

LANDA[®]



Introducing:

ecos

ECOS Mobile Wash and Reclaim System



The ECOS is the **most versatile & affordable** mobile wash system on the market today!

The patent-pending ECOS Mobile Wash and Reclaim System is a new, revolutionary hot-water pressure washing mobile system with integrated wash water recovery and filtration. With this innovative pressure washer, wash water can be recycled and reused to reduce fresh water usage. The ECOS also enables operators to comply with environmental regulations in jurisdictions that restrict wash water runoff from entering and soiling the environment.

One of the most exciting features of the ECOS is its use of (patent-pending) Trans-Heat Technology, a creative process whereby heat from engine exhaust is captured in order to preheat inlet water by up to 15°F. The result is improved burner efficiency, fewer emissions, lower fuel costs, and a faster return on an owner's investment.

This ground-breaking hot-water pressure washer is powered by an industrial grade Honda GX660 gasoline engine and a LANDA LT pump to deliver cleaning power up to 3,500 PSI at a rate of 4.7 GPM.

The ECOS is ideal for cleaning outdoors with hot water and is designed to appeal to a wide range of users including contract cleaners, municipalities, ports, building service contractors, fleet maintenance contractors, construction contractors, rental contractors, and state and federal government. Best of all, the fully self-contained mobile ECOS can go almost anywhere.

Feature Rich

The ECOS comes with a multi-stage filtering system, a two-inch vacuum hose, and a suction head for water reclamation. Two hose reels are included, along with 50-foot high-pressure LANDA Tuff-Skin™ hose, and a variable pressure wand. The chassis features a large, open galley for hauling and storing equipment, along with lockable secured storage and fuel access area. ECOS operators will appreciate the ease of use and ease of transporting this useful mobile wash trailer.

Built to Last

Four durable polyethylene tanks hold up to 400 total gallons of water. The main frame is composed of a 2" x 3" tube steel frame and formed channel protected by a weather-resistant polyester powder coating. The ECOS features a top-of-the-line, oil-bath, tri-plunger, belt-driven LANDA LT pump with 7-year warranty. It also features a high-quality, electric-start Honda engine and a heavy-duty 4,000 watt generator mounted on a vibration isolated 10-gauge steel power platform. The horizontal heating coil is made of durable half-inch schedule 80 cold rolled pipe. The ECOS is assembled using high-quality components.

Easy to Service

The ECOS was engineered with the service tech in mind, providing open access to components for maintenance or service. The ECOS features a conveniently placed control panel, burner, generator, and battery. All components are composed of high quality fittings that are easy to connect and disconnect including

ECOS Applications

What does it clean?

The ECOS is ideal for cleaning outdoors with hot water, such as:

- Front-end loaders
- Forklifts
- Dump trucks
- Graders and dozers
- Farm equipment
- Tractors and trailers
- Buses, trains and planes
- Walls, floors and ceilings
- Machinery and equipment
- Drills and pipelines
- Street maintenance equipment
- Rental equipment
- Marinas and dry docked boats
- Trash bins
- Tanks, cages and pens
- Sidewalks, parking lots and around buildings

the protective front panels. The accessibility of ECOS' components makes this an easy-to-service unit.

Safe to Use

In addition to ETL certification to meet rigid UL-1776 safety standards, the ECOS by LANDA has many redundant safety devices, including a 24-inch hose guard for burst protection, a rupture disk, a high temperature shutdown feature to guard against excessive pressure in the heating coil, tandem axles and electric brakes, and a safety breakaway system.



The ECOS is....

Feature Rich

1 Recovery & Filtration



Feature: The integrated water reclaim and filter system recovers wash water utilizing a 120-volt vacuum turbine producing 105 CFM. A 12-volt transfer pump moves the water through a multi-stage filtration system that consists of a 50-mesh/100-micron pre-filter sock, a 20-micron pleated polyester cartridge filter, 5-micron carbon filter, and an oil absorbent media

sock. Treated water can be recycled through the water storage tanks for re-use or discharged to an approved drain. Consult your local EPA for discharge limitations.

Benefit: LANDA's ECOS Mobile Wash and Reclaim System recovers, cleans and recycles dirty water from pressure washing for safe disposal or reuse to meet most municipal and environmental regulations.



Weighted, tip-resistant suction head features an air valve to prevent clogging and allow for greater suction efficiency.



Suction is powered by a 120-volt, 105-CFM vacuum turbine providing suction power through 50 feet of 2-inch diameter hose.

2 Trans-Heat Technology



Feature: Patent-pending Trans-Heat Technology by LANDA. Inlet water, typically around 60°F starting in the tanks, is directed to the feed pump and received by the Trans-Heat Technology heat exchanger.

The heated exhaust gases from the engine are captured and diverted through a heat exchanger, preheating inlet water by up to a 15°F temperature rise. From the heat exchanger, water is routed to the LANDA high-pressure pump and heating coil resulting in up to a 140°F temperature rise. Hot water is then released through the high-pressure hose reel, wand, and gun.

Benefit: By preheating inlet water before it reaches the main heating coil, the engine and burners do not have to work as hard, resulting in less wear and tear on the unit. This efficient method of heating water translates to fewer emissions, greater fuel savings, and greater profitability.

3 2-Inch Vacuum Hose



Feature: The ECOS comes with a 50-foot, 2-inch vacuum hose and fits well within the lockable storage area along with the vacuum head, extra parts, spare filters, and other accessories.

Benefit: Vacuum hose storage ensures a neat and tidy galley, ample room to move around with room to spare! Additionally, having secured storage for spare filters ensures that the operator never runs out of supplies in the middle of a job.

4 Control Panel



Feature: All system controls are conveniently placed curbside. They mounted control panel with protective and lockable cover includes a key start, choke, burner switch, adjustable thermostat, and an hour meter.

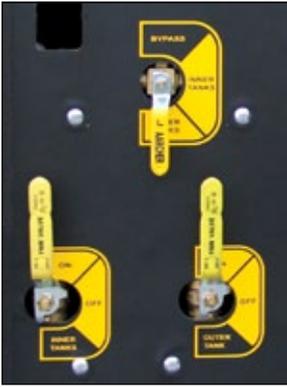
Benefit: Electrical controls are mounted on the side for quick access, and housed in a water resistant box to protect



Lockable storage compartment.

from moisture. The adjustable thermostat allows for altering the water temperature to match the operator's application. The hour meter displays the engine running hours so that regular preventative maintenance can be performed ensuring peak performance.

5 Control Valves



Feature: Tank and bypass water control valves are conveniently located in the lockable control panel cabinet on the curbside of the unit. Bypass water can be directed to either the inner or outer set of tanks. Operators can easily transport 400 gallons of water in a tandem cabinet, or they can isolate fresh water from treated water by setting the supply tank valves to separate the two 200-gallon tanks. For service

and reliability, all fittings are brass or treated steel, and they feature JIC-style fittings at connection points.

Benefit: Easy-to-use labeling takes the guesswork out of water flow providing peace of mind for the owner and operator. Quality JIC-style fittings, including zinc-coated steel, are easy to connect and disconnect, provide rust protection, and are rated for withstanding high pressures.

6 Adjustable Thermostat

Feature: The thermostat regulates the water temperature of the unit. The ECOS includes an adjustable thermostat conveniently located in the side lockable steel control panel.

Benefit: The easily accessible thermostat, adjustable up to 200°F, allows the operator to match the temperature to the job and prevent overheating.



7 Tuff-Skin™ Hose



Feature: This 50-foot long, half-inch double steel braid LANDA Tuff-Skin hose is the toughest high-pressure hose in the industry. When tested at 6945/DIN20024, the Tuff-Skin has proven to be seven times more abrasion resistant than

standard pressure washer hoses, yet it is 20 percent more flexible. The Tuff-Skin Hose has a unique braid design and has

been engineered for a greater continuous temperature range: from 40° to 275°F/310°F intermittently. It can handle pressures of up to 5,800 PSI, has a maximum strength Class A ORS (Oil Resistance Standard) cover, and features a bite-the-wire coupler that grips the hose better than any other design.

Benefit: Due to its abrasion resistance and flexibility, the Tuff-Skin Hose holds up better than any other hose in outdoor pressure washer environments where hose typically gets whipped, twisted and yanked around. The maximum strength Class A cover rating means it will hold up to oils, grease and fats much better than the more commonly used Class B. The 50-foot hose gives the operator some slack to clean freely without feeling encumbered by the pressure washer.

8 High-Pressure Nozzles

Feature: Nozzles are what create the pressure or cleaning power of the pressure washer. Four color-coded, hardened stainless steel, high-pressure nozzles are mounted in the rear adjacent to the high-pressure hose



reels. Nozzles attach to the end of the wand with a quick coupler. The colors designate the spray patterns created by each nozzle: Red=0°, Yellow=15°, Green=25°, and White=40°.

Benefit: The hardened stainless steel ensures the nozzles will hold up well without rusting or disintegrating during months of regular operation. The quick-couple makes switching nozzles quick and easy without the need of additional tools. The distinct colors allow the operator to quickly identify the flow patterns available. Having a variety of flow patterns, from the narrow 0° stream to the broad 40° spray, gives the operator plenty of options to meet whatever cleaning task is at hand.

9 Variable Pressure Wand



Feature: The variable pressure wand is 41 inches long and consists of two adjoined, insulated, zinc-coated metal tubes. An easy-grip handle on the side of the wand twists to increase or decrease the pressure. When the wand is set to high pressure,

water is forced through the main pipe and out through the quick-coupled nozzle at the end of the wand. When it is set to low pressure, water is diverted to the second pipe to reduce the flow volume in the main pipe, thus reducing the pressure of the main water stream. A durable, plastic hood or nozzle covering is mounted at the end of the wand.

Benefit: Having an easy way to manage the spray volume at the point of the wand makes the job easier for the operator. It also allows for better control when dispersing detergent when a downstream detergent injector is attached. The wand handle is turned to create a low-pressure flow, which immediately begins drawing in detergent into the spray. With the twist of the handle, clean water comes out again as a high-pressure spray. The wand length prevents an operator from spraying him/herself. The easy-grip handle is mounted at the right angle for hours of fatigue-free spraying. The plastic hood at the tip helps protect the nozzle and objects being cleaned.

10 Secure Storage

Feature: The ECOS contains a steel storage compartment on the driver side, which can hold two 5-gallon buckets nestled on top of the two 17-gallon fuel tanks. Another storage compartment on the passenger side can hold small items such as a small toolbox, electrical cords, or cleaning supplies.



Benefit: This compartment helps to keep fuel and storage buckets secure and tucked out of the way.

11 Open Galley



Feature: An 84-inch long by 30-inch open galley creates accessibility to tanks, storage spaces, and pressure washer.

Benefit: The open galley allows an operator to haul and store additional tools and supplies, enabling the ECOS to be a more sufficient trailer. Moreover, the rear gate with detachable lock pin provides some security for tools and equipment stored in the galley.

The ECOS is....

Built to Last

1 Water Tanks



Feature: Four durable polyethylene tanks hold up to 400 gallons of water and are linked for even distribution. Tanks include 6-inch access with clear, tethered lids. All tanks feature low-point drains.

Benefit: Independent holding tanks integrated with the dynamic filter recovery system contribute to the mobility of the ECOS allowing it to go anywhere that is accessible on wheels. One gallon of water weighs roughly 8.35 lbs. When the ECOS is fully loaded, the water alone adds 3,340 lbs. of weight. Adjoining water reservoirs underneath the unit provide owners and operators peace of mind that the ECOS is continuously stable, balanced, and provides enough water for even the toughest and most remote cleaning jobs.

2 Fuel Tanks

Feature: The secure storage space on the driver side includes two rugged 17-gallon, color-coded steel fuel tanks. The red tank fuels the pressure washer while the black tank fuels the diesel burner. Both tanks are clearly labeled and have easy to use ratchet-tethered caps with fuel level indicators. These tanks are CARB (California Air Resource Board) approved, ensuring that the ECOS has met the highest emissions test in the country.



Benefit: Corrosion-free, oversized fuel tanks ensure hours of uninterrupted operation. Each tank includes a quick and easily accessible safety shutoff protection valve. Locked compartments provide contractor cleaners peace of mind.

3 Steel Frame

Feature: A welded tube frame made of 2-inch by 3-inch steel tube surrounds the trailer. The easily accessible engine, pump and generator are all supported on a vibration isolated 10-gauge steel power platform. A polyester powder coating protects all metal parts for maximum corrosion resistance.



Benefit: The rugged frame provides protection from damage while in transit, as well as protection from being bumped while on the jobsite. The strength and durability of the frame is the result of a rectangular, rather than round, tube frame. The polyester powder coat is literally "baked" into the metal, providing all-weather protection. The frame is backed by a LANDA 7-year warranty.

4 LANDA LT Pump

Feature: Oil-bath, 3-piston (triplex), high-pressure LANDA LT Pump, rated at 3,500 PSI, and 185°F with die-cast aluminum crankcase, forged brass head, high-quality Parker U-seals, hydrolysis-resistant



valves, aluminum-zinc alloy cast connecting rods with oil reservoir indentation and lubricating hole; tapered roller bearings and copper plated piston guides. This pump is fed by a 12-volt, 4.9 GPM, diaphragm pump. LANDA pumps are backed by a 7-year warranty.

Benefit: Reliability is key when moving parts are involved, and nothing sees as much action as the high-pressure pump. Top quality components and a 7-year warranty make LANDA pumps the best pumps in the industry.

5 Feed Pump



Feature: 5.0 GPM, 12-volt, 1.9 AMPS, 60 PSI diaphragm feed pump with a pressure switch tucked under a removable panel located in the locked, steel control panel and storage area.

Benefit: The feed pump assists the main LANDA pump by drawing water out of the tank and pushing it toward the heat exchanger, resulting in less wear and tear on the main pump. Water is bypassed back to tanks.

6 Industrial Engine

Feature: Heavy-duty electronic ignition and 12-volt electric start gasoline powered Honda GX660 Series, V-twin 2-cylinder internal combustion, with approximately 21 HP. Purposely designed with monster power to generate more heat for hot-water pressure washing.



Benefit: Heavy-duty Honda engine uses roughly 70 percent of its capacity resulting in less wear and tear on the engine. Investors will reap the rewards of overall fuel burning savings, allowing for a faster return on investment. Moreover, Honda engines have a reputation for dependability and durability and are backed by a 3-year warranty.

7 4,000 Watt Generator



Feature: Heavy-duty 4,000 watt Voltmaster generator provides 120 VAC of reliable power to the burner assemblies and vacuum motor.

Benefit: This generator supplies more alternating current than is required by the burners, vacuum and feed pump, allowing the operator to run other 120 VAC electrical accessories.

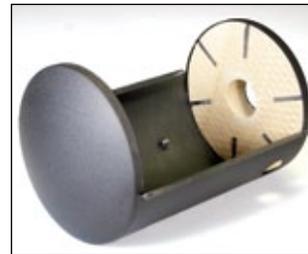
8 Vibration Isolators

Feature: The engine and pump, two components that create the most vibration in a pressure washer, rest on a 10-gauge steel power platform attached to the steel chassis by eight 150 lb. vibration isolators.



Benefit: The vibration isolators provide fatigue resistance by preventing the engine-pump vibration from spreading throughout the pressure washer and shaking loose nuts, bolts, electrical wiring, and burner components. This feature helps minimize maintenance, particularly on the burner assembly, and helps extend the life of the entire pressure washer.

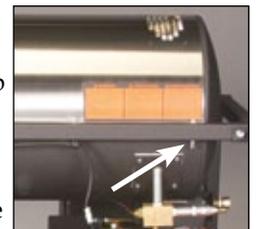
9 Heating Coil



An insulation block is placed at each end of the outer wrap; special spacers keep the coil from compressing the insulation blanket to maximize its insulating properties.

Feature: The LANDA Duracoil with signature “duck bill” top wrap used for heating the water is made of half-inch, cold rolled, schedule 80 pipe. It is surrounded by a 1-inch blanket of insulation, an aluminized steel wrap, a stainless steel outer top wrap, and painted steel bottom wrap. The coil is backed by a 5-year limited warranty.

Benefit: The ECOS' frame and coil-bottom wrap cradle the heating coil, while the coil-top wrap provides superb coil protection and provides additional protection for the end-mounted diesel burner. Other manufacturers mount their coils vertically, which increases the risk of the coil shaking loose and making the burner more difficult to access for repairs. The heating coil delivers a temperature increase of 130°F to 140°F at the amazing flow rate of up to 4.7 GPM. Cold rolled pipe has fewer leaks than coils that are heated when formed. Insulation retains the heat for energy efficiency, and the aluminized steel wrap withstands heat and corrosion better than regular steel. Aluminized steel is used in automobile mufflers, furnaces, ovens, and gas-fired heaters where there is a high presence of heat and moisture. Studies show that aluminized steel oxidizes at



Stainless steel top wrap is attached with bolts instead of metal screws that can vibrate loose during pressure washer use or become stripped.

only 5 percent of the rate of carbon steel. Aluminized steel also reflects about 80 percent of incident radiant heat up to 900°F. This makes it ideal for the pressure washer heating coil application. Less fuel is required to maintain the operating temperature and it heats up faster, resulting in decreased expenses and greater profitability. The aluminized steel wrap also has a tendency to direct the heat to where it is needed while providing strength. The outer wrap provides an extra layer of protection and heat efficiency while the cylinder lid is easy to remove for convenience in servicing or replacing the coil.

10 Burner



Feature: Water is heated by a 120V burner featuring advanced technology using the Suntec fuel pump.

Benefit: All burners come with a Suntec oil pump, which uses solenoid

valves (rather than the conventional diaphragm and cone valves) to open and close instantly when electrical current to the pump turns on and off. This fraction-of-a-second timing difference renders huge benefits in a cleaner, more fuel-efficient burn and less maintenance. The burner also uses dual rings and markers for “dialing in” the amount of airflow to the burner, another key element for a clean, fuel-efficient burn.

11 Swing-Away Tongue

Feature: This durable Swing-Away Tongue is rated for 7,500 lbs., and contains a 2-5/16-inch ball coupler, 7-pin electric trailer plug, and a heavy-duty 2,000 lb. capacity swivel jack.



Benefit: The heavy-duty Swing-Away Tongue is easy to use. Simply pull the pin, swivel the tongue into position, and replace the pin. This feature allows the unit to be stowed in a small storage area. A polyester powder coating helps maximum corrosion resistance. Safety chains with lock-in, clip-on latching hooks provide additional safety as do DOT approved marker and tail lights.

The ECOS is....

Easy to Service

1 Open Access



Feature: The open steel frame design and removable panels allow for easy access to engine and pump assembly components, including engine and pump oil drain hoses with brass plugs that lead from the engine, and pump crank cases to the edge of the platform.

Benefit: From oil changes to complete services, the ECOS' open design makes servicing easy. Components are mounted within the open cage for easy monitoring and service access.

2 Burner Access

Feature: The horizontal coil design allows for end-mounted burner accessibility. The burner is easily accessible through the rear galley.



Benefit: Many manufacturers mount their burners under the coil and frame, making service difficult and less cost effective. However, the ECOS' horizontal coil allows the burner to be mounted at waist level with access from all sides, making burner service fast and easy. From checking the electrodes, to adjusting the air settings, the ECOS makes it simpler.

3 High-Quality JIC-Style Fittings



Feature: Many fittings are JIC-style and all are made of brass or zinc-coated steel.

Benefit: Zinc-coated steel fittings provide corrosion protection. JIC fittings are easy to connect and disconnect, and they are rated for withstanding high pressure.

4 Tru-Trac Pump Rail System

Feature: Tru-Trac Pump Rail System keeps the belt parallel with pump and motor when adjusting belt tension. Tru-Trac is nested directly underneath the LANDA LT Pump.



Benefit: The Tru-Trac Pump Rail System allows for an easy, single bolt adjustment with v-rail for alignment, and just two lockdown bolts. The Tru-Trac simplifies and assures correct pulley and belt alignment. The benefits of this feature include a decrease in belt wear and less labor cost to adjust or change belts.

5 Battery Access



Feature: The 12-volt battery is located in a hardened marine-duty plastic container and placed on the ECOS platform adjacent to the heating coil (battery not included).

Benefit: Easily accessible for servicing, resulting in less labor.

The ECOS is....

Safe to Use

1 Safety Certified



Feature: The ECOS has been certified by ETL laboratories to the rigid UL-1776 safety standards for pressure washers.

Benefit: ECOS owners can feel assured that they are investing in equipment that will not only last a long time, but will be safe for them and others to use, minimizing

their personal and liability risk. Federal OSHA regulations require safety certified electrical equipment. UL-1776 safety standards include: thermal overload protection on motors to prevent risk of fire, all electrical components must undergo a test for current leakage to avoid electrical shortages, wands must be at least 36 inches in length (42 inches when pressure is in excess of 3200 PSI) to prevent operators from accidentally spraying themselves, no quick coupler between the gun and wand to prevent attaching a nozzle directly into the gun, a trigger gun for quick-release control by the operator, a hose guard of at least 24 inches to protect the operator against a possible hose burst, high-limit switch to automatically shut down the burner on hot-water models should the water over-heat, and a rupture disk to protect against excessive build up of pressure in the system.

2 Unloader Valve & Flow Switch



Feature: The unloader is an adjustable, pressure-trapping valve rated for 4,500 PSI. It's the mechanism that automatically bypasses the pump output when the operator releases the trigger on the gun and stops the flow of water. When the flow is stopped, the unloader senses the build up of

pressure and automatically reroutes the water to the water supply, thereby reducing the load on the engine and pump. This recycling of the water continues until the trigger is pulled

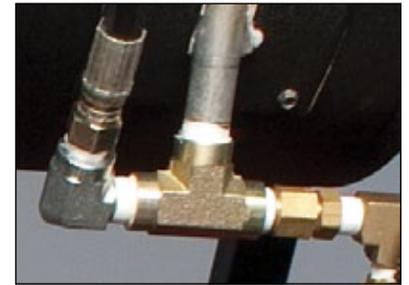
again, signaling the unloader to send the water through the hose again and renew the flow from the water supply.

Hot-water models, like the ECOS, also have a flow-activated shut-off switch called a flow switch. When the operator releases the trigger and stops spraying, the fuel to the burner quickly shuts off. The flow switch is much more responsive than the conventional vac-on switch.

Benefit: The unloader makes it possible to enjoy the convenience and safety of a trigger gun while cleaning with a pressure washer. The flow-activated shut-off switch prevents the burner from overheating the water when the water flow has been stopped during the washing operation, thus protecting the operator and pressure washer from the consequences of a buildup of both pressure and heat.

3 Rupture Disk

Feature: The rupture disk is located at the coil discharge junction and allows water to escape through a relief hose in the case of over pressurization.



Benefit: When water is heated, pressure is created. The rupture disk senses when the pressure in the system has exceeded acceptable levels and it will immediately give way, allowing pressure to escape through the relief hose. This protects the operator from a potential hot-water rupture in the plumbing or hose. The rupture disk has been proven to be the most effective protection against pressure build up, more reliable than pop-off and pressure relief valves in the hot-water environment. Should the rupture disk ever need to release a buildup in pressure, the super heated water is vented through a tube that carries the water and steam to the underside of the ECOS trailer, away from the operator.

4 Tandem Axles & Electric Brakes



Feature: 205/75 tires are mounted to 15-inch chrome wheels on tandem axles with electric brakes and an industrial undercarriage leaf-spring suspension rated at 3,500 lbs. each.

Benefit: Tandem axles provide a 7000 lb. load capacity. Electric brakes meet all US DOT regulations. Battery-operated break-



12-V electric battery operated break-away kit not only adds additional safety but provides owners and operators peace of mind

away kit adds additional safety. Chrome wheels add to the ECOS trailer's rugged, sleek design.

5 Hose Guard Protection

Feature: LANDA's Tuff-Skin hoses are characterized by two durable PVC sleeves on each end of the hose. On the end that attaches to the gun and wand, there is a 24-inch sleeve or hose guard, and an 12-inch sleeve fits on the end that attaches to the pressure washer.



Benefit: Both hose guards provide operator protection against a high-pressure burst. The 24-inch sleeve meets the UL-1776 safety standard for owner liability protection. NOTE: In order to preserve the pressure washer's UL-1776 certification any replacement hose must also meet these specifications.