



10.2023
VERSION 1.2

EHSU

ELECTRO-HYDRAULIC STEERING UNIT

HIGH VOLTAGE | HEAVY-DUTY
SMART HYDRAULIC STEERING UNIT

350vDC to 800vDC





EHSU

HIGH VOLTAGE | HEAVY-DUTY
ELECTRO-HYDRAULIC STEERING UNIT

The Hydrapulse® EHSU is a rugged electro-hydraulic smart pump unit with integrated motor, controller, and closed-loop feedback designed for mobile steering assist and e-steering applications.

The EHSU is available in high voltage for your electric or fuel cell chassis integration or low voltage with our available converter unit. Call our engineering team for custom options such as connectors, porting, mounting, and reservoirs.

Additional options include output check valves, filtration, relief valves, and quiet pumps.

FEATURES

With our integrated cooling, power electronics, motor, and pump, the Hydrapulse® EHSU provides the cleanest and most cost effective integration into your chassis, machine, or vehicle platform.

- Onboard pressure transducers
- Power dense permanent magnet motor
- 350vDC to 800vDC
- IP67 Protection Rating
- HVIL connection
- Integrated cooling (no external cooling required)
- CAN / J1939 Communications
- Onboard diagnostics
- Power-on-demand / energy savings
- Complete temperature monitoring

APPLICATIONS

Our flexible high voltage architecture makes the EHSU perfect for medium- & heavy-duty truck applications.

- Electric Vehicle Steering
- E-PTO
- Trailer / Tag-axle steering
- Off-Highway Vehicles
- Hybrid and Electric Chassis Integration
- Auxillary hydraulics
- Steer-by-wire

SPECIFICATIONS

EHSU MODEL	EHSU-1-xxx-350	EHSU-1-xxx-650	EHSU-2-xxx-350	EHSU-2-xxx-650
Rated Voltage (Vdc)	350	650	350	650
Rated Power kW (HP)	2.5 (3.3)	2.5 (3.3)	10 (13.4)	10 (13.4)
Rated Current (A)	7	3.8	30	17
IP Rating	67	67	67	67
Max Speed (rpm)	4,000	4,000	3,500	3,500
Operating Temp.	-40° C to 85° C	-40° C to 85° C	-40° C to 85° C	-40° C to 85° C
Storage Temp.	-40° C to 125° C	-40° C to 125° C	-40° C to 125° C	-40° C to 125° C
Weight lbs. (kg)	31.4 (14.2)	31.4 (14.2)	56 (25.4)	56 (25.4)

Specifications are nominal and subject to change. Consult Factory prior to ordering.

STANDARD MODELS

Frame Size 1

EHSU 1-056-350-U-4E

EHSU 1-056-350-U-4S

EHSU 1-056-650-U-4E

EHSU 1-056-650-U-4S

Frame Size 2

EHSU-2-105-350-U-8

EHSU-2-105-350-U-11

EHSU-2-105-650-U-8

EHSU-2-105-650-U-11

F1 Pump Options

4E - 4 c.c. Helical Gear Pump (F1)

4S - 4 c.c. Standard Gear Pump (F1)

Additional Pump displacements available upon Request

Voltage Options

350 - 350 VDC Nominal Input Voltage

650 - 650 VDC Nominal Input Voltage

F2 Pump Options

8 - 8 c.c. Helical Gear Pump

11 - 11 c.c. Standard Gear Pump

Additional Pump displacements available upon Request

Voltage Options

350 - 350 VDC Nominal Input Voltage

650 - 650 VDC Nominal Input Voltage

Firmware Options Available



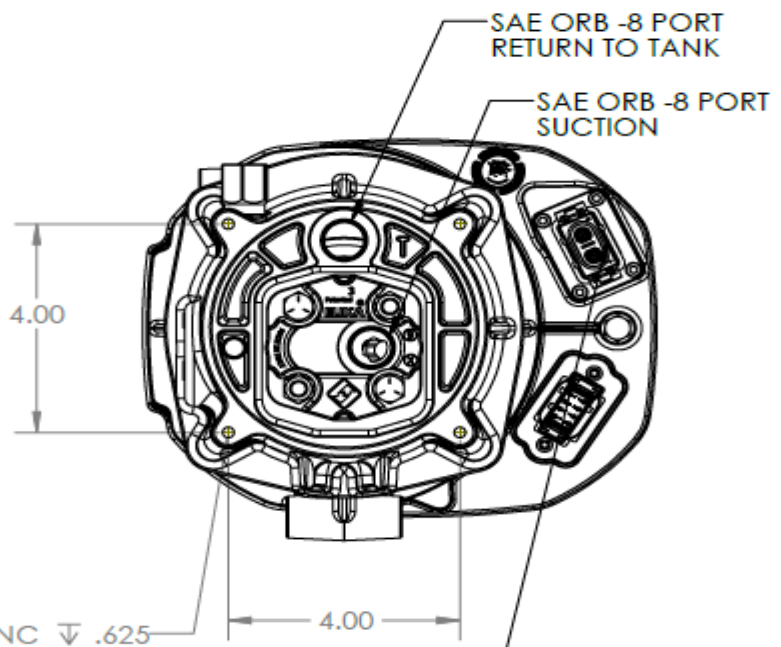
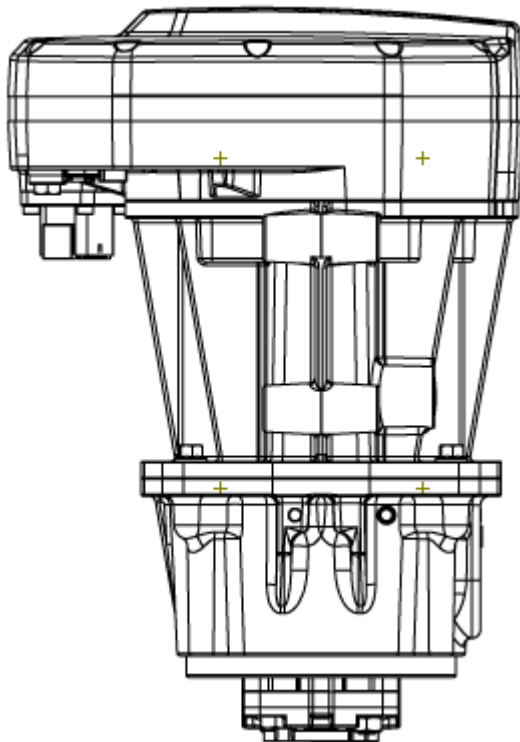
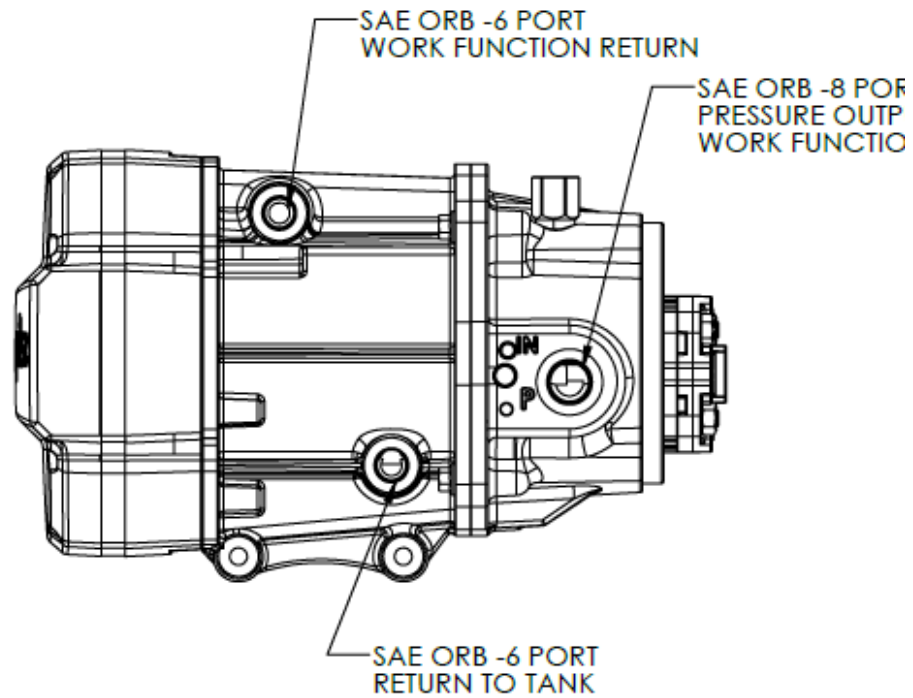
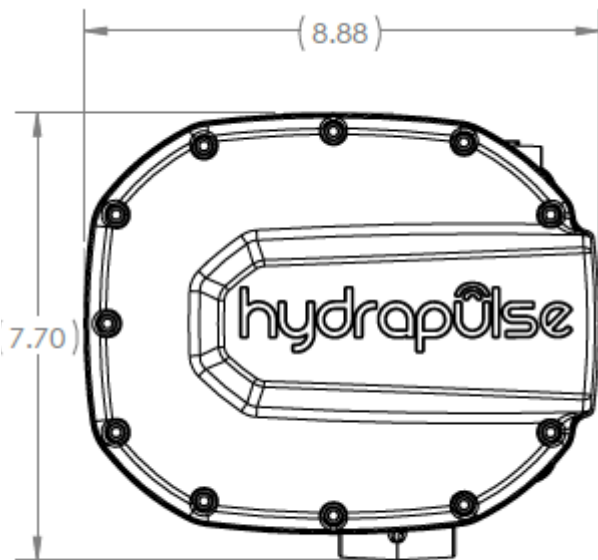
500N - 500K/Bits without Terminating Resistor

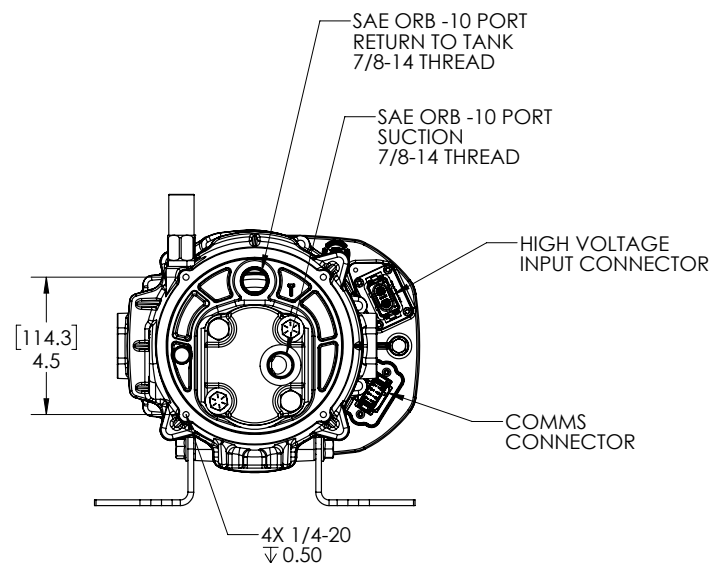
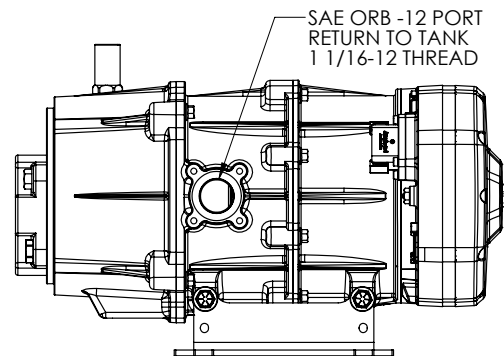
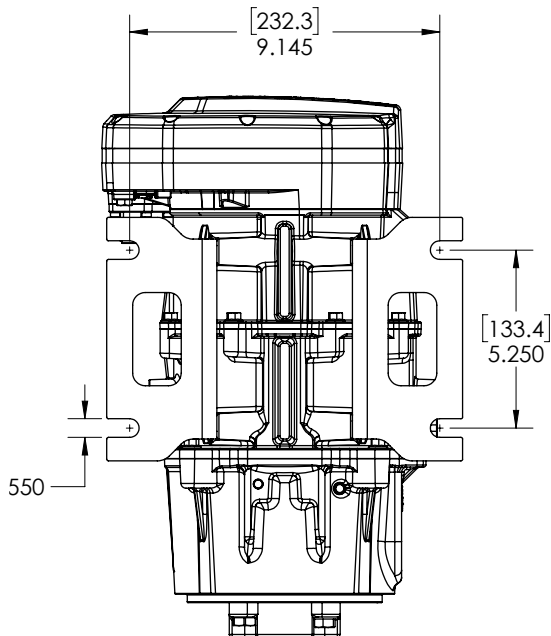
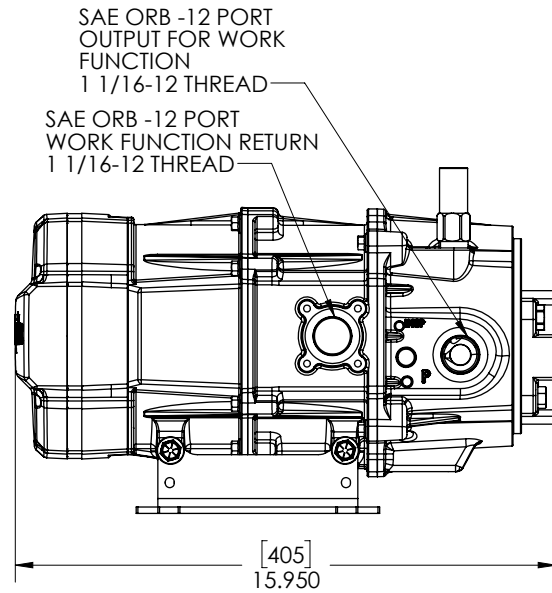
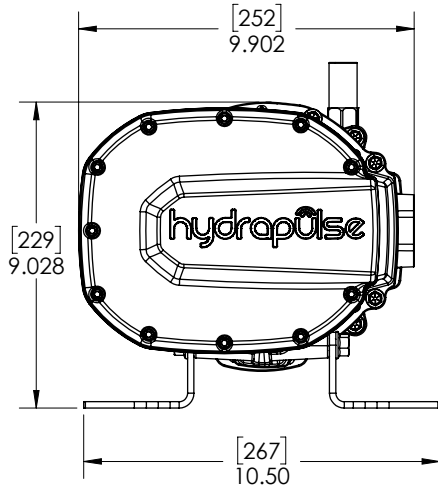
500T - 500K/Bits with Terminating Resistor

250N - 250K/Bits without Terminating Resistor

250T - 250K/Bits with Terminating Resistor

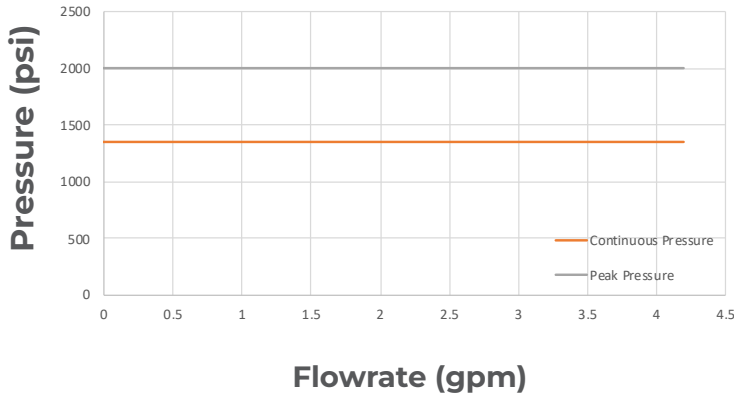








EHSU-1-56-XXX-U-4 Pressure Rating



EHSU-1-56-XXX-U-4E

Frame Size 1
56 mm motor
350-800Vdc
4 c.c. pump

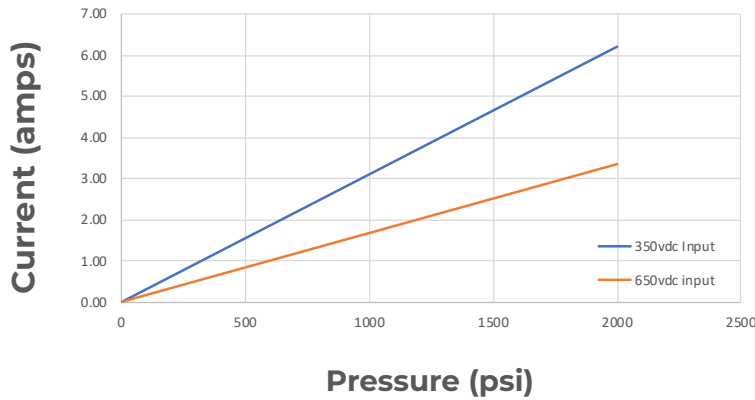
Temperature = 40° +/- 3°C

Kinematic Viscosity = 28.8 mm²/s (cSt)

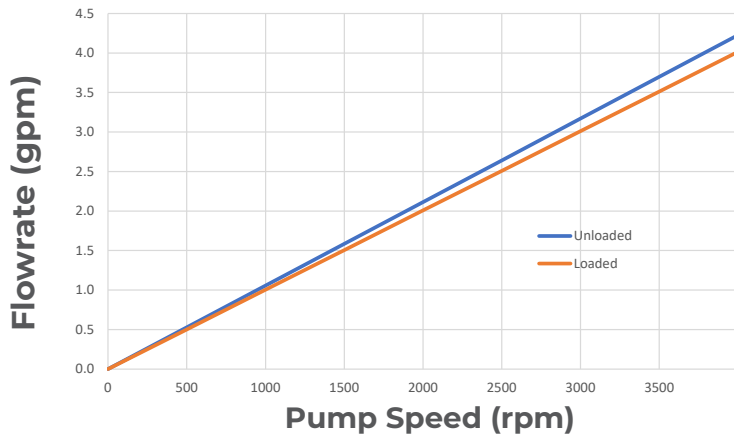
*All curves dependent on loading conditions and may vary.

The charts on this page represent expected performance at 350 and 650Vdc Nominal

EHSU-1-56-XXX-U-4 Current Draw with 2 Gpm Outlet Flow



EHSU-1-56-XXX-U-4 Flowrate



PERFORMANCE CURVES



EHSU-2-105-XXX-U-8
Frame Size 2
105 mm motor
350-800Vdc
8 c.c. pump

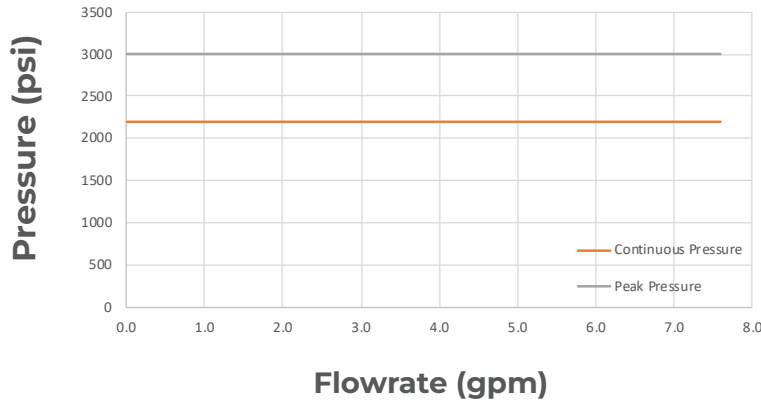
Temperature = 40° +/- 3°C

Kinematic Viscosity = 28.8 mm²/s (cSt)

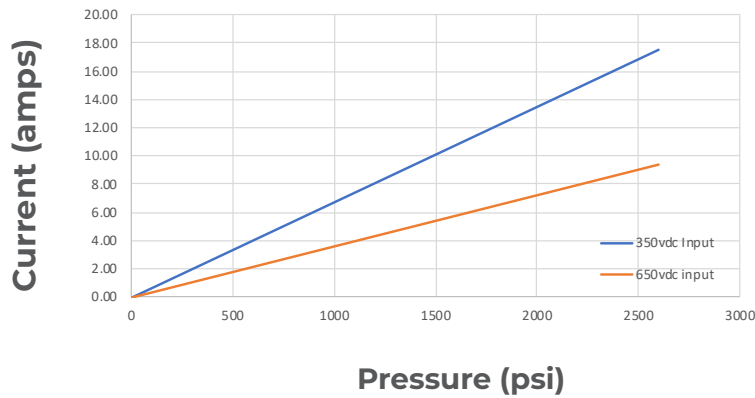
*All curves dependent on loading conditions and may vary.

The charts on this page represent expected performance at 350 and 650Vdc Nominal

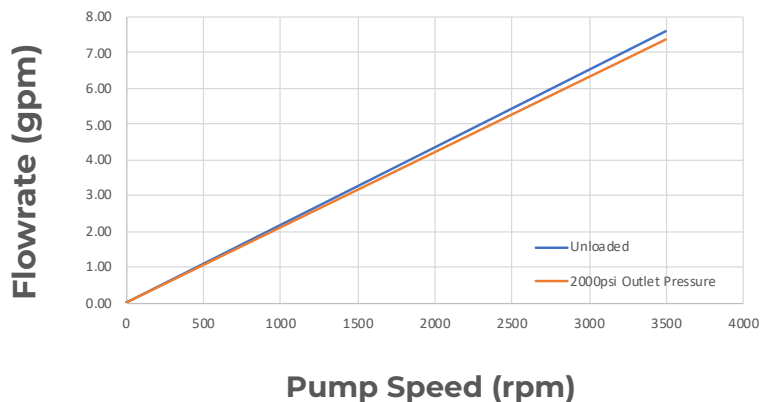
EHSU-2-105-XXX-U-8 Pressure Rating



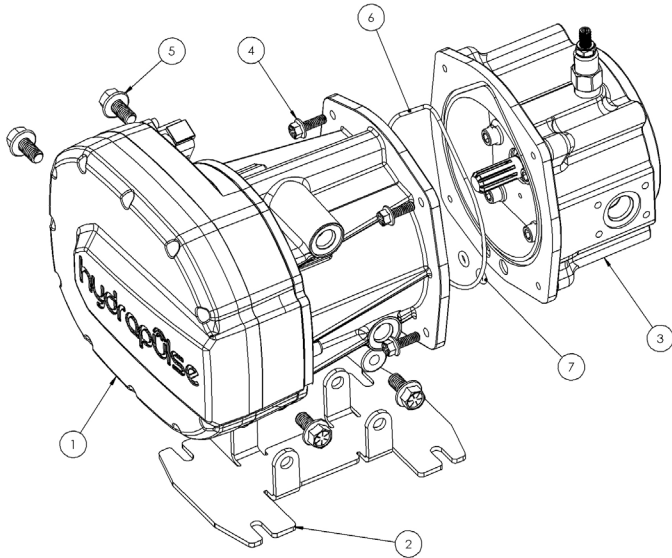
EHSU-2-105-XXX-U-8 Current Draw with 4.3 Gpm Outlet Flow



EHSU-2-105-XXX-U-8 Flowrate

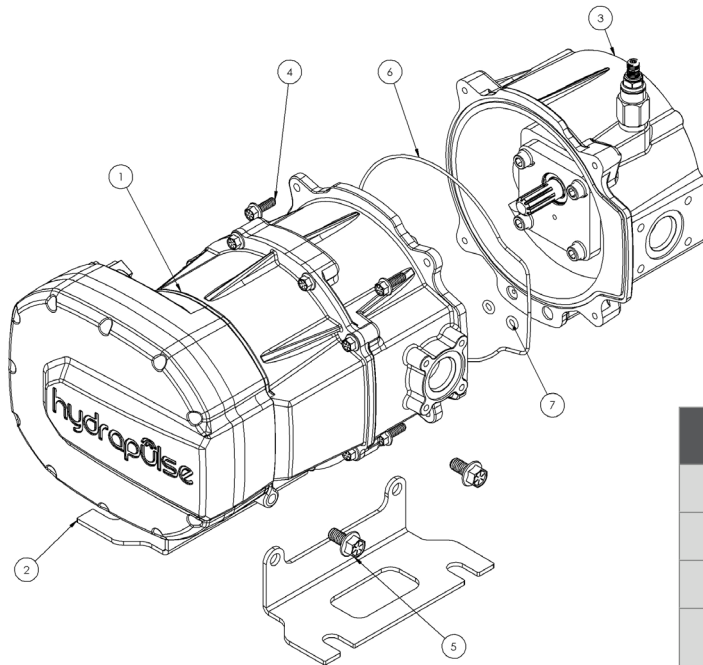


PARTS LIST



EHSU-1 (FRAME SIZE 1)

ITEM #	PART NUMBER	DESCRIPTION	QTY
1	016-00xxx	Size 1 Drive Assembly	1
2	500-10356	Foot Mount	1
3	016-0050x	Pump Assembly	1
4	500-00467	DRIVE BOLT (1/4-20 x 3/4")	4
5	500-00467	FOOT BOLT (3/8-16 x 3/4")	4
6	500-00416	MAIN O-RING - SIZE 1	1
7	500-00440	SENSOR O-RING	2



EHSU-2 (FRAME SIZE 2)

ITEM #	PART NUMBER	DESCRIPTION	QTY
1	016-00xxx	Size 2 Drive Assembly	1
2	500-10356	Foot Mount (ea.)	2
3	016-0050x	Pump Assembly	1
4	500-00467	DRIVE BOLT (1/4-20 x 3/4")	4
5	500-00467	FOOT BOLT (3/8-16 x 3/4")	4
6	500-00417	MAIN O-RING - SIZE 2	1
7	500-00440	SENSOR O-RING	2

ENVIRONMENTAL PROTECTION

CLIMATE

- SAE J1455-4.1.3 Temperature Cycle
- SAE J1455-4.1.3 Thermal Shock
- SAE J1455-4.1.3 Thermal Stress
- SAE J1455-4.2 Humidity
- SAE J1455-4.3 Salt Spray Atmosphere
- SAE J1455-4.3.3 Immersion Testing
- SAE J1455-4.4 High Exposure Splash Testing
- SAE J1455-4.5 Steam Cleaning and Pressure Washing

MECHANICAL VIBRATION

- SAE J1455-4.10 Swept Sine Vibration
- SAE J1455-4.10.4 Random Vibration
- SAE J1455-4.11 Mechanical Shock
- SAE J1455-4.11 Operational Shock / Harness Shock
- SAE J1455-4.12 Combined Environmental
- ISO 16750 Vibration

ELECTRICAL

- SAE J1455-4.13 Heavy-Duty Truck Electrical Environment

EMI/EMC

- EIC 61000-6-4 Radiated Emissions
- IEC 61000-6-2 Industrial Immunity
- FCC Part 15B Class A
- CISPR 25
- ISO 11452-2 RI
- ISO 11452-4 BCI
- ISO 10605 ESD
- ISO 7637-2 3rd Edition transients (on 12vdc)

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WARNING!

WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov