
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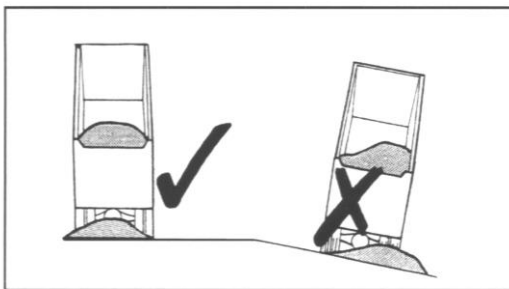
# TIPPING SAFETY INSTRUCTIONS

Please read before operating your Harsh Product: -

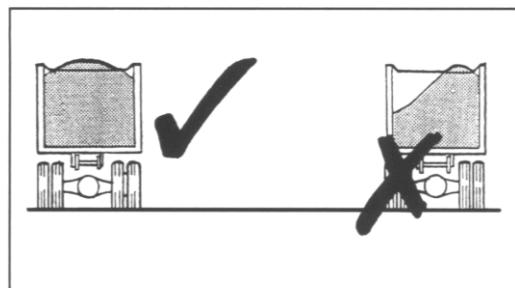
1. Only trained Operatives should use this equipment
2. The Operative should read the warning labels displayed in the vehicle cab before using the equipment.
3. The Operative should always be in a position of control whilst tipping. Remaining in the cab whilst tipping and ensure cab doors are closed.
4. Before tipping, check for overhead obstructions (such as electrical power lines over head gantries/beams and do not allow bucket grabs of any kind in the back of the body) and make sure that no other persons are in the vicinity of the vehicle.



5. Ensure the sheet has been removed/opened, the tail door is released and there is sufficient room at the rear of the vehicle for discharge.
6. Always check the conditions of the area where tipping i.e. do not tip when there is: Wet or unstable ground which may collapse or in high winds



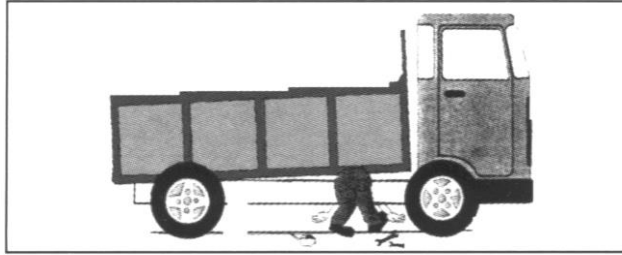
*Uneven Ground*



*Uneven loads*

7. Always tip with the vehicle at rest with the handbrake applied. Do not shunt the vehicle whilst tipping. If you need to move, lower the body first when in a suitable stationary position tip again. If the vehicle becomes unstable lower the body immediately.
8. After tipping always lower the body fully before driving off. (The body up warning is now effective)

9. Do not drive off if the warning light (situated on the tipper control or PTO switch) is on. This indicates that the PTO is still engaged. Always ensure the PTO is disengaged as bulbs can fail.
10. Before driving away ensure the body is fully lowered and tail door is secure. Place the tipper lever in hold position.
11. Never allow anyone to work under an unpropped body.



12. This equipment operates below 70 dbs.

### **WHILST TIPPING**

Always check the conditions of the area where you are tipping i.e. do not tip when there is:

- Wet or unstable ground which may collapse or in high winds
- Stay in cab when tipping. If the load sticks or any problems develop immediately lower the body. (Never shunt the load free or leave the cab and go under a raised loaded body.)
- After tipping, always lower the body fully before driving off and disengage PTO.

### **WHILST WORKING ON THE VEHICLE**

- Never work under a raised loaded body even if propped.
- Never work under a raised empty body unless propped.
- Look for any signs of wear not only on the tipping gear but also the wood packers, hinge assembly, hoses, valve and tank assembly.

# MAINTENANCE INSTRUCTIONS

## Please read before operating your Harsh Product: -

Periodic maintenance and inspections will increase the working life of the tipping gear. Follow the routine checklist and set out below every 50 tips or twice weekly, whichever comes first, to ensure the efficiency and safety of the tipping gear.

1. Ensure all grease points are well greased. Check both the stabiliser frame and the tipper hinge.
2. Check all hoses and hose connectors for oil leaks, chafing and ensure all pipes are secured.
3. Check oil level in the hydraulic tank with the tipping gear at rest. This should be up the mesh basket (40mm from the top).
4. Check fixing bolts for tightness. Replace any damaged/worn bolts with new bolts of an equivalent or higher grade.
5. Check vehicle for any form of damage. (e.g. broken spring leaves/tipper hinge will affect the stability of a tipper).
6. Check hydraulic pipes and air pipes for tightness. Ensure all are free from knots and kinks.
7. Check Harsh rams for oil leaks, ensure gland nuts are tight (visible threads could indicate the gland nuts are becoming loose).
8. Ensure all recommended checks are observed making sure all the maintenance procedures are carried out. The PTO/Pump mounting bolts should be checked after a maximum of 1500km. (It may be necessary to re-check the backlash between the PTO and Gearbox).

## Recommended Hydraulic Oil: -

- Elf – Hydrelf68.
- Morris – Triad HV37a.
- Texaco – Rando HD268.
- Shell – Tellus 68.

N.B. Before you attempt to undertake any maintenance ensure that suitable protective clothing is worn and avoid skin contact with hydraulic oil.

## NOTE

The hydraulic oil supplied by Harsh is not classified as hazardous under current UK Health & Safety Environmental Legislation when used for the application for which it is intended. However, special precautions should be observed when handling used oils.



# OPERATING INSTRUCTIONS

Please read before operating your Harsh Product: -

## SU - UNDERFLOOR STABILIZED TIPPING GEARS

### ELECTRO HYDRAULIC POWER PACK (A5, A6, B10, C20 MODELS ONLY)

1. Ensure handbrake is engaged.
2. Ensure the gearshift is in neutral.
3. Press the up switch or button to raise the body.
4. Release the switch or button to stop the tipping gear in the hold position.
5. Press the lower switch or button to lower the body.
6. To stop the body from lowering release the switch or button.
7. Never allow the body to bounce or jerk when stopping tipping movement.

#### OPERATING INSTRUCTIONS FOR HOISTS EQUIPPED WITH ELECTRO/HYDRAULIC POWER PACKS.

To Raise Tipping Gear :- Activate the UP Switch or button. Release the Switch or Button to STOP the tipping operation.

To Lower Tipping Gear :- Activate the DOWN Switch or Button. Release the Switch or Button to STOP the lowering operation. Keep engine running while operating to keep the battery charged.

**NOTE: KEEP THE ENGINE RUNNING WHILE TIPPING TO CHARGE THE BATTERY.**

### PTO/PUMP OPERATION – DOUBLE ACTING GEARS (B10, C20, D40, E50, E55, F60, G70, H80, H80[N] MODELS ONLY)

1. Ensure the handbrake is engaged.
2. Ensure the gearshift is in neutral.
3. Disengage clutch – pause approximately eight seconds to allow transmission to stop. (Note: on certain transmissions fitted with rear mounted PTO units, any gear can be selected to stop the transmission turning, then return the gear shift to neutral.)
4. Engage PTO control lever. (Warning light will come on.)
5. Engage clutch



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- To raise the body, select the tip position on the valve control lever. (Suggested engine speed 1,000/1,200rpm).
- To lower the body, select the lower position on the valve control lever. Do not disengage the PTO as the tipping gear is powered down. (Failure to follow this instruction will result in air entering the system possibly causing the oil tank to overflow).
- To stop the body when tipping or lowering, select the neutral/hold position on the valve control lever. (Take care when lowering a body on to body props).
- When the body is down, select the neutral/hold position on the valve control lever.
- Disengage clutch
- Disengage PTO control lever. (Do not drive off with PTO engaged).

<b>P.T.O. RAISE/LOWER CONTROL DOUBLE ACTING GEARS</b>	<b>USE RAISE/LOWER CONTROL AS REQUIRED</b>
<b>P.T.O. DISENGAGE CLUTCH PAUSE 8 SECONDS ENGAGE P.T.O. ENGAGE CLUTCH</b>	<b>IMPORTANT MUST LEAVE RAISE/LOWER CONTROL IN HOLD WHEN NOT USING TIPPER</b>
<b>N.B. LEAVE P.T.O. ENGAGED WHEN LOWERING TIPPING GEAR</b>	
<b>HARSH</b> TIPPING GEAR <small>MANUFACTURERS &amp; SUPPLIERS THE INDUSTRIAL ESTATE, FULL SUTTON, YORK YO41 1HS TEL: 01759 372100</small>	

**NOTE: THIS CAB CONTROL WILL AUTOMATICALLY RETURN TO THE HOLD POSITION WHEN RELEASED.**

### **PTO/PUMP OPERATION – SINGLE ACTING GEARS (J100, J100[N], K110, K110[N], L120, L125, M130 MODELS ONLY)**

- Ensure the handbrake is engaged.
- Ensure the gearshift is in neutral.
- Disengage clutch – pause approximately eight seconds to allow transmission to stop. (Note: on certain transmissions fitted with rear mounted PTO units, any gear can be selected to stop the transmission turning, then return the gearshift to neutral).
- Engage PTO control lever. (Warning light will come on).
- Engage clutch.
- To raise the body, select the tip position on the valve control lever. (Suggested engine speed 1,000/1,200 rpm).
- To lower the body, select the lower position on the valve control lever. The PTO should preferably be disengaged.

8. To stop the body when tipping or lowering, select the neutral/hold position on the valve control lever. (Take care when lowering a body on to body props).
9. When the body is down, select the neutral/hold position on the valve control lever.
10. Ensure the PTO control lever is disengaged before driving off. (Do not drive off with PTO engaged).

<b>P.T.O. RAISE/LOWER CONTROL SINGLE ACTING GEARS</b>	<b>USE RAISE/LOWER CONTROL AS REQUIRED</b>
<b>P.T.O. DISENGAGE CLUTCH PAUSE 8 SECONDS ENGAGE P.T.O. ENGAGE CLUTCH</b>	<b>IMPORTANT MUST LEAVE RAISE/LOWER CONTROL IN HOLD WHEN NOT USING TIPPER</b>
<b>HARSH</b> TIPPING GEAR	MANUFACTURERS & SUPPLIERS THE INDUSTRIAL ESTATE, FULL SUTTON, YORK YO4 1HS TEL. 01759 372100

**NOTE: THIS CAB CONTROL WILL AUTOMATICALLY RETURN TO THE HOLD POSITION WHEN RELEASED.**

### WET KITS

For Wet Kit operating instructions please follow the above. However, first of all ensure the quick release couplings are securely connected. If operating a dual pressure Wet Kit, ensure the correct position on the changeover lever (diverter valve) has been selected.





## **FE - FRONT END TIPPING GEARS**

### **ELECTRO HYDRAULIC POWER PACK – ALL ELECTRICALLY OPERATED FRONTEND GEARS**

1. Ensure handbrake is engaged.
2. Ensure the gearshift is in neutral.
3. Press the up switch or button to raise the body.
4. Release the switch or button to stop the tipping gear in the hold position.
5. Press the lower switch or button to lower the body.
6. To stop the body from lowering release the switch or button.
7. Never allow the body to bounce or jerk when stopping tipping movement.

**OPERATING INSTRUCTIONS FOR HOISTS EQUIPPED  
WITH ELECTRO/HYDRAULIC POWER PACKS.**

**To Raise Tipping Gear :-** Activate the UP Switch or button. Release the Switch or Button to STOP the tipping operation.

**To Lower Tipping Gear :-** Activate the DOWN Switch or Button. Release the Switch or Button to STOP the lowering operation. Keep engine running while operating to keep the battery charged.

**NOTE: KEEP THE ENGINE RUNNING WHILE TIPPING TO CHARGE THE BATTERY.**

### **PTO/PUMP OPERATION – COVERS ALL HARSH FRONTEND TIPPING GEARS FITTED WITH PTO/PUMP**

1. Ensure handbrake is engaged.
2. Ensure the gearshift is in neutral.
3. Disengage clutch – pause approximately eight seconds to allow transmission to stop. (Note: on certain transmissions fitted with rear mounted PTO units, any gear can be selected to stop the transmission turning, then return the gear shift to neutral.)
4. Engage PTO control lever. (Warning light will come on).
5. Engage clutch
6. To raise the body, select the tip position on the valve control lever. (Suggested engine speed 1,000/1,200rpm).

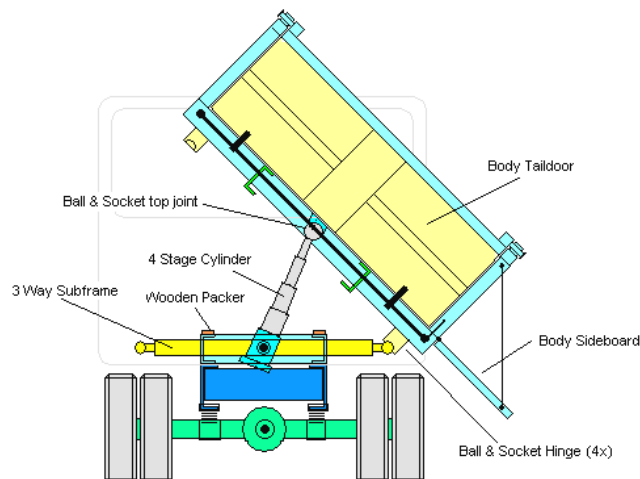
7. To lower the body, select the lower position on the valve control lever. The PTO should preferably be disengaged.
8. To stop the body when tipping or lowering, select the neutral/hold position on the valve control lever. (Take care when lowering a body on to body props).
9. When the body is down, select the neutral/hold position on the valve control lever.
10. Ensure the PTO control lever is disengaged before driving off. (Do not drive off with PTO engaged).

<b>P.T.O. RAISE/LOWER CONTROL SINGLE ACTING GEARS</b>		<b>USE RAISE/LOWER CONTROL AS REQUIRED</b>	
<b>P.T.O.</b>	<b>DISENGAGE CLUTCH PAUSE 8 SECONDS ENGAGE P.T.O. ENGAGE CLUTCH</b>	<b>IMPORTANT MUST LEAVE RAISE/LOWER CONTROL IN HOLD WHEN NOT USING TIPPER</b>	
<b>HARSH</b> TIPPING GEAR		MANUFACTURERS & SUPPLIERS THE INDUSTRIAL ESTATE, FULL SUTTON, YORK YO4 1HS TEL: 01759 372100	

**NOTE: THIS CAB CONTROL WILL AUTOMATICALLY RETURN TO THE HOLD POSITION WHEN RELEASED.**

### 3W - 3-WAY TIPPING GEARS

For 3-way tipping gears operating instructions please follow the above. However, first of all ensure the direction in which you wish to tip the opposing sides locking pins are unfasten, thus enabling the ball and socket function to work and the ram to tip to the designated side.



# AUTO LUBE SYSTEMS

**Please read before operating your Harsh Product: -**

Harsh offer an automatic greasing system as an optional extra to the hoist package and you not only make maintenance simple but also you minimise downtime and grease consumption. Autolubes working from a sealed unit have proved themselves highly reliable and effective over several decades of practical use. Lubricating each grease point ensures that wear is kept to a minimum and seals are kept in a perfect condition preventing maintenance.

This system enables greasing of the complete HARSH underfloor gear and the rear hinge from one point at the side of the chassis, without the need to work under a tipped body.

**NOTE: The Harsh Auto Lube can be retro fitted, please contact Harsh Ltd for details.**

## USING THE HARSH AUTO LUBE

1. Ensure the system is fully charged with grease when receiving the vehicle. Charge if necessary.
2. Apply grease every 50 tips or twice weekly whichever comes first until fresh grease is visible at all grease points. Turn the diverter to grease the hinge.
3. As the grease gun is chassis mounted ensure all dirt is cleaned from the outer casing before inserting a new grease cartridge.



# PROBLEM SOLVING

The following problem solving solutions can be undertaken without specialised tools. If your problem still exists after trying the following methods please consult Harsh on 01759 372100 or your nearest Harsh service dealer (refer to service agents section for list of registered Harsh service dealers).

## THE HOIST IS JERKY OR SLUGGISH???

Air maybe trapped in the system. Check the oil level and then operate the hoist to full stroke several times; any air will be dissipated back to the tank

## THE BODY WILL NOT TIP???

Make sure:

- The vehicle air pressure has had enough time to build up
- The oil in the tank is up to dipstick level
- The PTO switch is 'in' and PTO is engaged (oil is circulating)
- The tipper level is in 'raise'
- There are no kinks in the oil pipes
- The quickly detachable couplings of the tractor and trailer, where applicable, are clean and screwed together tightly.
- No air is leaking from the air pipes

## THE BODY WILL NOT LOWER???

Check the PTO has disengaged and the warning light is out.

Put the tipper lever back in 'raise'. Then:

- Rev the engine until the relief (overload) valve blows, i.e. until you hear a high pitched noise coming from the tipper valve
- Keep the engine revs going for five seconds
- Lower the body.

If the body still will not come down, put the tipper lever in 'hold', PROP THE BODY, switch the PTO to 'out' and turn off the engine.

## THE BODY STOPS ON THE WAY UP???

Lower the body as slowly as possible. The make sure:

- The body is not overloaded or badly distributed
- The oil in the tank is up to the dipstick level

## THE BODY WILL NOT STAY UP WITH THE TIPPER LEVER IN 'HOLD'???

Put the tipper level back in 'raise' and lift the body. Then:



- Rev the engine until the relief (overload) valve blows, i.e. until you hear a high pitched noise coming from the tipper valve
- Keep the engine revs going for five seconds
- Put the tipper lever in 'hold'

If the body still will not stay up, lower the body.

### **EXCESSIVE NOISE???**

- Check the oil level
- Check pipes for kinks and leaks

# HITS (Harsh Improved Truck Support)

## Introduction

Harsh Ltd prides itself on being an industry leader in the products and the services we offer. We aim to provide products that give the operator added value in payback and profit generation. This core belief is at the very heart of Harsh from its foundation with the World's first stabilised Tipping Gear back in 1987. This unique product concept and design revolutionised the industry and changed the way in which the tipping sector treated safety. From that day forward Harsh has continued from its Yorkshire roots to improve and support the commercial vehicle sector by sourcing and designing industry leading products.

The introduction of the Sheeting System Division in 1996 saw the UK's first ever automated tarpaulin covers fitted on UK road going vehicles. The demount handling equipment introduced in 1999 saw Harsh design in house its own Skip and Hookloaders. Not satisfied with simply importing readymade continental versions, Harsh set about designing our very own demount bodies. With all the benefits needed to operate effectively in the UK. Working with manufacturing partners with a vast amount of experience we tailored the demount designs to UK specifications. This saw the launch of the Harsh T Range of Skiploaders and the Harsh Hooklift models.

This recipe of providing products with added value has underpinned the continued growth of Harsh from a small family company into a worldwide recognised brand in vehicle hydraulics and ancillary equipment. We currently export our products all over the world with notable joint ventures in New Zealand, Australia and South Africa.

It is however our expertise and knowledge of the UK market which has seen us recently launch our new HITS programme; focusing our attention on a more service led business support unit. HITS has grown from its initial inception in providing one large nationwide operator with a tailored service package, into a service package offered with all our products as standard.

## What is HITS?

HITS stands for Harsh Improved Truck Support and is a tailor made service led package that helps support working trucks to ensure minimum repair and maintenance costs and ultimately reduce vehicle downtime.

## How does HITS work?

Everyone of our products is sold with a full Harsh warranty as per our standard terms and conditions of sale. HITS in its basic format is our way of extending full product service support beyond the initial sale. Whether in terms of a quick service response, warranty, parts on the shelf or friendly technical advice HITS has it covered. Simply telephone Harsh on 01759 372100 or Phil Bovingdon our Service Manager on 07984 412789 – Available 24/7 HITS will have your queries dealt with quickly and efficiently.

We also go beyond the industry norm and carry out full inspections and reports on everyone one of our Service Jobs to enable you the customer to learn exactly what has happened with your vehicle. This also enables us to build a portfolio on each of your individual trucks, compare data and suggest areas for



preventative maintenance checks. Working in a Service partnership with our customers really does provide added value on our products.

### **How does HITS offer nationwide support?**

We have 2 fully stocked Service Vans based at our Full Sutton, York HQ available at a moment's notice to travel anywhere in the UK. Fully stocked with mobile equipment to carry out onsite repairs our service engineers are trained to get you moving again as fast as possible.



Requiring a faster response, we also have 1 small minivan for an even quicker service; often available as a gesture for courtesy hire if your truck requires back to factory support. This takes the logistical nightmare of a breakdown out of your hands immediately, whilst we deal with your repair quickly and efficiently.

We also have our very own Harsh tractor unit, which enables us to collect and deliver trailers. A further example of our investment in HITS and the importance we place on our Service Support.

### **Do you have a Service Engineer in my local Area?**

Yes. We have a complete nationwide network of Dealers / Service engineers all fully trained and most complete with a range of stocked parts to keep you moving. Please see our Dealer List attached to this document for further details on your nearest engineer.

Ring Harsh on 01759 372100 or Phil Bovingdon our Service Manager on 07984 412789 and we will arrange for your nearest agent to be ready awaiting your arrival.

### **Do you have Parts off the Shelf?**

HITS offers a complete range of spare parts available off the self-next day to anywhere in the UK. With over 35,000 vehicles equipped with Harsh equipment we send out on average 15 spare part items per day across our product ranges to help support Harsh products in the field. Using a guaranteed before Noon carrier we aim to have your parts packed and packaged inside an hour of your order. Delivered to you the next working day or Saturday AM if required.



Telephone our Spares Department on 01759 372100 for friendly helpful advice with product documentation and schematics to aid identification.

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email: [harsh@harshuk.com](mailto:harsh@harshuk.com)

## Do you offer Extended Terms or R&M Packages?

HITS can be if required further encompassing and include extended warranty options, full periodic service reports and onsite maintenance checks as well as fully stocked onsite parts outlets. For further details on these possibilities please speak with your Harsh representative to tailor design a package to suit your needs.

For example, we have numerous HITS packages which currently involve periodic fleet inspections using a traffic light reporting system. These reports are then fed back to you the customer and a programme is then agreed to ensure any red or amber issues are dealt with prior to them becoming a VOR. A preventative maintenance system that has dramatically reduced downtime and repair costs for numerous customers.

HITS has also been extended recently to cover other manufacturers products where possible to help with one easy point of contact.



## Industry Accreditations

Harsh Ltd are ISO9001:2008 compliant credited by the British Standard Institute. Meaning we have full audited systems which give us full traceability and processes in place to ensure full support.

We are active members of the UK CHEM (Container Handling Equipment Manufacturers) committee set up to lobby government with regards to the best practises for the UK waste handling industry.

Harsh are also currently working towards ECWVTA (European Community Whole Vehicle Type Approval) legislation coming into play in October 2014.

## After Sales Service & Customer Care – How do we compare?

In an independent survey, Harsh came out top on after sales service and customer care for the hydraulic industry in the UK. With note to our special attention to detail and our personal approach to customers. We are proud of this achievement and endeavour to provide honest, quick and simple answers to any of your questions or needs.

## Service Contact Details

Service Manager – Shane Frost  
Harsh Ltd  
T. 01759 372 100  
M. 07984 412 717  
E. [phil.bovingdon@harshuk.com](mailto:phil.bovingdon@harshuk.com)

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