

HUSKY[®]



**K-31 ELECTRIC
MANURE PUMP**

OPERATOR'S MANUAL

GUARANTEE

All Husky Farm Equipment manufactured by Husky Farm Equipment Limited is guaranteed. Guarantee covers all the replacement cost or repair of all parts said to be defective from manufacture. Guarantee also covers labour installing said parts, if installed at Husky's Manufacturing plant. Time and use is the essence of the guarantee. If equipment is used on a private property for an individual's use, guarantee will be in effect for twelve months from date of invoice. If equipment is used for commercial use to do custom work for money then guarantee will be in effect for three months only from date of invoice.

EXEMPTIONS FROM GUARANTEE

Cost of transportation of equipment to or from Husky Farm Equipment Limited either by customer or by Husky's service staff or cost of mail or of public transportation is not covered. Tires and electric or hydraulic motors are covered by manufacturer's warranty and although Husky may assist to get warranty, Husky will not be responsible other than that allowed by manufacture's warranty. Items subject to normal wear from use not covered by guarantee if faulty part is simply worn.

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
	Serial Number Location	04
1	Safety	05
1.01	General Safety.....	06
1.02	Operating Safety.....	07
1.03	Maintenance Safety.....	07
1.04	Manure Storage Facility.....	07
1.05	Safety Decals.....	07
1.06	Sign-Off Form.....	08
2	Safety Decal Locations	09
3	Operation	10
3.01	To the New Operator Or Owner.....	10
3.02	How The Machine Works.....	10
3.03	Break - In.....	11
3.04	Installation of the K-31 Electric Pump.....	11
3.05	Pipe Connection.....	11
3.06	Electric Motor.....	11
3.07	Pre-Operation Checklist.....	11
3.08	Operation of the Husky K-31 Electric Pump.....	11
4	Service and Maintenance	12
4.01	Annual Service.....	12
4.01.1	Fluids and Lubricants.....	12
4.01.2	Greasing.....	12
4.01.3	Bearings.....	12
4.02	Maintenance.....	13
4.02.3	Changing Bearings.....	13
5	Trouble Shooting	13
6	Index	14
7	Parts Book	14

SERIAL NUMBER LOCATION

Always give your dealer the serial number of your Husky K-31 Electric Pump when ordering parts or requesting service or other information.

The serial number plate(s) is located where indicated. Please mark the number in the space provided for easy reference.



SERIAL NUMBER LOCATION

Model Type _____

Serial Number _____

Production Year _____

1 SAFETY

SAFETY ALERT SYMBOL

This Safety Alert Symbol Means
**ATTENTION! BECOME ALERT
YOUR SAFETY IS INVOLVED**



The Safety Alert symbol identifies important safety messages on the Husky K-31 Electric Pump and in this manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

3 Big Reasons

**Accidents Disable and Kill
Accidents Cost
Accidents Can Be Avoided**

SIGNAL WORDS:

Note the use of the signal words **DANGER**, **WARNING** and **CAUTION** with the safety messages. The appropriate signal word for each message has been selected using the following guidelines

- DANGER** - An immediate and specific hazard which **WILL** result in severe personal injury or death if the proper precautions are not taken.
- WARNING** - A specific hazard or unsafe practice which **COULD** result in severe personal injury or death if the proper precautions are not taken.
- CAUTION** - Unsafe practices which **COULD** result in personal injury if the proper practices are not taken, or as a reminder of good safety practices.

SAFETY

YOU are responsible for the SAFE operation and maintenance of your Husky K-31 Electric Pump. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the K-31 Electric Pump be familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be adhered to while operating this equipment.

Remember, **YOU** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

Pump owners must give operating instructions to operators or employees before allowing them to operate the Husky K-31 Electric Pump and at least annually thereafter per OSHA regulation 1928.57.

Husky K-31 Electric Manure Pump owners must follow safety practices as recommended by the Agriculture Safety Associations across Canada .

The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. All accidents can be avoided.

A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes themselves and bystanders to possible serious injury or death.

Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.

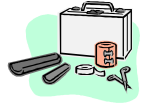
Think SAFETY! Work SAFELY!

1.01 GENERAL SAFETY

1. Read and understand the Operator's Manual and safety signs before operating, maintaining, adjusting or unplugging the manure pump.



2. Have a first aid kit available for use should the need arise and know how to use it.



3. Have a fire extinguisher available for use should the need arise and know how to use it.



4. Install and properly secure all shields and guards before operating.

5. Stop electric motor and wait for all moving parts to stop moving before servicing, adjusting, repairing or unplugging.

6. Never enter manure storage facility without appropriate respiratory equipment and an independent oxygen supply.

7. Review safety related items with all operators annually.

8. When electrical work is required always have a certified electrician perform the work.

1.02 OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, servicing, adjusting, or unplugging.
2. Do not operate unless the required shields are in place and secured.
3. Never wear loose fitting clothing, keep hands, feet, hair and clothing away from all moving and/or rotating parts, while working with machinery, use personal protective clothing and eye and ear protection as needed.
4. Turn off electric motor and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
5. Never enter manure tank or manure storage facility without wearing appropriate breathing gear that carries an independent supply of oxygen.
6. Review all safety instructions annually.

Think SAFETY! Work SAFELY!

1.03 MAINTENANCE SAFETY

1. Read and understand all the information contained in the Operator's Manual regarding maintenance, adjusting and operating Husky K-31 Electric Pump.
2. Do not attempt any adjustment or maintenance to any system of the Husky K-31 Electric Pump when the implement is in motion.
3. Be very careful and exercise extreme caution when working around or near a rotating shaft.
4. Do not operate K-31 Electric Pump unless the rotating shield and all other guards are in place.
5. Never wear ill-fitting, baggy or frayed clothing and never have unkempt long hair when working around or on any of the drive system components.
6. Never enter tank or manure storage facility without wearing appropriate breathing gear that carries an independent supply of oxygen. The buddy system is also a recommended procedure.



1.04 MANURE STORAGE

FACILITY SAFETY

1. Never enter tank or manure storage facility without wearing appropriate breathing gear that carries an independent supply of oxygen.
2. Keep others, especially children, out of these structures.
3. Use special care when opening storage facilities to prevent yourself or others from falling in.
4. Stored manure gives off hydrogen sulfide gas. One breath can kill. Keep away. Keep others away.
5. Do not enter storage facility without oxygen supplying equipment. The surface always crusts and looks solid. It is not. Stay away.
6. Set and adjust agitator before placing in pit. Never enter pit to unplug. Remove first.
7. Always have a ladder in storage tank as a means of getting out should you inadvertently fall in.

1.05 SAFETY DECALS

1. Keep safety decals and signs clean and legible at all times.
2. Replace safety decals if destroyed, missing, painted over or unreadable.
3. If a section of the pump is replaced that carries a safety decal, apply a new decal immediately.
4. Safety decals or signs are available from your Dealers Parts Department.

HOW TO INSTALL SAFETY DECALS:

- Be sure that the installation area is clean and dry.
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Wash area with soapy water and install decal while still soapy, then it can be smoothed out easily.
- Place the sign in position and slowly peel back the remaining paper, smoothing the sign as it is applied.

1.06 SIGN-OFF FORM

Husky Farm Equipment follows the general standards specified by the American Society of Agriculture Engineers (ASAE), the Occupational Safety and Health Administration (OSHA) and safety practices as recommended by the Agriculture Safety Associations across Canada. Anyone who will be operating and/or maintaining the Husky K-31 Electric Pump must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

Do not operate or allow anyone else to operate this equipment until such information has been reviewed. Annually review this information before the season start-up.

Make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. We feel that an untrained operator is unqualified to operate this machine.

A sign-off sheet is provided for your record keeping to show that all personnel who will be working with the equipment have read and understand the information in the Operator's Manual and have been instructed in the operation of the equipment.

EMPLOYEE SIGN-OFF FORM

DATE	EMPLOYEES SIGNATURE	EMPLOYERS SIGNATURE

2 SAFETY DECAL LOCATIONS

The types of decals on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various Safety Decals, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

Think SAFETY! Work SAFELY!



REMEMBER - If safety decals have been damaged, removed, become illegible or parts replaced without decals, new decals must be applied. New decals are available from your authorized dealer.

3 OPERATION

3.01 TO THE NEW OPERATOR OR OWNER

Husky Farm Equipment's K-31 Electric Pumps are designed to efficiently agitate and pump liquid manure from the storage facility to the hauling tank, transferring to alternative storage or to feed a high pressure irrigation pump for irrigating the manure. Many of the features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the machine safely and how to set it to provide maximum efficiency. The manual will take you step-by-step through your working day. By following the operating instructions in conjunction with a good maintenance program, your Husky K-31 Electric Pump will provide many years of trouble-free service.

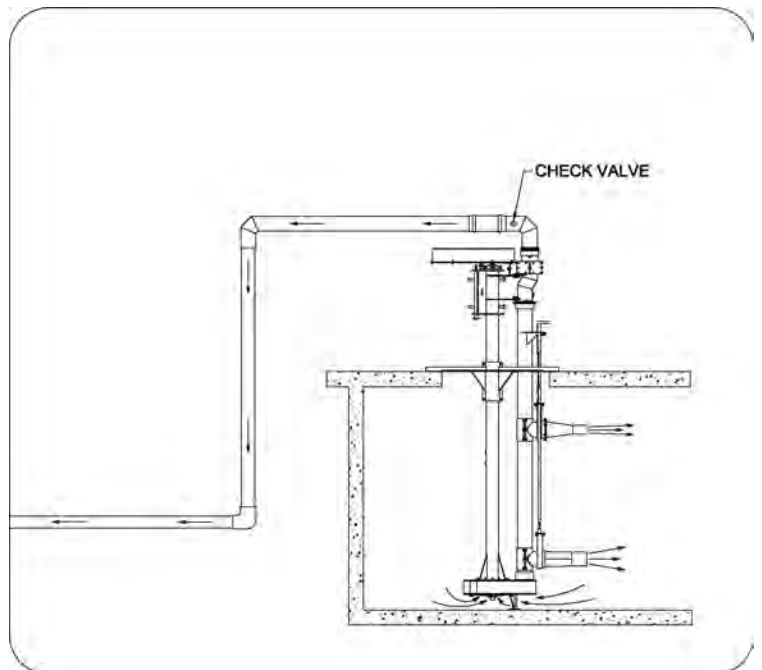
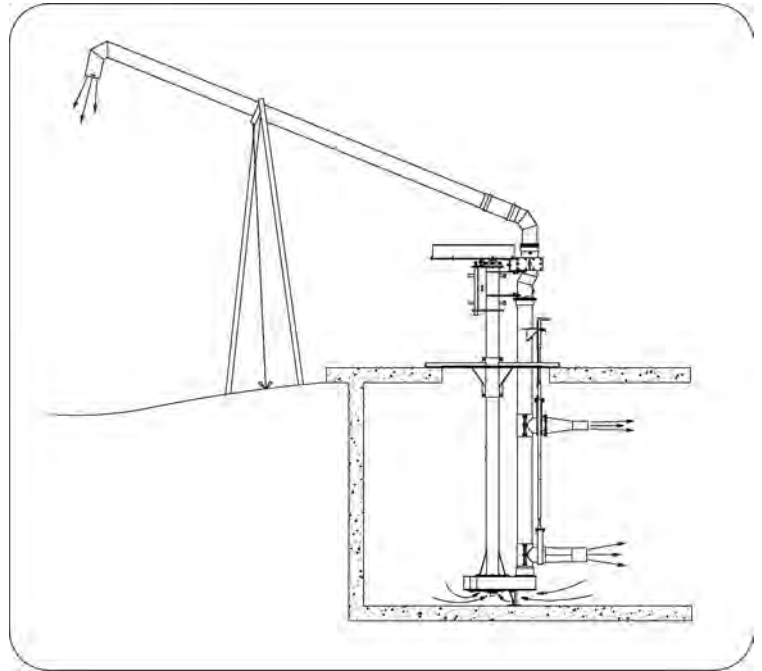
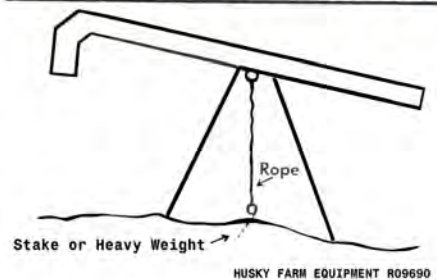
General Information About the Husky K-31 Electric Liquid Manure Pump

Husky Farm Equipment Limited designs and manufactures all of its products so they can be operated safely. However the responsibility for safe operation rests with those who use and maintain these products.

The Husky K-31 Electric Pump should be operated only by those who have been trained to do so, and who have read these operating instructions and operating manual. Failure to follow the instructions, procedures and safety precautions in this manual may increase the possibility of an accident or injury.

The Husky K-31 Electric Pumps are designed to operate with a 40 HP electric motor. Purchased pumps do not include a motor and must be purchased separately. Motors are available at Husky Farm Equipment Ltd.

Husky's K-31 Electric pump comes in different lengths to suit most pits. While each pump carries a large amount of adjustment distance, the right length pump should be matched to your specific pit to ensure maximum productivity.



3.02 HOW THE MACHINE WORKS

The Husky K-31 Electric Pump uses a motor to drive a fan or impeller assembly that rotates at high speeds. This fan pushes the liquid manure up the pipe for pumping or out through the agitator as required. The K-31 Electric Pump can be used either as a transfer pump or a loading pump. See Fig 1 and Fig 2.

FIG. 1 PRINCIPLES OF OPERATION-1 FIG. 2 PRINCIPLES OF OPERATION-2

3.03 BREAK-IN FOR K-31 ELECTRIC

There are some mechanical checks that must be done to insure long term integrity of the unit. When using the pump for the first time, follow this procedure:

A. Before Using

1. Check motor amperage
2. Ensure pump is securely fastened to pit.
3. Ensure belts are snug but not overly tight.

B. After 25 hours of use:

1. Check all hardware. Tighten as required.
2. Lubricate all grease points.
3. Check belt tension.

3.04 INSTALLATION OF THE PUMP

When installing the Husky K-31 Electric Manure Pump in a pit it must be made solid by attaching it to the floor or wall. If the pump is not fastened down securely it will rotate when starting and could cause damage to the wiring or cause personnel injury. Always have the electrical wiring installed by a qualified person and have it meet the standards of the electrical code in your area.

3.05 PIPE CONNECTION

The piping that is used to connect to the Husky K-31 Electric Pump is usually either ABS or PVC plastic material. The pipe must be installed so there are no valleys in the horizontal section that could freeze. If this setup is used a check valve should be purchased and installed into the piping at the highest point so that air can enter to drain the pipe when the pump is off. See Fig 2. The pipe can be installed above or underground. There

are many different setups using the K-31 Electric pump that the installer has to use their own discretion on the plumbing installation. The total head for discharging material is normally a maximum of 28 ft from the bottom of the pit, but this will vary according to how thick the material is that is being pumped. Horizontally the pump will push long distances and again will be restricted by the constancy of the material. If the material is not moving as fast as expected it would be good practice to put a larger motor on the pump and speed the RPM's up by using a larger motor pulley.

3.06 ELECTRIC MOTOR

The Husky K-31 Electric Pump is designed to be driven with an Electric motor, normally 40 HP is used, but this can vary. The pump should be wired to run **Counter Clock Wise** when looking down from the top. The electric motor used should always be a totally enclosed motor as the manure could get inside the motor and destroy it. It is good practice to have a small (approx 1/8") hole drilled in the end of a totally enclosed motor to let the condensation out (please check with your electrician before drilling). When doing this make sure that the drill does not penetrate the windings in the motor. After the pump is operating and electrician should do an amperage draw test on the motor to make sure it is not over loaded. If there is a problem with overload the motor can be fitted with a different size belt and pulley available from the company.

3.07 PRE-OPERATION CHECKLIST

Efficient and safe operation of the Husky K-31 Electric Pump requires that each operator reads and understands the operating procedures and all related safety precautions outlined in this section. A pre-operation checklist is provided for the operator. It is important for both personal safety and maintaining the good mechanical condition of the Pump that this checklist be followed.

1. Only use a motor of sufficient size to operate the pump.
2. Check pulley alignment and belt tension to avoid slippage, belt should be tight enough that the slack part of the belt between the pulleys can only be moved about 1/2" by hand.
3. Make sure pump is fastened securely.
4. Make sure shaft shield is locked in place so it can't move.
5. Check all bolts and nuts through out the pump to make sure everything has been tightened from the factory.
6. Make sure all discharge pipe fittings and clamps are tight so the pipes will not come apart under pressure.

3.08 OPERATION OF THE PUMP

You are now ready to start the pump. Before starting



MAINTENANCE SAFETY

- 1. Stop motor and wait for all moving parts to stop before servicing, repairing, adjusting or unplugging any system or component.**
- 2. Keep hands, feet, hair and clothing away from all moving or rotating parts.**
- 3. Make sure that all shields and guards are in place before operating.**
- 4. Clear the area of bystanders, especially children, when carrying out any maintenance or making adjustments.**
- 5. Never enter a tank without wearing appropriate breathing equipment that carries an independent supply of oxygen. Keeps others out of tank.**

make sure the top valve is closed (all the way in and handle rotated to lock). Open up the agitator valves by pulling the handles upwards. Start the pump and have an electrician check the amperage of the motor. The agitator valves can be opened or closed and rotated CW or CCW using the crank handle. Make sure to replace the locking pin after rotating. To change the pump from agitating to pumping, turn off the motor. Open the top valve, and turn on the motor. The agitators can both be closed now for more pumping capacity.

4 SERVICE AND MAINTENANCE

4.01 ANNUAL SERVICE

1. Grease Top Flange Bearing
2. Check bearings for wear and replace when needed
3. Check bolts annually and replace if worn.

If the Husky K-31 Electric Pump is used properly it should give many years of service. When worn parts are needed always call your dealer or the factory and get original parts.

4.01.1 FLUIDS AND LUBRICANTS

1. Grease

Use an SAE multi-purpose high temperature grease with extreme

pressure (EP) performance and containing at least 1.5% molybdenum disulfide. Also acceptable is an SAE multi-purpose lithium base grease/

2. Storing Lubricants

Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

4.01.2 GREASING

Refer to section 4.01.1 for recommended grease.

1. Use only a hand-held grease gun for all greasing. Air powered greasing systems can damage the seals on bearings and lead to early bearing failure.
2. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.
3. Replace and repair broken fittings immediately.
4. If fittings will not take grease, remove and clean thoroughly. Also clean the lubricant passageway. Replace with a new fitting if necessary.

4.01.3 BEARINGS

1. The bearing on the bottom of the K-31 Electric Pump is called a marine bearing and it is lubricated with the manure itself, this bearing needs no attention. When the pump is out of the pit you can check the bearing wear by lifting on the fan at the bottom. If the fan moves over 12.7mm (1/2") it is time to change the bearing. (See Changing Bearings in section 4.02.1 of this manual).
2. The bearing in the center of the pump is an oil impregnated wooden block, it does not usually need replacing as it just keeps the shaft from whipping at high speeds. If the bearing is worn 12.7mm (1/2") or more it is time to change the bearing. (See Changing Bearings in section 4.02.1 of this manual).
3. The top bearing is a flange type ball bearing and is pre greased. Once shot of grease annually is sufficient; if over greased it will push out the seal and allow dirt into the bearing.

4.02 MAINTENANCE

The efficient and safe operation of your Husky K-31 Electric Pump will depend to a great degree on your diligence in following the maintenance and adjustment procedures outlined in this section. If you follow these recommendations, your Pump should work to its maximum potential.

4.02.1 CHANGING BEARINGS

During the life of the Husky K-31 Electric Pump the bearings may become worn and need to be replaced. Proceed in this manner:

1. Stop the motor and wait for all moving parts to stop before adjusting or repairing the machine.
2. Remove the pump from the pit.
3. Remove the cover plate and foot assembly.
4. Inspect inside of housing for wear points.
5. Remove pulley from drive shaft.
6. Loosen lock collar on top flange bearing.
7. Pull shaft out of pump from bottom end.
8. Loosen bolts on bottom bearing and remove bearing, replace with factory approved one, and retighten bolts.
9. If middle wooden bearing needs replacing loosen only the lower bolt and push out with a rod, replace and tighten up bolt.
10. If top bearing needs replacing do so now, if not slide fan & shaft back into pump. Reinstall all hardware, lock collar & Guards.

5 TROUBLE SHOOTING

The Husky Farm Equipment K-31 Electric Pump is a simple pump that is used to transfer liquids. It is a reliable system that requires minimal maintenance.

In the following section, we have listed many of the problems, causes and solutions to the problems you may encounter. If you encounter a problem that is difficult, after having read through this troubleshooting section, please call your local Husky dealer or call the factory direct. Ask for service and have the serial number of your pump ready.

PROBLEM	CAUSE	SOLUTION
Manure Won't Pump	Slurry too thick	Add water & agitate
	Lifting too far	Decrease load out position
	Fan or pipe plugged	Unplug
	Motor running backwards	Rewire motor
Fan rubbing on bottom of housing	Shaft has slid down from bearing	Slid up again and tighten lock collar
Agitator valves will not work	Nut off of thread on rod end	Replace nut
	Cone plugged	Remove pump and unplug
Agitator valves leaking by shaft	Brass bushing is worn or missing	Replace brass bushing
Top Valve will not work	Jammed with manure	Dismantle and clean
	Roll pins or snap rings are dislocated	Replace missing part.

6 INDEX

	B	
Break - In		11
Bearings Servicing		12
Changing Bearings		13
	E	
Electric Motor		11
Employee Sign-Off Form		08
	F	
Fluids and Lubricants		12
	G	
General Safety		06
Greasing		12
Guarantee		02
	H	
How the Machine Works		10
	I	
Installation of the Pump		11
Installation of Safety Decal		07
	M	
Maintenance		13
Maintenance Safety		07
Manure Storage Facility Safety		07
	O	
Operation		10
Operation of K-31 Electric Pump		11
Operating Safety		07
	P	
Pipe Connection		11
Pre-Operation Checklist		11
Principals of Operation		10
	S	
Safety		06
Safety Alert Symbol		05
Safety Decal		07
Safety Decal Locations		11
Serial Number Location		04
Service		12
Service and Maintenance		12
Sign-Off Form		08
	T	
Table of Contents		03
To the New Operator or Owner		10
Trouble Shooting		13

7 PARTS BOOK

The Parts Book with a list of all the parts on your pump is enclosed with this manual at the time you purchase the pump new.

PAGE Contact your local dealer or the factory if you need a copy of the parts book or you need a new copy of this operator's manual

At the time of printing there is no charge for these books to an owner of Husky liquid Manure Equipment.

HUSKY FARM EQUIPMENT LIMITED

7440 Wellington Rd #17

R.R. # 2 ALMA

Ontario, Canada

N0B 1A0

Phone(519) 846-5329

Fax (519) 846-9378

ISSUE DATE: OCT, 2007

PRINTED IN CANADA