



**FLIGHT SYSTEMS
INDUSTRIAL PRODUCTS**

COMPANY OVERVIEW

For more than

Mission

FSIP is committed to providing its customers with products and services that are the best in the electric vehicle industry. Vast technical expertise coupled with efficient manufacturing practices enable FSIP to provide its customers with a cost effective and reliable alternative to new parts. FSIP strives to grow and improve business with ethical and sound leadership. Strong alliances with customers and responsiveness to their needs ensure mutually successful working relationships. FSIP seeks to provide a working environment that rewards and stimulates its employees to be productive and proud of their accomplishments.

Quality Policy

FSIP's policy is to provide zero defect products that fully satisfy its customers' requirements and expectations. FSIP strives to meet or exceed the original specifications in a cost-effective manner for all products it remanufactures and manufactures. The quality of FSIP's products and services is the essence of its reputation as a world-class supplier. FSIP is committed to meeting the requirements of its quality management system and continually improving its effectiveness. FSIP is ISO 9001:2015 certified by Perry Johnson Registrars.

Flight Systems, established in 1968, began designing and manufacturing aircraft and runway strobe lights using unique solid-state controls. For this new breakthrough in technology, Flight Systems received the reputation as a highly qualified supplier. The company supplied solid-state relays, timers and circuit breakers in various spacecraft and launch vehicles including several Apollo and Skylab missions.

By the early 1970s, Flight Systems committed its efforts to solid-state controls for lift trucks and other battery powered vehicles to meet the industry's rising demand. In 1996, the Industrial Products Group within Flight Systems was sold and renamed Flight Systems Industrial Products (FSIP). In 1998, FSIP established an alliance with General Electric, which led to the company manufacturing the GE Legacy product line. Over the next 15 years, FSIP expanded into additional markets including golf cars, mining equipment, sweeper-scrubbers, go-karts and ground support equipment.

In 2017, FSIP acquired ARS Solutions in Addison, Illinois, which became its Midwest branch. The company continues to grow by adding battery management products, broadening manufacturing capabilities and designing electric systems for OEMs.

years

Electronic Manufacturers

Curtis Instruments • Delta-Q Technologies • Inmotion/Danaher
MarooOn Inc. • Navitas Vehicle Systems • Philadelphia Scientific
Sevcon/BorgWarner • S.P.E. Elettronica Industriale



Alliances

Partnerships with electronic manufacturers and connections with vehicle manufacturers enable FSIP to provide customers across many markets with high quality products and services.



Vehicle Manufacturers

Crown Equipment • Hyster-Yale Group • JBT Lektro Inc.
JLG Industries • Mitsubishi Caterpillar Forklift America Inc.
Raymond Corporation • Tennant Company • Toyota Forklifts
UniCarriers Corporation • Yamaha Corporation

Remanufacturing

FSIP remanufactures over 50,000 units every year, including over 9,000 different part numbers for electric and gas powered vehicles.

Options to Purchase:

Remanufactured Parts (RP) - The unit is shipped to FSIP, remanufactured and typically returned within 3-5 business days.

Rebuilt Exchange (RX) - The unit is purchased from FSIP's rebuilt stock, a rebuildable core is sent to FSIP and the account is credited the core value.

Rebuild Outright - The unit is purchased from FSIP's rebuilt stock, no core is sent to FSIP and the account is not credited.

Benefits:

- Units are analyzed by certified electronic technicians.
- Failed, compromised and stressed components are replaced.
- Units are upgraded to the latest specifications and tested rigorously to ensure quality.

All remanufactured units are backed by a warranty.

General Repairs

If you have an electronic unit that needs to be repaired and it is not listed in the remanufacturing program, FSIP's skilled engineering team will evaluate and quote your repair for a minimal fee. Once you approve the quote, your unit will be repaired and returned to you. An additional option to expedite your unit is available. A warranty is included with all general repair orders.

Manufacturing

Box Build Assembly

FSIP's skilled team follows detailed process instructions developed by the company or the customer to ensure a quality product is delivered every time. Assembly services include sub-level product, electromechanical assemblies and complete product assembly. FSIP also designs custom fixtures, develops testing procedures and provides software loading or configuration services.

Coil & Bobbin Winding

FSIP has manufactured custom inductors for more than 15 years. The company's high-level skills, paired with in-house fixturing capabilities and winding equipment, allow it to manufacture precision-wound coils using multiple gauges of wire.

Cable Assemblies & Wire Harnesses

Equipped with a wide range of crimp heads and AMP terminal presses, FSIP's facility manufactures a variety of custom cable assemblies and wire harnesses to IPC-A-620 standards.

Metal Machining

FSIP provides machining services to build a wide range of custom metal parts. The company procures the metal material in extruded, bar or plate form, and machines to your specifications. With a vertical CNC, spindle drill press and lathes on site, FSIP performs multiple processes to create machined products. The company also provides punch press, stamped and plated parts which gives the customer a truly turnkey manufacturing solution. To ensure a concise product each time, FSIP uses inspection equipment including optical comparators to verify the product conforms to the approved tolerances.

Electric System Design

Whether you are designing a new vehicle or upgrading your existing product line, FSIP has the technical expertise to assist you through the entire process from conception to implementation. The Engineering team will help you stay on top of the latest technology, whether you are looking for a motor controller system, vehicle information display or battery management product. Supported applications include golf, ground support, industrial, marine, mining and specialized vehicles. Specialty components include AC and DC controllers and motors, high current contactors and high voltage AC and DC series controllers.



Visit the online store!

Shop by part number or browse the product categories. Download tech manuals, learn about the company, explore other services and more!



Contact Sales and Sales Support!

Allow the sales and sales support team to assist you with orders, inquiries and general information by phone or online chat.



Talk to a tech!

The knowledgeable tech support team will answer technical questions regarding the products and lend a hand with troubleshooting.



Learn with us!

FSIP offers service classes to train technicians on the basics of electric vehicle troubleshooting.



Core Value Program!

FSIP will free up your shelf space by purchasing rebuildable cores for cash.

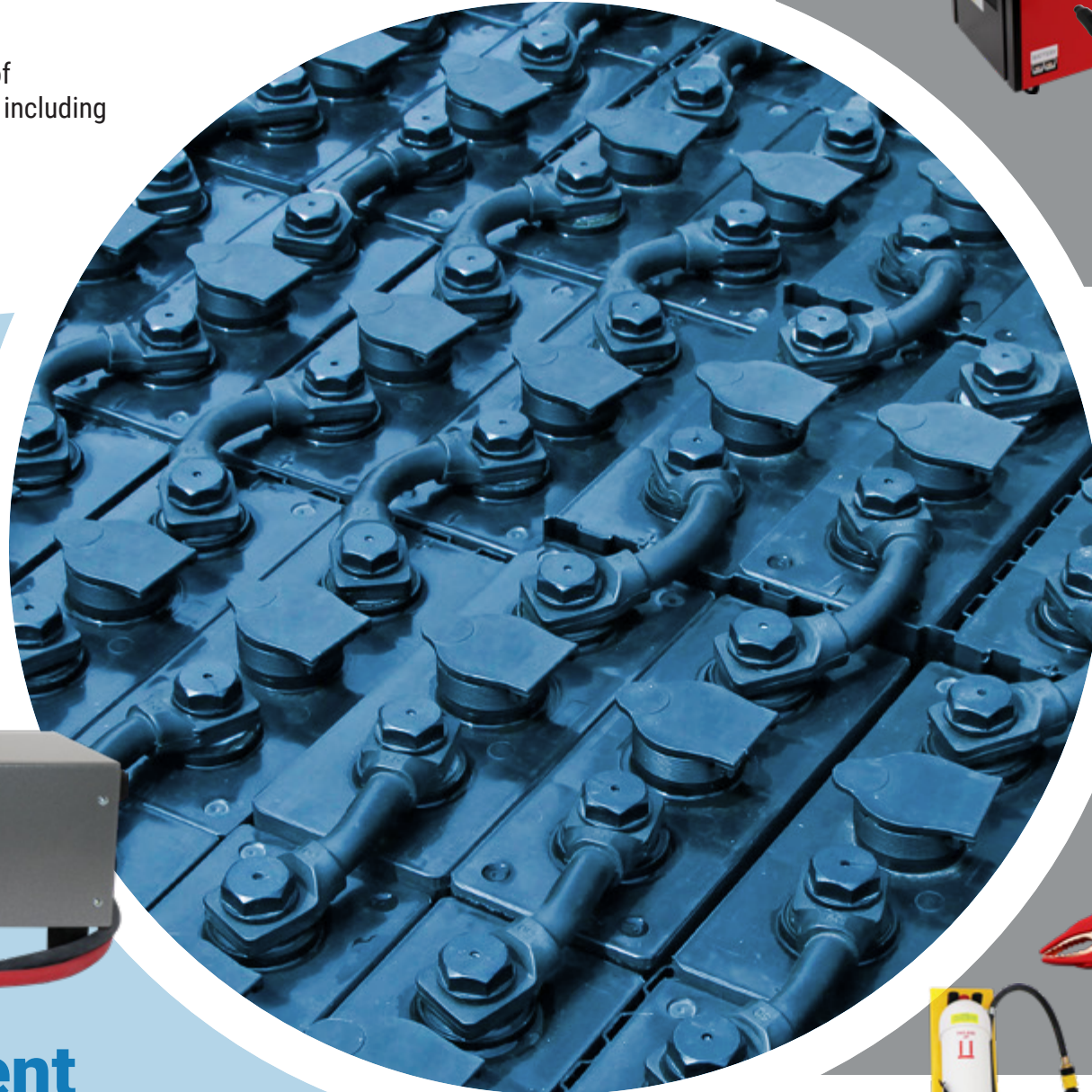


Battery Chargers

FSIP offers new and remanufactured battery chargers for your exhausted batteries. These chargers serve a variety of industries including golf cars, forklifts, go-karts, sweeper-scrubbers and more. Brands we offer include Delta-Q, DPI, Elcon, Lester, Signet, S.P.E., Yamaha, and Zivan.

Charger Modules

Providing an alternative to new, FSIP offers a variety of remanufactured charger modules and boards. Brands including Energys, Hawker, Ametek, Douglas, and Posicharge.



Battery Management

Maintain to sustain! Properly maintaining your batteries is important for their longevity. A battery that is routinely serviced will significantly outlast a neglected battery. Knowing how to maintain your battery is the first step. FSIP offers a complete line of battery management products to assist with cleaning, discharging, monitoring, regenerating and watering for a wide range of applications.

Battery Management Options



Dischargers

A discharger will allow you to determine the run time or remaining capacity of your battery.



Regenerators

Over time, batteries lose capacity primarily due to sulfation leading to early replacement. A regenerator restores lost capacity through a series of sequentially operated charge and discharge cycles while applying a patented restorative pulse.



Monitoring Systems

While charging or discharging, wireless battery monitors will take readings during the cycle. This allows you to identify and replace bad cells while also providing a graphical analysis.



Watering Devices

During operation and charging, battery electrolyte is lost due to evaporation. Maintaining water levels is key to keeping a battery healthy. Utilizing watering devices can make the watering process easier and more efficient.



Controllers

Whether your unit is damaged, unrepairable, or obsolete, FSIP has a solution to get your equipment back up and running. Choose to have your unit remanufactured, purchase a rebuilt exchange or rebuilt outright, send your unit through the General Repair Program or purchase a new unit.



Controller Upgrades

Stock electric golf car controllers typically function at 275 amps. Upgrading to higher amperage will improve speed or torque by delivering more amperage to the motor.

***FSIP recommends replacing the solenoid when installing a controller upgrade.**

Popular Manufacturers:

CAT/Mitsubishi • Crown • Curtis • Danaher • General Electric • Impco • Iskra • Jungheinrich • Linde
Navitas • Nissan/Hitachi • PG Drives • Raymond • Sevcon • Toyota • Zapi

Motor & Controller Upgrades

FSIP offers Performance Motors designed specifically to increase speed or torque. These motors produce the best results when paired with an upgrade controller.

For industrial trucks from popular manufacturers like Crown, Hyster and Yale, FSIP offers remanufactured steer motors.



Pair an FSIP Performance Motor with an FSIP 1268 Conversion Kit for the complete package!

Conversion Kits

Whether you're looking for more power or trying to increase efficiency, FSIP offers three different types of conversion kits to upgrade popular golf cars like Club Car, E-Z-GO, Yamaha and more!

OPTIONS

- 1 Upgrade your current DC system**
- 2 Upgrade your current AC system**
- 3 Convert your system from DC to AC**



Test Equipment

Diagnose the problem. Have the power to troubleshoot in the palm of your hand. FSIP offers a variety of test equipment for various vehicles.

Curtis • Danaher • FLIR • General Electric • Navitas • Sevcon • Zapi

Curtis



Curtis Model 1313 Handset Kit

This Curtis handset enables parameter files to be created and edited online or offline, transferred to another controller for cloning or saved onto a PC or SD card. The kit includes the handheld programmer, 4-pin Molex cable, USB cable, zippered case and Quick Start Guide.

Sevcon



Sevcon Calibrator

Sevcon handsets monitor parameters such as battery volts, motor voltage & current, and temperature. These handsets also read fault codes and service log history. Digital adjustments of features such as current limit, plugging, accelerator delay, creep speed, timers and lift speeds are also provided.

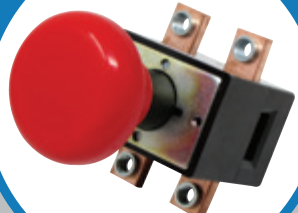
Zapi



Zapi 16 Truck Handset Kit

This Zapi handset works on 16 different vehicles and most Zapi controls with a handset port when paired with the correct adaptor cable. Zapi handsets adjust controller parameters, test the controller inputs, restore settings from previously saved files, read the last 5 controller errors encountered, and calibrate the accelerator pedal. The kit includes the handset, 5 adapter cables and a zippered case.

Accessories



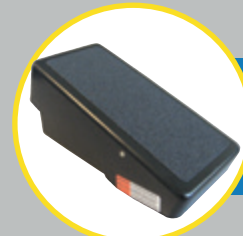
Device Mounts • Motor Cables • Safety Devices
Foot Pedals • USB Chargers



Gauge Your Battery Life

- Accurate indication of remaining charge
- Integrated DC/DC converter & USB port
- IP65 rating for environmental protection
- Compatible with 36 & 48 volt applications

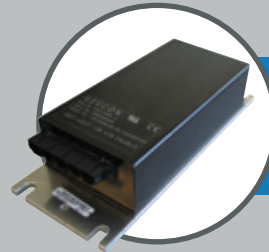
Additional Product Offerings



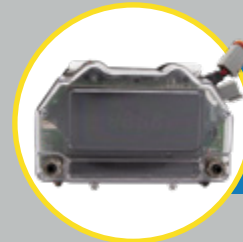
Accelerators



Contactors/Solenoids



DC/DC Converters



Displays



Gauges



Joysticks

FSIP

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