USER MANUAL

Installation and Operating Instructions

Envirosys®

Automatic Bar & Chain Grease System for Logging Equipment

Increased Productivity
Reduced Operating Costs
Complete Elimination of Chain Oils

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE!

STL LUBRIFIANTS

The maker of Envirosys®

Generation 6 - Revision 9 - Feb 2018

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INTRODUCTION

CONGRATULATIONS! You have just invested in the next generation of lubricating technology for your logging equipment. Your purchase ensures years of clean, reliable and highly cost-effective operations. We trust that you will appreciate the quality of our **ENVIROSYS®** Automatic Bar & Chain Grease System.

Please read this manual in its entirety. Its purpose is to familiarize you with your **ENVIROSYS®** system, its safe installation, proper operation and maintenance. It contains information that is useful to you now and in the years to come. So keep it handy and refer to it as needed.

The performance of your **ENVIROSYS®** system depends of many variables. Since all installations are unique, the general information and operating procedures presented here can only serve as useful guidelines rather than hard and fast rules. Should you have any questions, do not hesitate to contact your dealer for additional information.

The **ENVIROSYS®** Automatic Bar & Chain Grease System is manufactured and warranted by:

STL LUBRIFIANTS

The maker of Envirosys®

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SAFETY INFORMATION

Read and understand this User's Manual thoroughly before installing and using the ENVIROSYS® Automatic Bar & Chain Grease System.

Make sure to install the ENVIROSYS® system:
- According to the manufacturer's recommendations
- In accordance with all applicable codes
- By employing a qualified technician

When using your ENVIROSYS® system:
- **Never** modify the **ENVIROSYS®** system in any way
- **Never** use greases other than the ones recommended by the manufacturer
- Inspect the pump, control unit, pipes and cables as recommended

Other safety guidelines:
- Always use the necessary personal protective equipment
- Install the **ENVIROSYS®** system in a place where re-filling the reservoir with grease can be done without risk of slipping and/or falling down
- Clean the **ENVIROSYS®** system as needed

GENERAL DESCRIPTION

The patented **ENVIROSYS®** system is replacing oil used to lubricate the cutting parts of a harvester head with biodegradable or standard chain grease. Through an ingenious system using a control monitor in the operator cabin, the chain grease is injected under pressure, reaching and protecting the cutting parts more effectively than a conventional oil system, therefore providing a longer life for bars and chains.

The **ENVIROSYS®** system consists of an electric pump, a reservoir capable of storing 1.5 special chain grease pouches of 3 kg (approximately 6.61 lbs) each, a control monitor and electrical cables.

SPECIFICATIONS

Weight (empty)	11 kg	24,2 pounds
Dimensions (height x diameter)	45 x 30 cm	18 x 12 inches
Operating temperature	-30 °C to + 80 °C	-22 °F to +175 °F
Voltage	12 or 24 Volts DC (specify when ordering)	
Power (maximum)	50 Watts	
Reservoir capacity	Approx. 5 kg	Approx. 11 lbs
Grease characteristics	Standard or Biodegradable *See Technical Data Sheet in Appendix*	

Principal Components and Features:

Grease Pump
- Available for 12 VDC or 24 VDC electrical systems
- Piston type activation for highly efficient grease delivery
- Relief and check valves to prevent overpressure and backflows

Grease Reservoir
- Specially designed to connect with our special containers (cubic bag type) to minimize risk of grease contamination when refilling
- Uses grease agitator for maximum efficiency
- Low level sensor to help preventing unexpected shut-downs

Grease Containers
- Developed in our laboratories for the sole use of the **ENVIROSYS®** system
- Each pouch weighs 3 kg (approximately 6.61 lbs) and is available in boxes of four units each
- Available in two types – highly adhesive standard and biodegradable chain greases - for both summer and winter conditions

Control Monitor
- 4 easy to use buttons
- Used to oversee and control the chain grease lubrication process
- Allows flow rate control for optimum lubrication
- Blinking warning lights to indicate time for refilling
- Controls up to two saws and one roller equipment
- Contains state-of-the-art controller to oversee all operations
- Contains necessary electric protective breaker

Electrical Cables
- All pre-wired and numbered cables for easy installation

INSTALLATION

The ENVIROSYS® system can be installed on all models, types and brands of harvester heads and forestry machinery.

The device is completely independent from the existing hydraulic systems and can be removed and re-installed if the machinery is upgraded.

Unpacking

We package your **ENVIROSYS®** system with the greatest care so that it ships safely. Under certain circumstances, however, damage can still occur during transit and handling. When you receive your **ENVIROSYS®** system, unpack it carefully and inspect all parts for damage. Also ensure that all parts are included. If any parts are damaged or missing, please contact your dealer immediately.

WARNING: *Before installing the* **ENVIROSYS®** *system, always TURN OFF main system power.*

Installing the **Pump, Reservoir and Electronic control monitor**

1. Find a protected area with easy access (e.g.: the engine compartment, which provide good protection and a warmer environment during cold weather)
2. Leave enough space above and around the reservoir to allow refilling
3. Drill two 10mm (3/8") holes horizontally (center to center distance = 120 mm or 4¾")
4. Secure the pump and reservoir on a solid surface using bolts

Installing the **Control monitor**

1. Find an appropriate space in the operator cabin
2. Ensure a reachable access for the operator to control the various injection parameters during operation
3. Use the bracket provided to support the control monitor
4. Screw the monitor in place

CAUTION: Try to stay away from any electromagnetic interference (EMI) (e.g.: FM Radio)

Installing the **Grease Conduits** (Not provided)

1. Use the existing oil conduit or hose, if any, by simply connecting it to the pump outlet
2. In the absence of an oil conduit, use a ¼" diameter hydraulic quality hose (approx. 6.35 mm) equivalent to SAE 100 R2AT / DIN EN 853 2SN (400 bar / 5800 psi)
3. Install the conduit along the hydraulic lines on the boom of the harvester machine - from the main unit to the saw bar. The feeding line installation should take into consideration the boom configuration (i.e. telescopic or extendable masts)
4. Connect the conduit to the pump unit and to the saw bar using JIC female swivel 04 type fittings whenever possible.

NOTE:

A larger hose diameter does not provide any advantages or disadvantages. Each 10-metres (33 feet) length of 6mm (¼") diameter hose section corresponds to a volume of 1300 cc or approximately 1.3kg of grease.

Some harvester head models with Supercut saw unit specify a maximum of 50 bar pressure in order to avoid gasket damage. In these cases, a pressure-reducing valve has to be installed (from 300 to 50 bars) near the saw block to avoid exceeding the prescribed standard. This pressure reducing valve is available in the **ENVIROSYS®** system parts list (SYS006/Cartridge, SYS007/Block).

Installing the **Electrical Cables**

1. Connect harness #5 and #6 to harness #4 using the assembled cables
2. Connect harness #4 to harness #3 using the assembled cables
3. Identify and connect the saw signal (positive or negative) from harness #2 to harness #3. If no signal is available in the cabin, the signal will have to be brought from the saw unit located on the head. It is recommended that the signal be identified by the manufacturer
4. Connect harness #3 to the main power source / Relay Key (harness #1)

IMPORTANT NOTE: Your **Envirosys®** system must be ordered adequately to match your available electrical system (12 VDC OR 24 VDC).

GETTING STARTED

1. Start by manually filling the supply hose with **Envirosys®** grease. Use a manual grease gun, not the **Envirosys®** system for now
2. Fill up the reservoir by adding one **Envirosys®** 3kg chain grease cubic bag. Use the two (2) tubes of provided chain-grease for this segment of the installation.
3. Power up the **Envirosys®** system by turning ON your equipment start key
    - The proper operation of the **Envirosys®** system will be confirmed when the control monitor turns ON
4. Press the "Initial Load" button
5. Verify that grease is coming out of the lubrication channel on the saw unit
6. You are now ready to do what you are doing best, harvesting!

NOTE: The **Envirosys®** system comes with factory setting grease injection parameters. All parameters can be modified by the operator at any given time. Please refer to the "OPERATING/PROGRAMMING" section of this user manual for more details.

OPERATING

Filling the system with grease

1. Unscrew the reservoir lid
2. Take a 3kg cubic grease bag and connect it to the top of the reservoir
3. Press down to empty
4. Put the reservoir lid back in place

Clean prior to refill & do not overfill

Safety advice: We recommend the use of protective gloves & glasses when refilling

Note: Always clean the area around the lid before opening in order to prevent debris from falling into the tank when filling the system.

NOTE: The injection duration period may vary according to operation conditions, type and size of wood, and chain saw types (.404 vs ¾" pitch)

NOTE: The pre-charge functions are used to ensure non-interruptible supply of grease to the saw chain unit following grease pressure drop due to idling period of operation.

Factory settings

- 1.3 seconds for the injection duration time
- 30 seconds delay prior to pre-charge
- 1.5 seconds pre-charge following delay
- 12 seconds pre-charge on initial start-up

PROGRAMMING

Control Monitor

Home screen

Software version

Start-up screen

(Warning) 4 red and green LEDs are blinking:
The **Envirosys®** system is not started

Envirosys® system initial start-up button. The **Envirosys®** pump runs according to the first charge adjustment.

⚙ *Configuration screen #1*

Language, brightness & contrast

Back to home screen button

Button to increase brightness/contrast or to switch language to English

Button to select language, brightness, contrast or to go to configuration page #2

Button to reduce brightness/contrast or to switch language to French

⚙ *Configuration screen #2*

NO or NC input selection

Back to home screen button

Button to switch input to normally opened (NO)

Button to select Saw #1, Saw #2 or AUX input

Button to switch input to normally closed (NC)

Main screen

Green LED on: the **Envirosys®** grease pump is operating

Saw #1, Saw #2 and AUX adjustment time display

Button to go back to home screen AND put the **Envirosys®** system on stand-by

Button to go to the configuration screen #1 (language, brightness and contrast) and screen #2 (NO or NC input selection)

Button to go to time base parameter screen for Saw #1, Saw #2 and AUX durations

Button to go to the parameter screen for pre-charge delay and time and first charge time

Time base screen

Back to home screen button

Button to increase duration

Button to select time for Saw #1, Saw #2 and AUX

Button to reduce duration

Pre-charge and first charge screen

Back to home screen button

Button to increase duration or delay

Button to select duration for pre-charge delay and time or first charge time

Button to reduce duration or delay

First low grease level screen

(Warning) 4 red and green LEDs are blinking and 2 orange LEDs remain lit: First low grease level warning

Bypass button: allows 150 additional grease injections

Home screen with first low grease level warning

This indicator shows the number of grease injections remaining

(Warning) 2 orange LEDs remain lit: There are 150 or less grease injections remaining

Button to go back to home screen AND put the **Envirosys®** system on stand-by

Second low grease level screen

(Warning) 4 red and green LEDs are blinking and 2 orange LEDs remain lit: Second low grease level warning

Second low grease level:
No bypass; there is no possibility for the system to restart. Grease must be added to the tank so the system can restart.

MAINTENANCE

Performing routine actions to keep the **Envirosys®** system in working order or prevent trouble from arising is part of a good preventive maintenance plan that will keep your **Envirosys®** system reliable and performant for many years.

Cleaning the **Envirosys®** system

- Always clean the top of the reservoir before filling
- Avoid dirt contamination when manipulating grease containers
- Clean the air vent passage underneath the black lid on top of the reservoir to allow a free flow of grease
- DO NOT mix other lubricants or products with **Envirosys®** greases

Note: Contamination and non-Envirosys® greases usage will void the system warranty

Replacing a piston

- Make sure the eccentric shaft is not facing the piston to ease its insertion (the vertical scraper inside the reservoir must face the piston that will be removed)
- Use manual control button on the harness #4 to position the eccentric shaft
- Remove the piston from the pump
- Replace the piston manually in order to avoid damaging threads
- Run the pump (using the manual control button on the harness #4) until grease appears
- Plug adapters and hose
- Check for any leak after the installation

Recommended spare parts

- Pistons
- Piston springs
- Check valves
- Relief valves
- Hoses and fittings
- Pressure reducing valve (some harvester head models)
- Gauge grease (diagnostic tool)

Note: A grease gauge is an indispensable tool for diagnosis

TROUBLESHOOTING

Virtually all harvester operators experience basic common problems at one time or another while operating. With the **Envirosys®** system, most of them are correctable and generally require only a minor adjustment to the installation or operation technique. It is important to be aware of the possible causes of the problem in order to take the appropriate actions.

PROBLEM	POSSIBLE CAUSE	SOLUTIONS
NO GREASE BEING INJECTED	Power off	Check main circuit breaker
	Insufficient injection duration time settings	Increase the injection duration time period
	Insufficient pre-charge injection duration time settings	Increase the pre-charge injection duration time period
	Conduit or hoses disconnected or leaking	Reconnect conduit and/or hoses
		Identify and fix the leak
	Defective piston	Use manometer to measure pump pressure. Should read 300 bar (4300 psig). Replace defective piston.
	Relief valve settings too low	Adjust relief valve with a grease manometer to 300 bar (4300 psig)
	Contamination	Check for contaminants and clean the system
	Air entered the system	Eject the air by disconnecting the adapters from the pistons and run the pump until grease comes out
FROZEN GREASE	Improper grade selection (winter vs summer)	Change grade
PUMP RUNNING CONTINUOUSLY	The manual override button on harness #4 near the pump	Push the manual override toggle switch once

WARRANTY

All **Envirosys®** system components are guaranteed for a two-year (2) period, only if the following rules are applicable:

- System cleanliness. If solid contaminants are found inside the system, no warranty can be applied
- Mixing other products different from **Envirosys®** greases. Since the system has been tested and validated with our **Envirosys®** greases, any use of other products voids the warranty
- Any misuse of the system is not covered by the warranty
- All new **Envirosys®** parts are warranted for a period of three (3) months from the date of delivery;

Note: Contamination and non-Envirosys® greases usage will void the system warranty

Model number:

Pump serial number:

Control monitor serial number:

Date manufactured:

Date purchased:

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CONTACT YOUR DEALER FOR MORE INFORMATION

APPENDIX

DECLARATION OF INCORPORATION

According to directive 2006/42/EG, Annex 2B

S.T.L. Lubrifiants
208 Rue de Parc Industriel
St-Prime, Québec, Canada
G8J 2B1

Declare under our sole responsibility that the products:

Grease lubrication equipment for saw chain cutting attachments, **Envirosys®** 12 VDC or 24 VDC from year of manufacture 2010 and onwards following the provisions of Directives:

2006/42/EC, Machinery
2004/104/EC, Electromagnetic compatibility (EMC)

to which this declaration relates is in conformity with the following standard(s) or other normative document(s)

EN ISO 12100-1/A1:2009, -2/A1:2009, EN 60204-1:2006, EN 61000-6-2, EN 55011, EN 61000-6-4

The partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of Directive 2006/42/EC.

04 October, 2010

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GREASE TECHNICAL DATA

BIO LUBRICANTS

BIO lubricants are a family of biodegradable and non-toxic fluids. These **Envirosys®** chain greases were especially formulated with biodegradable vegetable oils to offer optimal performances and withstand high friction and very high chain speed on logging equipments. The additive package used is ashless and approved for incidental contact with food (H-1 and H-2). These lubricants do not affect yellow metals; moreover, they offer superb performance under the most adverse operating conditions.

All BIO lubricants from **S.T.L. LUBRIFIANTS** offer the following characteristics:

1. High load capacity and resistance to abrasion
2. Superior protection against rust and corrosion
3. Outstanding anti-wear properties
4. Higher resistance to oxidation than most conventional biodegradable lubricants. In addition, these lubricants form a highly adherent and tenacious film which increases metal surface protection while reducing stray-mist.

CHARACTERISTICS

All BIO fluids possess the following characteristics:

- Virtually no toxicity
- Biodegradability higher than 97 %
- Exceptional anticorrosion, antirust and anti-wear properties
- Excellent oxidation stability and high adherence to surfaces
- Good properties in low temperature
- Excellent anti-foam properties.

These will be approved by organizations such as NSF and CFIA. Other viscosity grades will also be available in a near future. Clearly, these lubricants are ideal for industries to which the environment and the welfare of employees are a concern.

ENVIROSYS® BIO EP GREASE

Envirosys® BIO EP GREASE winter & summer grades are high temperature, multi-purpose greases with low coefficient of friction. **Envirosys®** BIO EP GREASE is ideal for applications where there is constant environmental exposure due to pass through lubrication, unsealed bearings or similar open designs. **Envirosys®** BIO EP GREASE is an industrial grease that is not just rapidly biodegradable and operator safe, but also environmentally safe. **Envirosys®** BIO EP GREASE is made from a vegetable oil carrier. The risk

of both water and soil contaminants is reduced and risk of long and short term liability is minimized. Use **Envirosys®** BIO EP GREASE where grease is entering the environment.

ADVANTAGES

- **Envirosys®** BIO EP GREASE contains no petroleum oil carriers; petroleum based additive packages or metal additives such as lead or zinc.
- **Envirosys®** BIO EP GREASE can be used in centralized dispensing system applications where the potential for environmental contamination is a concern.
- **Envirosys®** BIO EP GREASE continues to lubricate in the presence of water.
- **Envirosys®** BIO EP GREASE has an exceptional low coefficient of friction
- **Envirosys®** BIO EP GREASE has a very high dropping point >230°C (>440°F).

ENVIROSYS® ALC GREASE

Envirosys® ALC winter & summer grades are premium quality, multi-purpose greases made for heavy-duty applications. Smooth and tacky in consistency and amber colored, it goes up to 325ºF on anti-friction bearings and slides with a frequent resupply.

Its special additives provide a high anti-wear protection. Its excellent water resistance also provides bearing protection when leaching conditions are encountered or when washed with water. Its excellent dispensability and pumpability properties make this grease suitable for various methods of dispensing, including centralized lubrication systems.

Applications and Recommendations:

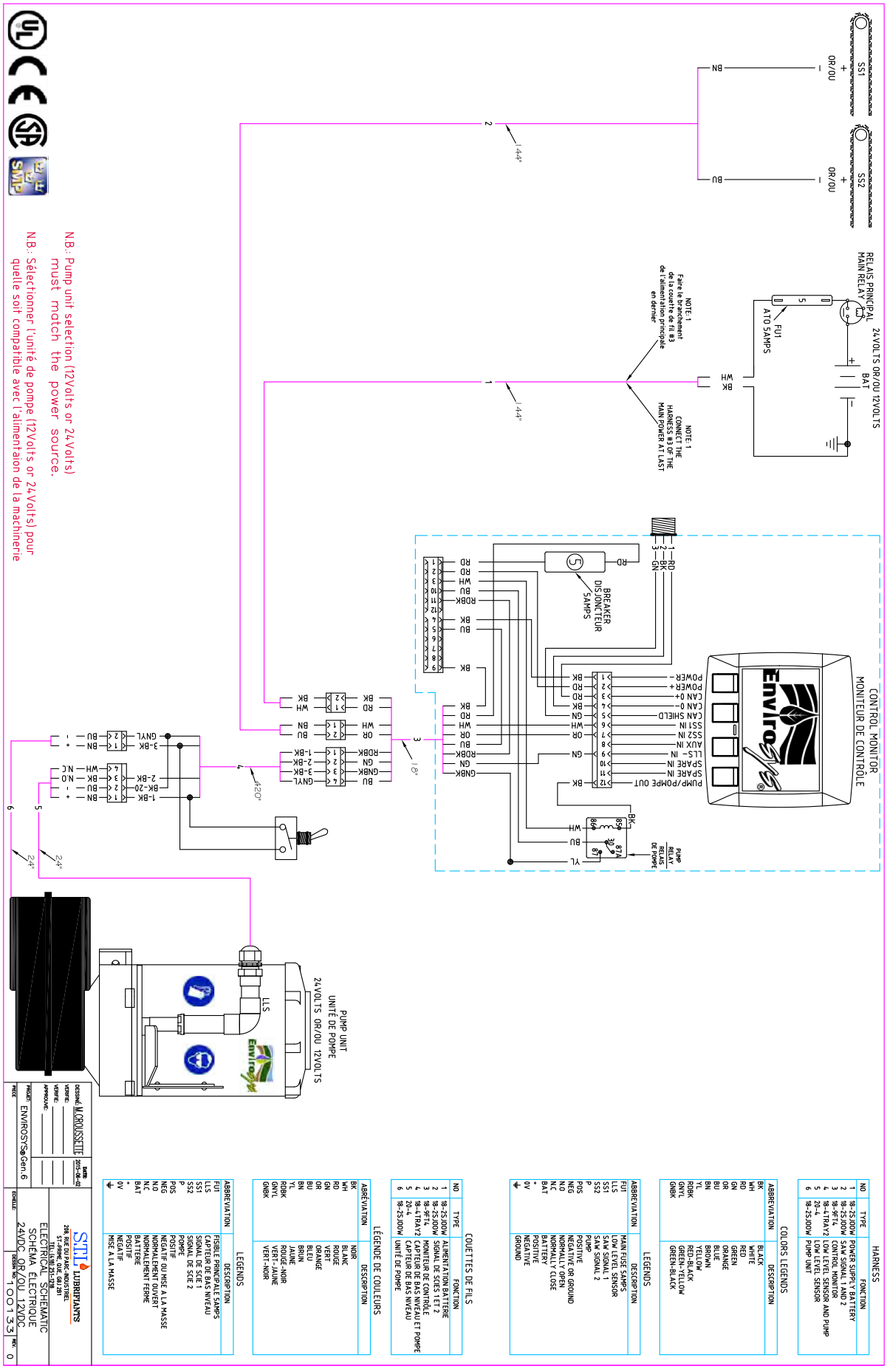
Excellent shear or mechanical stability, excellent oil retention and good thermal stability make this grease a prime choice in such applications as: chains, bars and slideways where excellent adhesiveness is required.

Envirosys® ALC greases deliver almost as much advantages for the environment as our **Envirosys®** Bio version since the volume of lubricant consumed is reduced drastically compared to the old method using chain oils.

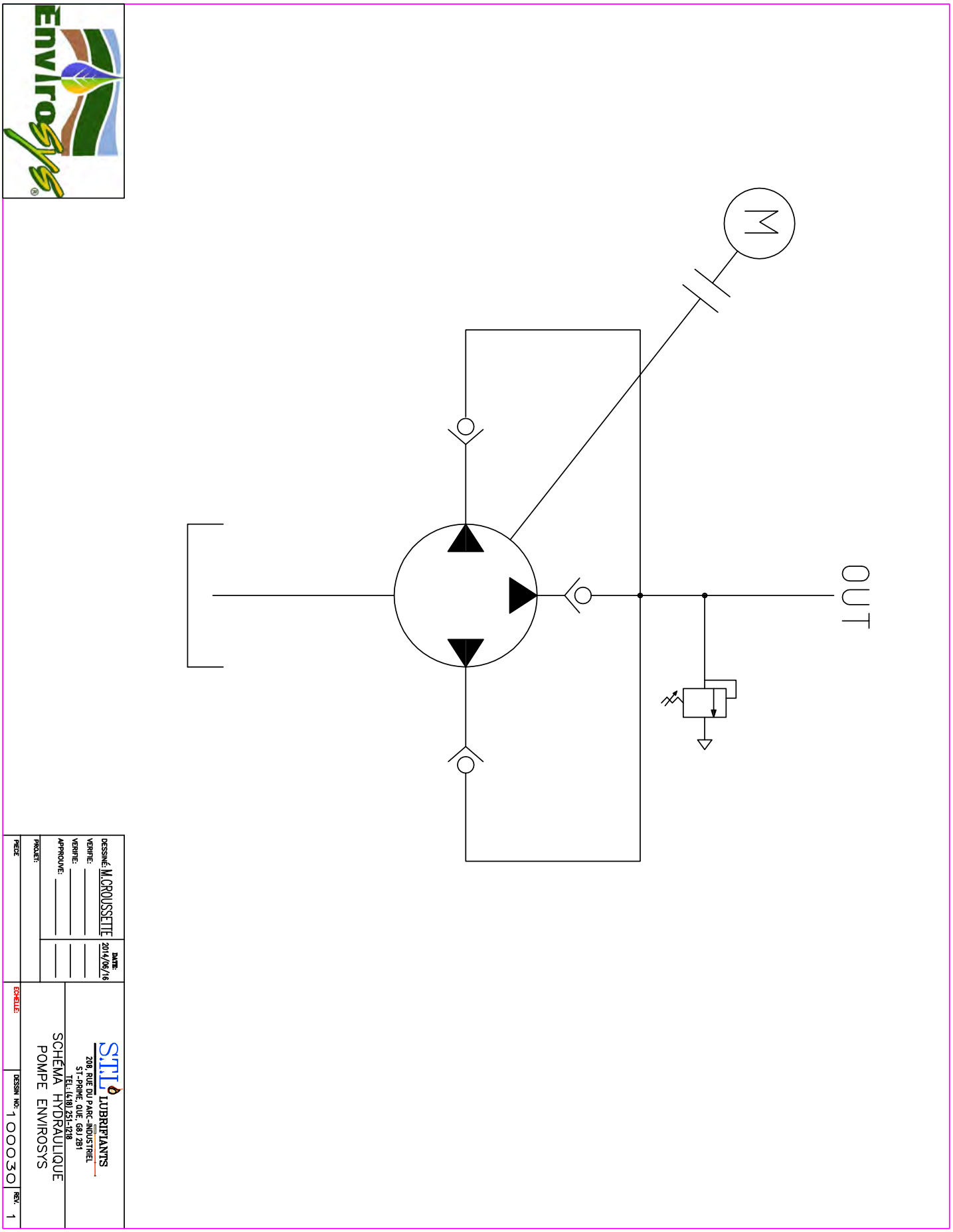
UPDATING THE ENVIROSYS® SOFTWARE

For any updates, contact your local distributor.

Wiring diagram



Hydraulic diagram



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REV. 1

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SCHÉMA HYDRAULIQUE
POMPE ENVIROSYS

ENVIROSYS® PARTS LIST

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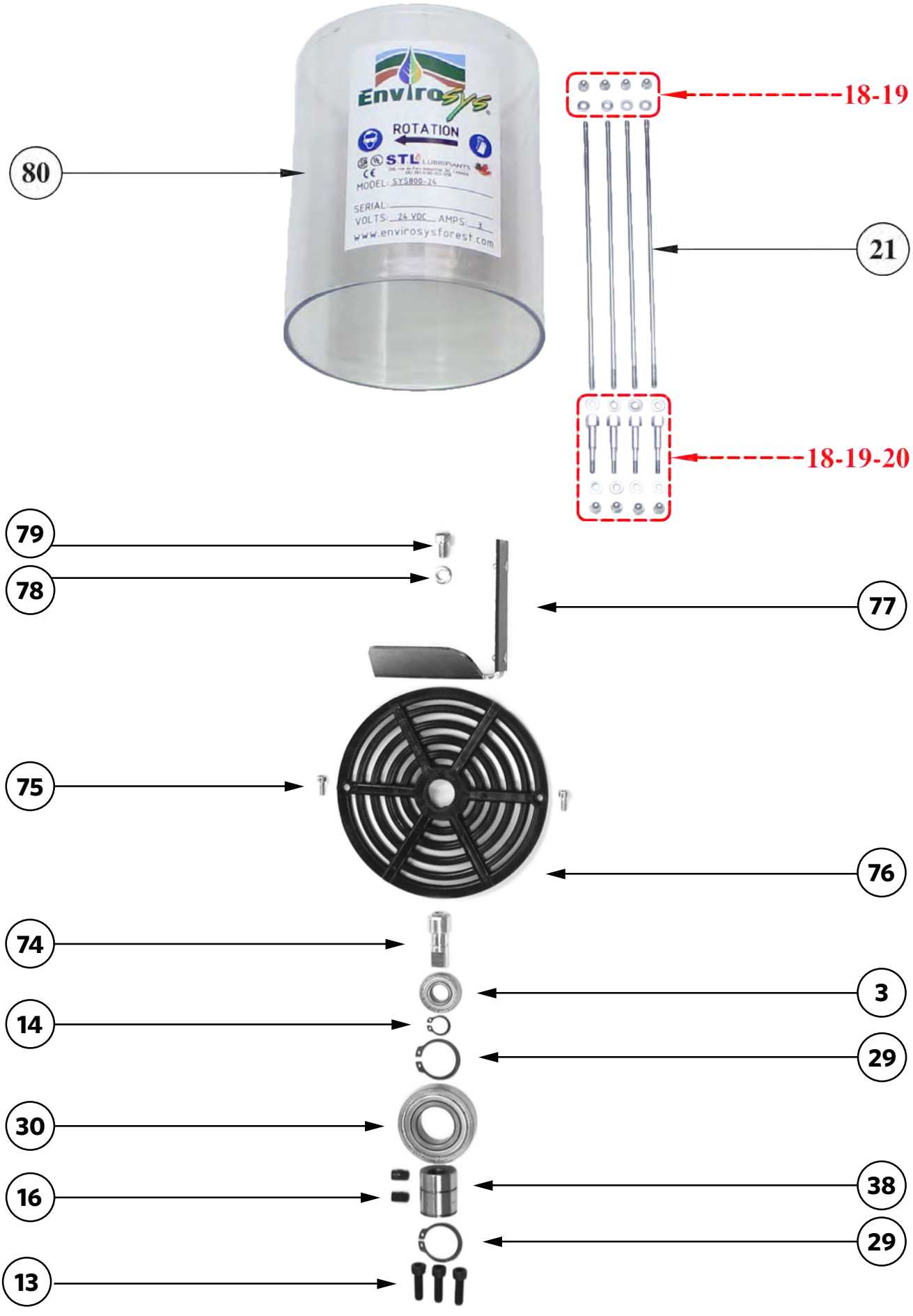
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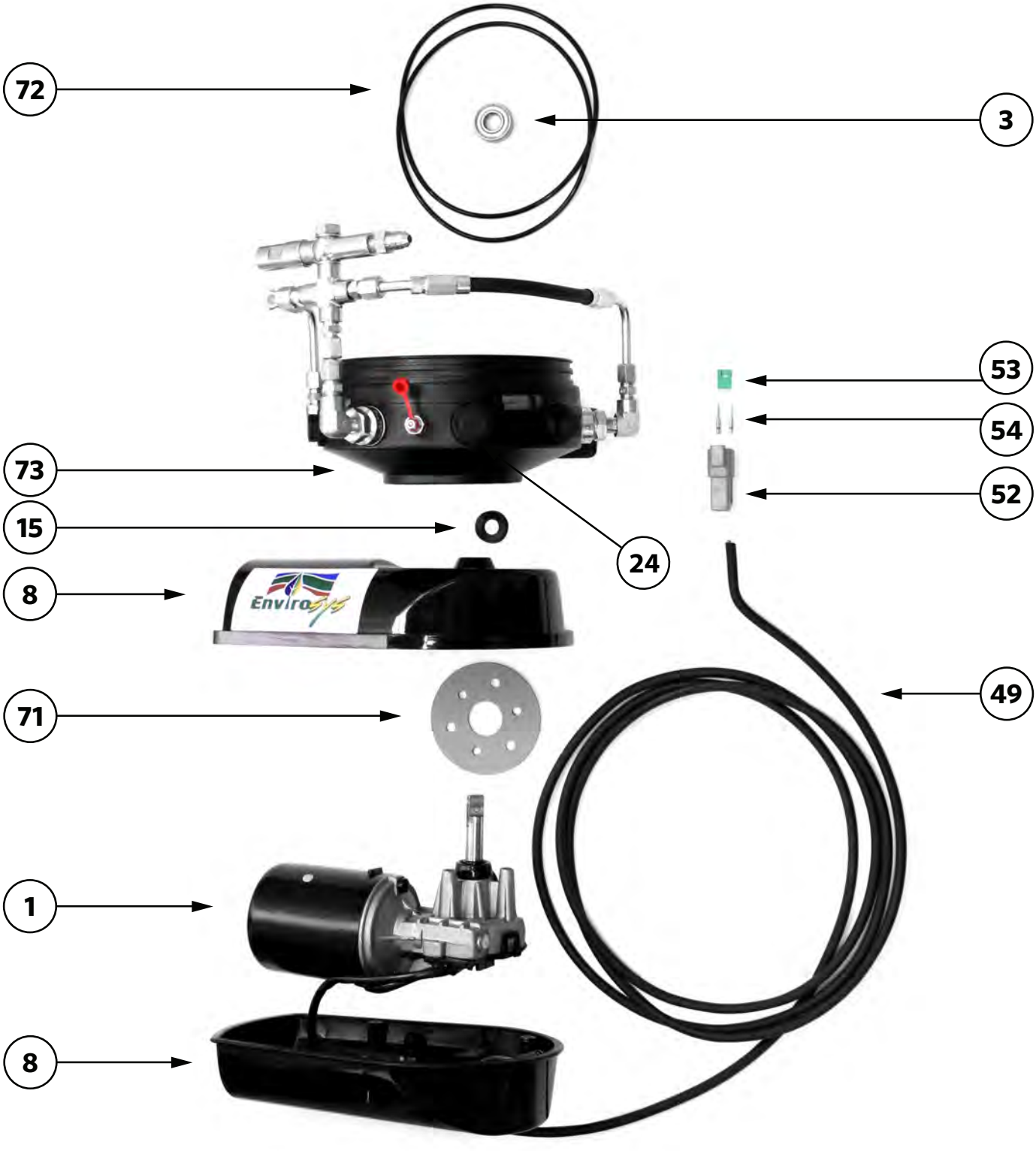
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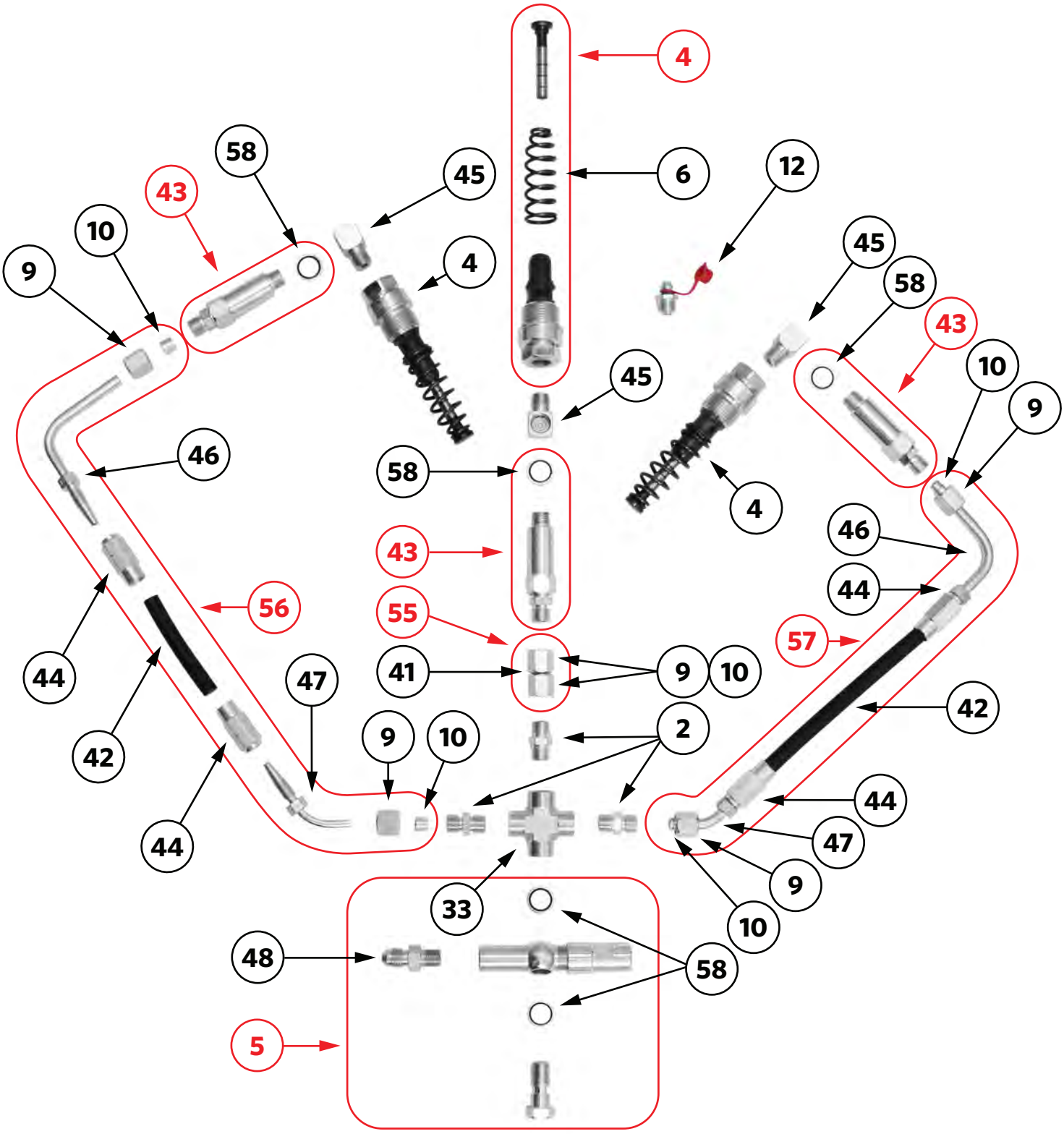
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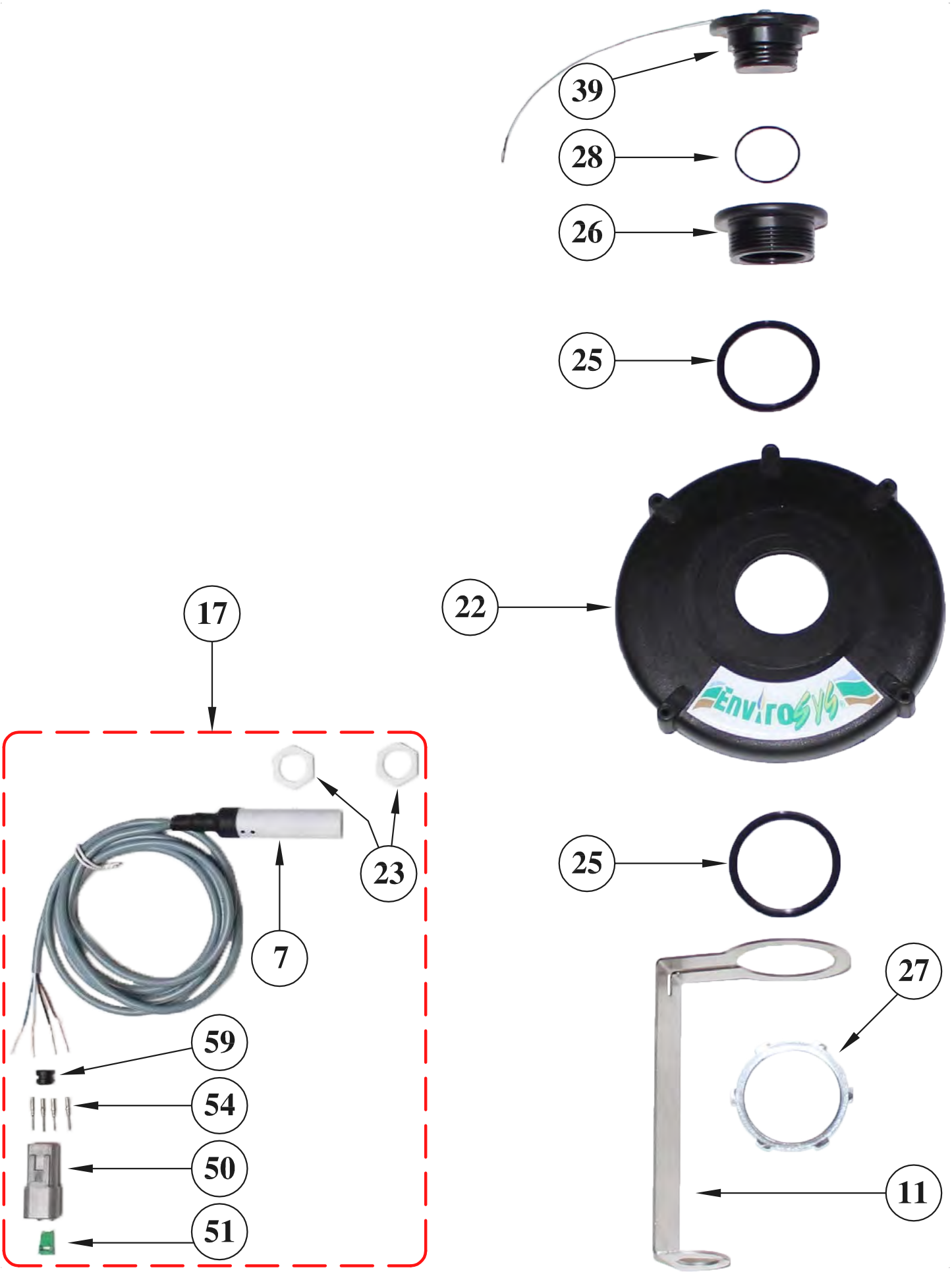
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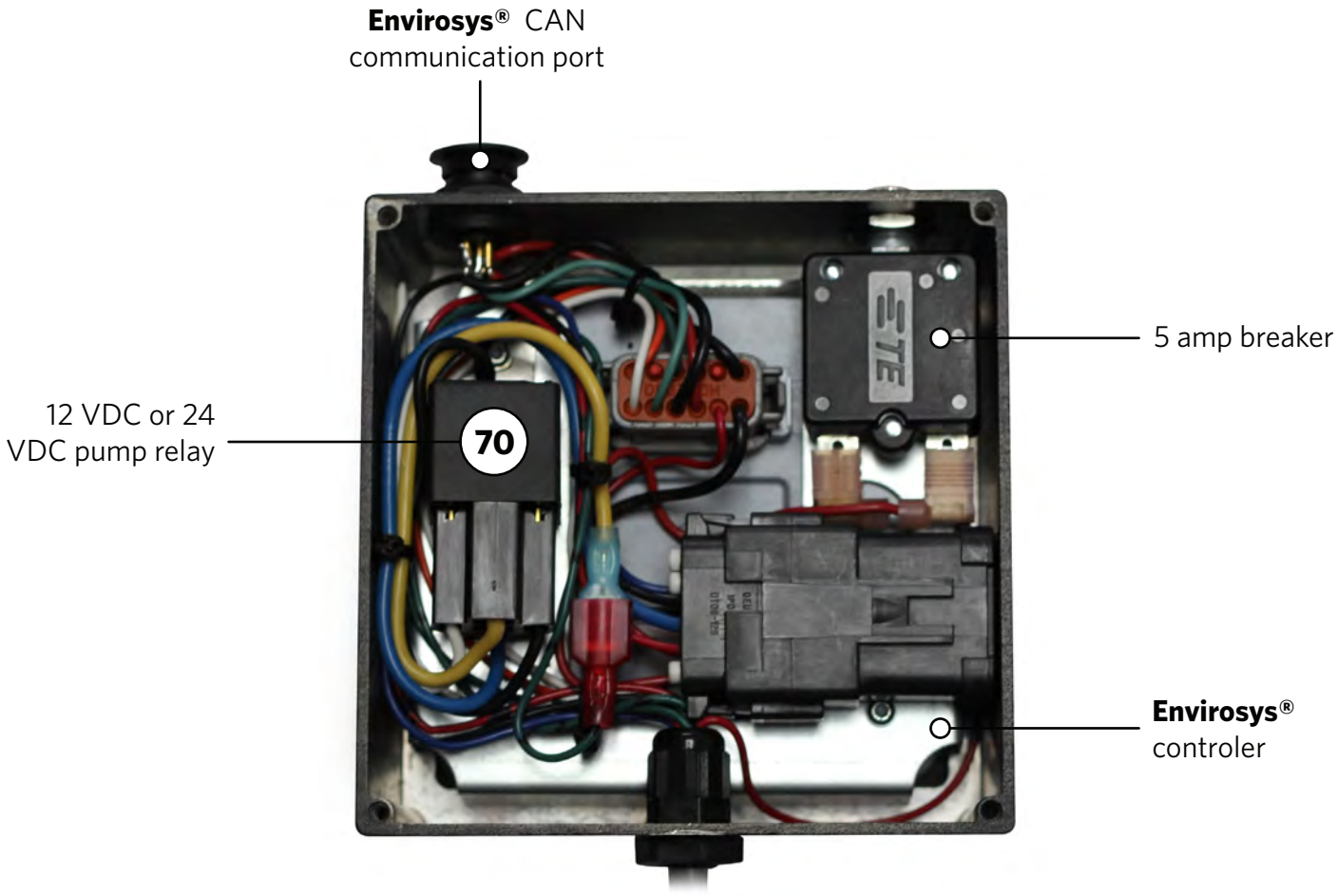
Control Monitor diagram



PARTS LIST

POSITION	PARTS NUMBER	QTY	DESCRIPTION
0	SYS800-12	1	PUMP 12 VDC ASSEMBLY
0	SYS800-24	1	PUMP 24 VDC ASSEMBLY
1	SYS001-12	1	12 VDC MOTOR
1	SYS001-24	1	24 VDC MOTOR
2	SYS002	3	ADAPTOR
3	SYS003	2	BEARING
4	SYS004	3	PISTON
5	SYS005	1	RELIEF VALVE ASSEMBLY
6	SYS008	3	SPRING
7	SYS009	1	LOW LEVEL SENSOR
8	SYS010	1	MOTOR COVER
9	SYS011	6	NUT
10	SYS012	6	SLEEVE
11	SYS700	1	SENSOR HOLDER
12	SYS014	1	GREASE FITTING
13	SYS015	3	BOLT
14	SYS016	1	SNAP RING
15	SYS017	1	BUSHING
16	SYS018	2	ALLEN SCREW
17	SYS701	1	LOW LEVEL SENSOR ASSEMBLY
18	SYS020	8	NUT
19	SYS021	8	WASHER
20	SYS023	4	ANCHORING NUT
21	SYS024	4	THREADED ROD
22	SYS702	1	RESERVOIR LID
23	SYS026	2	NUT
24	SYS027	3	PISTON PLUG
25	SYS703	2	GASKET
26	SYS704	1	FILLING CAP ADAPTER
27	SYS705	1	NUT
28	SYS706	1	GASKET
29	SYS032	2	SNAP RING
30	SYS033	1	BEARING
33	SYS037	1	CROSS ADAPTER
38	SYS046	1	CAM
39	SYS707	1	FILLING CAP
41	SYS048	1''	STEEL TUBE
42	SYS055	9''	HIGH PRESSURE HOSE 6 MM I.D. X 8.3 MM O.D.
43	SYS050	3	SHORT CHECK VALVE (GEN.6)

PARTS LIST

POSITION	PARTS NUMBER	QTY	DESCRIPTION
44	SYS051	4	6mm SLEEVE
45	SYS052	3	90° ELBOW 2FP-2MP
46	SYS053	2	SLEEVE ADAPTER 6mm 90° LONG
47	SYS054	2	SLEEVE ADAPTER 6mm 45° SHORT
48	SYS056	1	HYDRAULIC ADAPTOR
49	SYS057	72''	WIRING PUMP 18/2 SJOOW
50	SYS058	1	4 PIN FEMALE DEUTSCH CONNECTOR
51	SYS059	1	4 PIN DEUTSCH HOUSING WEDGELOCK
52	SYS060	1	2 PIN FEMALE DEUTSCH CONNECTOR
53	SYS061	1	2 PIN DEUTSCH HOUSING WEDGELOCK
54	SYS062	6	16-18 AWG MALE PIN
55	SYS063	1	ADAPTOR
56	SYS064	1	SHORT HOSE ASSEMBLY
57	SYS065	1	LONG HOSE ASSEMBLY
58	SYS066	5	BONDED SEAL
59	SYS708	1	GROMMET
61	SYS006	1	PRESSURE REDUCING VALVE
62	SYS007	1	HYDRAULIC BLOCK
63	SYS099	1	GREASE MANOMETER
67	SYS601-12	1	12 VOLTS CONTROL MONITOR ASSEMBLY (GEN.6)
67	SYS601-24	1	24 VOLTS CONTROL MONITOR ASSEMBLY (GEN.6)
68	SYS610	1	MOUNTING BRACKET FOR SYS601
69	SYS602	1	3 HARNESS KIT INCLUDING SYS612 & SYS613 (GEN.6)
70	SYS603-12	1	12 VOLTS PUMP RELAY
70	SYS603-24	1	24 VOLTS PUMP RELAY
71	SYS070	1	MOUNTING PLATE
72	SYS071	2	O-RING BUNA 70 DURO
73	SYS603	1	FRAME (GEN.6)
74	SYS604	1	DRIVE SHAFT (GEN.6)
75	SYS605	2	STRAINER BOLTS (GEN.6)
76	SYS606	1	STRAINER (GEN.6)
77	SYS607	1	AGITATOR (GEN.6)
78	SYS608	1	AGITATOR WASHER (GEN.6)
79	SYS609	1	AGITATOR BOLT (GEN.6)
80	SYS611	1	RESERVOIR (GEN.6)