INSTALLATION & SERVICE MANUAL

PART #PK-000052

FITS: E-Z-GO™

TXT™ 1996 TO PRESENT

with Curtis™ 1206HB Controller

The SilverWolf Installation and Service Manual is divided in to 5 sections, read through and understand each section before you proceed with Installation.

1	MINIMUM REQUIREMENTS	Before installing your SilverWolf Kit, please ensure that all minimum requirements are met! If you have any questions, consult your local authorized SilverWolf Dealer or contact us at **support@silverwolf.com**
2	PARTS LIST	Before starting installation confirm that all parts listed on the **Main Components & Hardware Parts List** below have been received.
3	WARNINGS & INSTALLATION INSTRUCTIONS	Make sure to read and understand the owner's installation and service manual and **ALL WARNINGS** with this Motor & Controller Kit.
4	SILVERWOLF APP USE & FEATURES	Before starting the installation it is recommend to **download and register the SilverWolf App,** it is required to complete the setup of the SilverWolf System.
5	WARRANTY	SilverWolf 2 Year Limited Warranty

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MINIMUM REQUIREMENTS

1

TEEKON™

12 HP DC TO AC MOTOR CONVERSION KIT

KIT PART # PK-000052

THE FOLLOWING ITEMS ARE REQUIRED BEFORE THIS KIT CAN BE INSTALLED!

VEHICLE MAKE	MODEL	YEAR START	YEAR END	NOTE
E-Z-GO®	TXT®	1996	PRESENT	

REQUIREMENTS	ITEM			NOTE
VEHICLE CONTROLLER	CURTIS® 1206HB- (Original Stock Controller)			
MOTOR TYPE	48V DC MOTOR (Original Stock Motor)			Does not fit TXT 36V DC Cart.
AXLE	Transaxle w/ 19 Spline (Original Stock Axle on DC Cart)			
HEAVY DUTY SOLENOID W/ PRE-CHARGE RESISTOR	Heavy Duty Solenoid & Pre-Charge Resistor rated for 400 amp.			Required when driving at higher speeds or hilly terrain for longer periods of time.
BATTERY	48V Lead Acid			In New or Good condition
	48V- 72V Lithium Ion w/a rating of at least:	Continuous Discharge 100A	Maximum Discharge 250A (5 seconds)	The Batteries can not have a Nominal state of over 72v.
2GA CABLES	2GA Power Cables between Motor, Controller and Battery.			Can be ordered from the dealer or at *SilverWolf.com*. Part # PK-000011 (Sold Separately)

E-Z- Go®, TXT®, and RXV® are registered trademarks of Textron Innovations, Inc. ("Textron"). References to Club Car® on our website or any associated electronic or printed publication are solely for purposes of identifying golf carts.

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E-Z-GO® TXT

Before starting installation confirm that all parts listed on the Main Components & Hardware Parts List below have been recieved.
If you are missing parts please contact your local dealer or support@silverwolf.com

	PART DESCRIPTION	PART #	QTY
1	Model BAC8000 840A Motor Controller	PC-600005	1
2	TEEKON 12 HP AC-PM Motor - 19 Spline (E-Z-GO®)	PM-000029	1
3	SilverWolf GCM	PA-000036	1
4	TEEKON GCM Main Harness (GCM to Controller)	44-000101	1
5	TEEKON GCM Vehicle Specific Harness (GCM to Vehicle Harness) For E-Z-GO TXT w/ Curtis 1206HB Controller	44-000106	1
6	M6 x 12mm High-Strength Steel Flanged Hex Head Bolt (*Installed on Motor)	80-000585	3
7	M6 x 14mm Hex Head Bolt (*Installed on Controller)	80-000620	5
8	M6 Lock Washer (*Installed on Controller)	80-000622	5
9	M6 Flat Washer (*Installed on Controller)	80-000618	5
10	Controller Locking Plate 4" x 1"	20-001355	2
11	1/4" X 1" Self Tapping Screw	80-000587*	4
12	11" Black Cable Tie	80-000905	8
13	1" Cable Tie Mount	800-000906	2

1



2



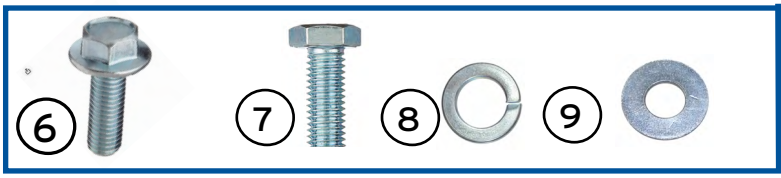
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4

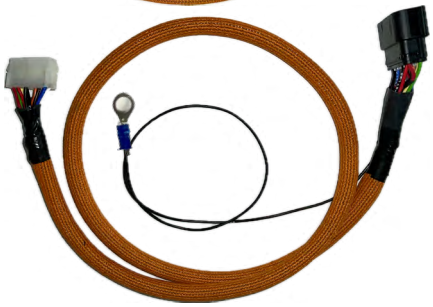


Note: Vehicle & GMC Harness outer loom color may vary.

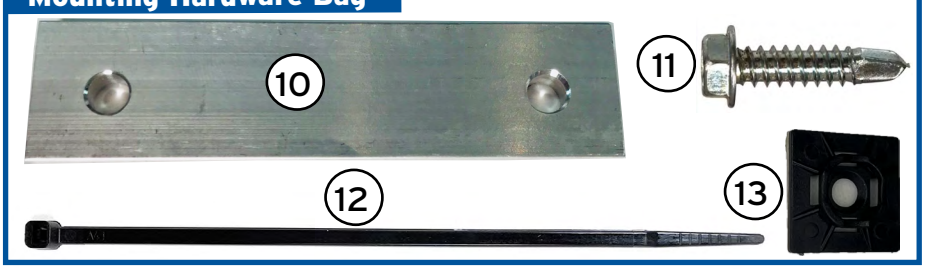


Installed on Parts

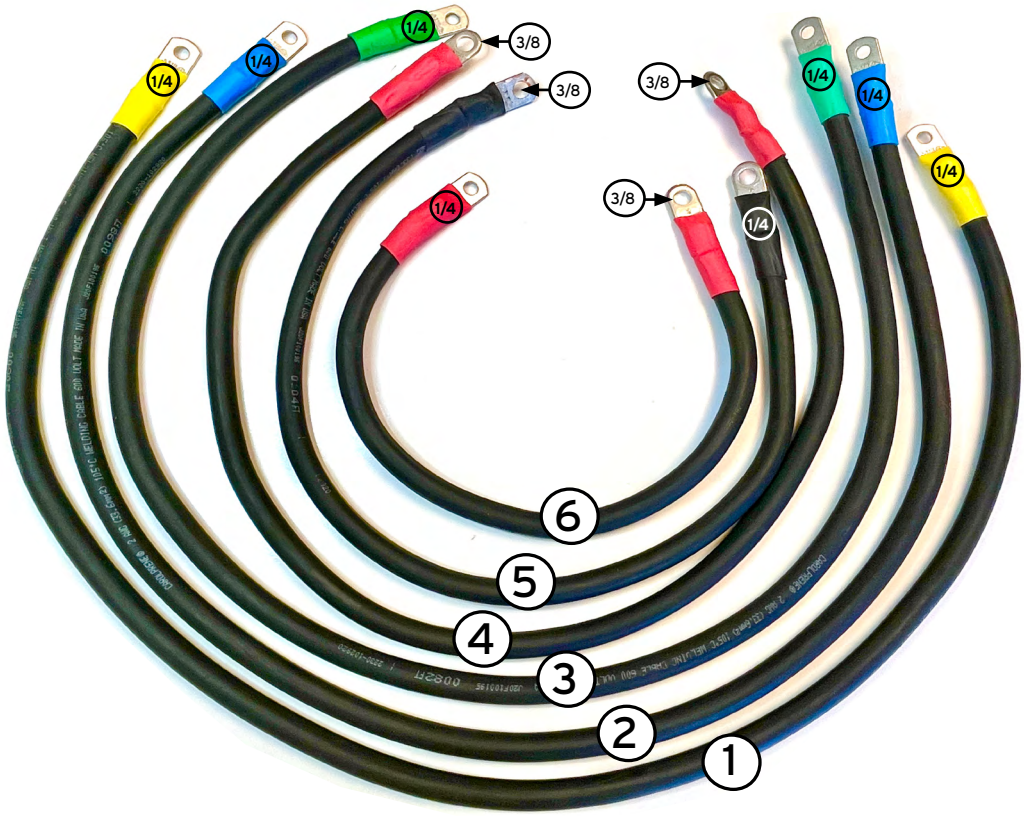
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Mounting Hardware Bag



HEAVY DUTY 2GA AC POWER CABLES
Part # PK-000011
(Sold Separately)



	INCLUDED IN THE HEAVY DUTY 2GA POWER CABLE KIT PART # PK-000012-CC	PART #	QTY
1	2ga Motor Phase Cable for E-Z-GO TXT® Precedent -Yellow (36")	40-000533-YL	1
2	2ga Motor Phase Cable for E-Z-GO TXT® -Blue (36")	40-000533-BL	1
3	2ga Motor Phase Cable for E-Z-GO TXT® -Green (36")	40-000533-GN	1
4	Main Positive Cable for E-Z-GO TXT® (from Battery + to Solenoid)- Red (30")	40-000531*	1
5	Main Negative Cable for E-Z-GO TXT® (from Battery - to Controller) - Black (24")	40-000532*	1
6	Positive Power Cable for E-Z-GO TXT® (from Solenoid to + on Controller) - Red (17")	40-000534*	1

INSTALLATION OF DISCOVERY & TEEKON 3

IMPORTANT UPDATE
WHEN INSTALLING THE TEEKON & DISCOVERY KITS ON 1 VEHICLE!

PK000051 /PK000048 - Club Car® Precedent/ Onward / Tempo

PK000052 & PK000041 - E-Z-GO® TXT 48v

When installing the Teekon Rear AC Kit and the Discovery 4WD kit on the Same Vehicle there may be extra parts that are not required. Shown below are the parts shipped with each kit. The chart below shows which parts will not be used when installing both kits.

DISCOVERY 4WD PARTS





GCM
Part # PA-000036



44-000107



44-000100

TEEKON AC PARTS





GCM
Part # PA-000036



44-000101



44-000106

PARTS NOT USED



GCM
PA-000036



44-000107

If there is a 2nd GCM it will not be used. Only 1 GCM is required to connect and operate both systems.

The Discovery 4WD Vehicle Specific Harness (the Harness with the T-Section) is not used.

GCM & HARNESS LAYOUT



SilverWolf

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TEEKON INSTALLATION & WARNINGS 3

Thank You for purchasing the SilverWolf TEEKON 12HP DC to AC Motor Conversion Kit.

It is important to Read, Understand and Follow all Instructions before installing or operating the SilverWolf TEEKON 12HP DC to AC Motor Conversion Kit..
The Owner, and all Vehicle Operators MUST Read and Understand All Warnings and Instructions in the TEEKON Installation & Service Manual.
The Owner of this Vehicle assumes all liability for accidents, injuries or damages if the Warnings and Instructions are not followed.

SilverWolf Vehicles Inc. assumes no responsibility for errors or omissions in this manual, in regards to liability or damages resulting from the use of information contained in the manual. If it is lost or damaged please contact your local dealer or support@silverwolf.com.

SilverWolf reserves the right to make changes to vehicles, parts of the vehicles, accessories, labeling or instructions without obligation to make these changes on units previously sold.

Product and specifications are subject to change without notice or obligation.

E-Z- Go®, TXT®, and RXV® are registered trademarks of Textron Innovations, Inc. (“Textron”).

ATTENTION:
Before installing the TEEKON 12HP DC to AC Motor Conversion Kit record the serial numbers from each of the Main Components for future reference.

TIP

OR

Take a photo of the Barcode/Serial # Label on each Component.

PART	SERIAL #
SW 12HP Motor	
BAC8000 Controller	
GCM	

SERIAL # LOCATIONS



SilverWolf Smart Phone App

TIP

Included with this Kit is the SilverWolf Smart Phone App, which provides a dashboard screen with current Cart status such as speed, state of charge, and will allow the user the ability to change settings and see diagnostics from the SilverWolf Controllers and Motors.

Before starting the installation it is recommend to Download and Register the SilverWolf App, it is required to complete the setup of the TEEKON AC Drive system.

Get the SilverWolf App at; Download on the App Store GET IT ON Google Play



ATTENTION
Indicates a step or procedure required before proceeding to the next step or page.



CAUTION
Indicates a potentially hazardous situation which may result in minor injury or product damage.



WARNING
Indicates a Hazardous situation which if not avoided can result in serious injury / death to person(s) or damage to product and/or equipment.



TIP
Indicates a helpful Tip to make things easier and faster.



WARNING! **FAILURE TO FOLLOW THE WARNINGS IN THIS MANUAL MAY / CAN CAUSE DAMAGE TO THE VEHICLE WHICH CAN RESULT IN SERIOUS INJURY OR DEATH!**

MAKE SURE TO READ and UNDERSTAND the OWNER'S INSTALLATION and SERVICE MANUAL and ALL WARNINGS with this Motor & Controller Kit.

- Installation must be done by a trained Golf Cart Technician
- Any modifications or changes made to the Motor, Controller or Wiring Harness will void the manufacturers warranty. Contact your dealer if the vehicle is not operating correctly.
- Always proceed with caution. Keep speed low and do not drive faster than conditions permit. The terrain, conditions and the operator's skill will determine a safe speed.
- Avoid sharp turns and do not accelerate quickly when turning; this can cause the vehicle to slide sideways or skid out of control. Abrupt maneuvers or aggressive driving can cause a rollover even on flat open areas.
- This Motor & Controller will increase torque, but Does Not increase the GVWR (Gross Vehicle Weight Rating), Cargo capacity or Towing capacity of the Vehicle. Always follow the Vehicle's towing capacity rating as specified by the vehicle manufacturer.
- Do not leave children or pets unattended in or near the vehicle.
- Drive at a reduced speed and use extra caution when carrying passengers or cargo.
- Always look behind you before and while backing up.
- Reduce speed when towing and allow more room for stopping and turning.
- Drive with wheels straight when going up and down hills.
- Slow down and use brakes when going down hills.
- Never drive on hills with a slope greater than 15 degrees.
- Do not drive through fast flowing water or water above the bottom of the Motor.
- If you must cross shallow water, make sure to stop and inspect the area for sudden drop-offs, large rocks or slippery surfaces. Always proceed with caution or choose a safer route.
- When towing this vehicle make sure the key is turned off, the Run/Tow switch is in Tow, and batteries main power is disconnected.
- Keep electrical components dry and DO NOT wash with direct stream or power washer.
- Keep the controller and the area around it clean and free of debris.
- Do Not submerge the Controller or it's Parts.
- Vehicle and all parts must be serviced by qualified service personnel. For an authorized service location call 1-888-398-7078 or e-mail support@silverwolf.com.

BEFORE INSTALLING THE SILVERWOLF TEEKON 12HP DC to AC MOTOR CONVERSION KIT:

Make Sure that the Vehicle's Electrical System is working properly and all components such as the Run/Tow Switch, FWD/REV Switch, Brakes, Throttle and all Wiring are in good condition and operating to Manufacturers Standards. If not they Must be repaired or replaced before installing the SilverWolf™ TEEKON Kit.
If any modifications have been made to the Vehicle's Electrical System or any of it's parts this may affect the operation of the SilverWolf Motor Kit. Please contact your dealer.

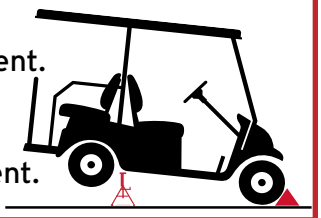
WARNING!

FAILURE TO FOLLOW THE WARNINGS BELOW CAN DAMAGE THE VEHICLE AND CAUSE SERIOUS INJURY OR DEATH!

BEFORE STARTING THE SILVERWOLF TEEKON KIT INSTALLATION MAKE SURE:

- The Key is turned OFF and Removed from the Ignition
- The Run/Tow Switch is in the Tow position 

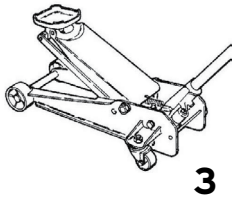
- The Parking Brake is Engaged
- The Main Positive and Negative Cables on the Vehicle's Battery System are Disconnected
- Installation or Servicing of the SilverWolf TEEKON System Must be done by a Trained Golf Car Technician.
- The Vehicle Solenoid Must have a Pre-Charge Resistor on it. 
- The Batteries Must be in Good Condition and each Battery Must hold a Full Charge!
- Before testing the Vehicle make sure the Rear Wheels are off the ground and supported with Automotive Jack Stands. The Front Wheels must be Chocked.
- The area around the vehicle must be clear. Keep all People, Children and Pets away from the vehicle when installing, servicing or testing the vehicle.
- Read the **SilverWolf™ TEEKON** Installation /Service Manual and All Warning Labels before servicing or troubleshooting this Vehicle.
- The Motor, Controller and GCM are sealed and can not be opened for service. To replace these parts call your local dealer. Opening these parts will Void the Warranty.
- Wear Safety Glasses and Gloves when installing this Controller.
- Wear a Safety Shield when working in or near the Vehicle Battery Compartment.
- Use Insulated Tools to protect from electric shock.
- Never lay or drop tools on the Batteries or in the Vehicle Battery Compartment.



Tools Required

- Safety Glasses
- Gloves
- Standard Ratchet Set
- Standard Wrench Set
- 10mm Socket
- 10mm Wrench
- Torque Wrench
- Drill
- 2 Automotive Jack Stands
- Lift Jack (2 ton or more)
- Wheel Chocks
- Saw (to cut Plastic Cover)
- Tape
- Marker
- Clamp

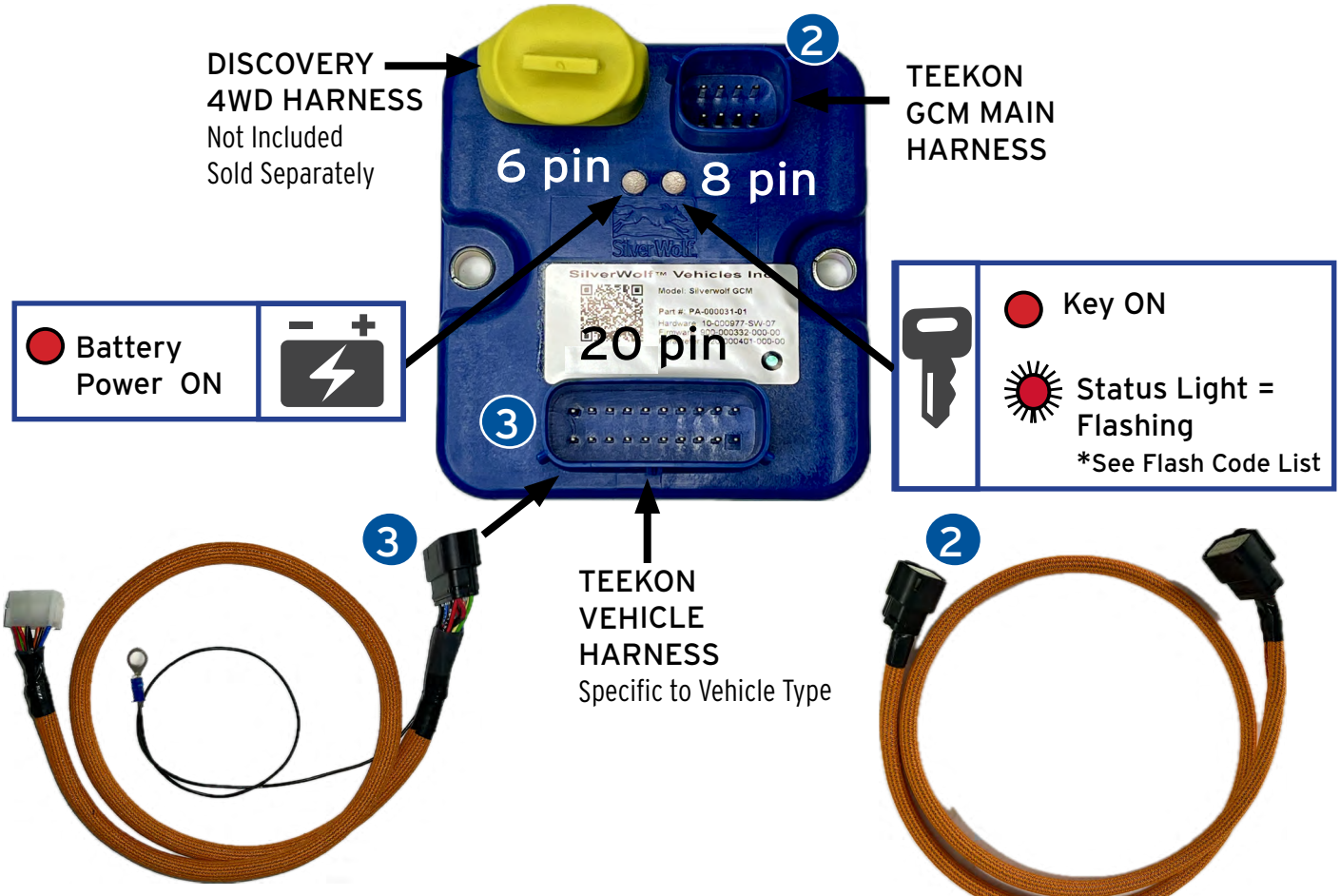




CONTROLLER



GCM (Golf Cart Module)



TEEKON VEHICLE SPECIFIC HARNESS
GCM to Original Vehicle Harness
44-000106

TEEKON GCM MAIN HARNESS
GCM to Controller
44-000101

Note: Vehicle & GMC Harness outer loom color may vary.

1 Removal of Vehicle Components

The installation of the Silverwolf™ TEEKON Kit will be done from inside the Battery Compartment and/or from the rear of the vehicle depending on if the cart has a Rear Facing Seat/ Cargo Box. The option will be to remove the Batteries or remove the Seat Kit.

These instructions will show installation with the Batteries removed; if there is no Rear Seat Kit installed and the area at the back of the Vehicle is open installation can be done without removing the Batteries.

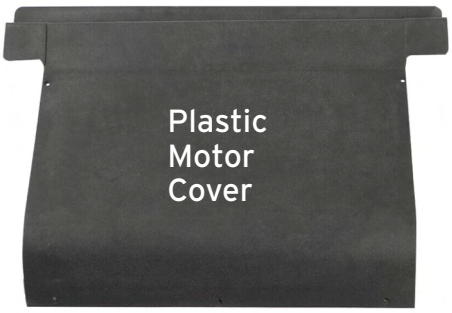
TIP Before removing the Batteries take a photo of the Battery Cables and Connections to use when the Batteries are reinstalled.

A. The following Parts must be removed to install the TEEKON Kit (see photos below and on the following page):

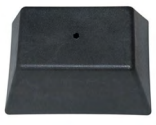
- Main Seat to allow access to the Battery Compartment.
- Plastic Motor Cover located behind the Seat on top of the Motor Area
- Disconnect the Main Positive + and Negative - Battery Cables and all Battery Cables (if the Batteries are linked with Cables)
- Batteries
- All (4) of the original Motor Power Cables (these will not be reused).

Note: 2GA Power Cables are required between the Motor, Controller, Solenoid and Main Battery Connections. These can be made or purchased from SilverWolf Part # PK000011

- Remove the 4 bolts on the Controller Cover. The Run/Tow Switch Connector can be unplugged to allow the Cover to be completely removed. This Cover will be modified and re-installed in later steps.
- Remove the Solenoid Cover (if installed) It will be modified and re-installed at the end of the installation process.
- Disconnect the original Controller Wires and remove the Controller from the Controller Plate.







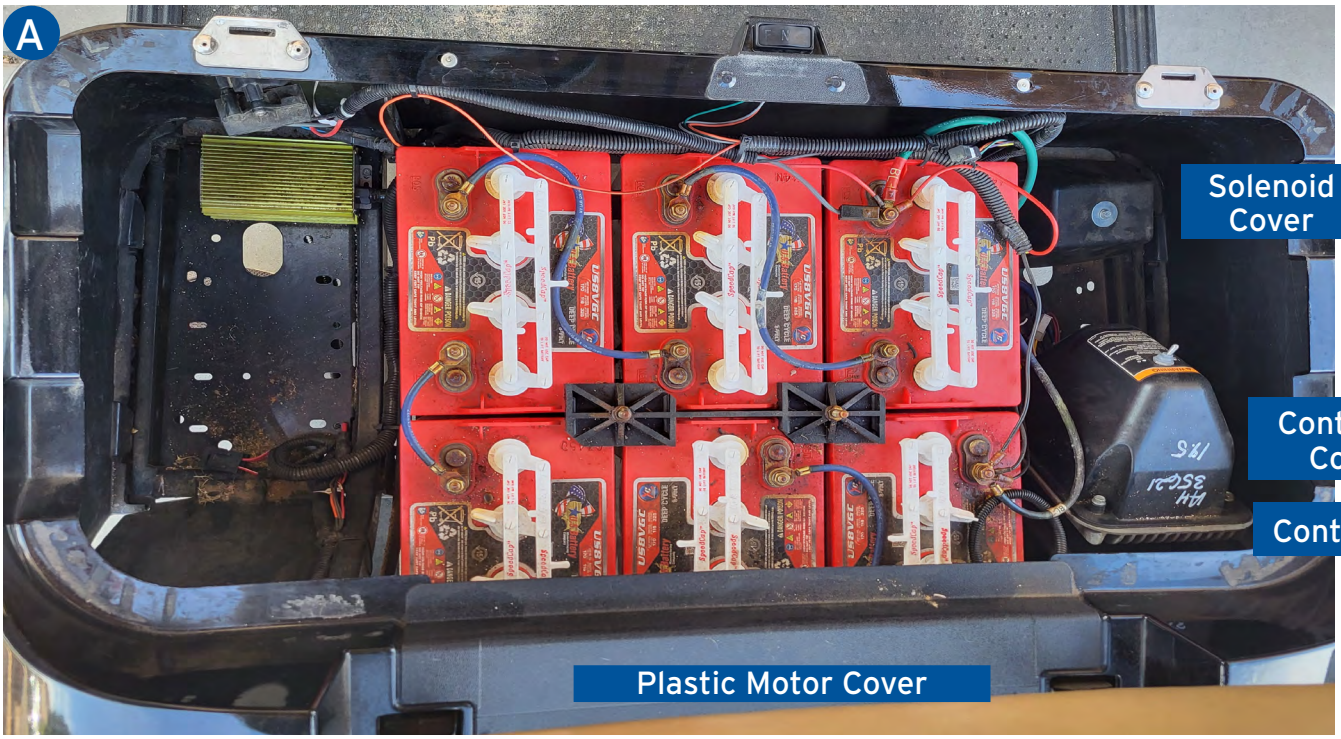
Solenoid
Cover



Original Controller

DO NOT leave any loose Cables or Wires connected to the Batteries!

1 Removal of Vehicle Components

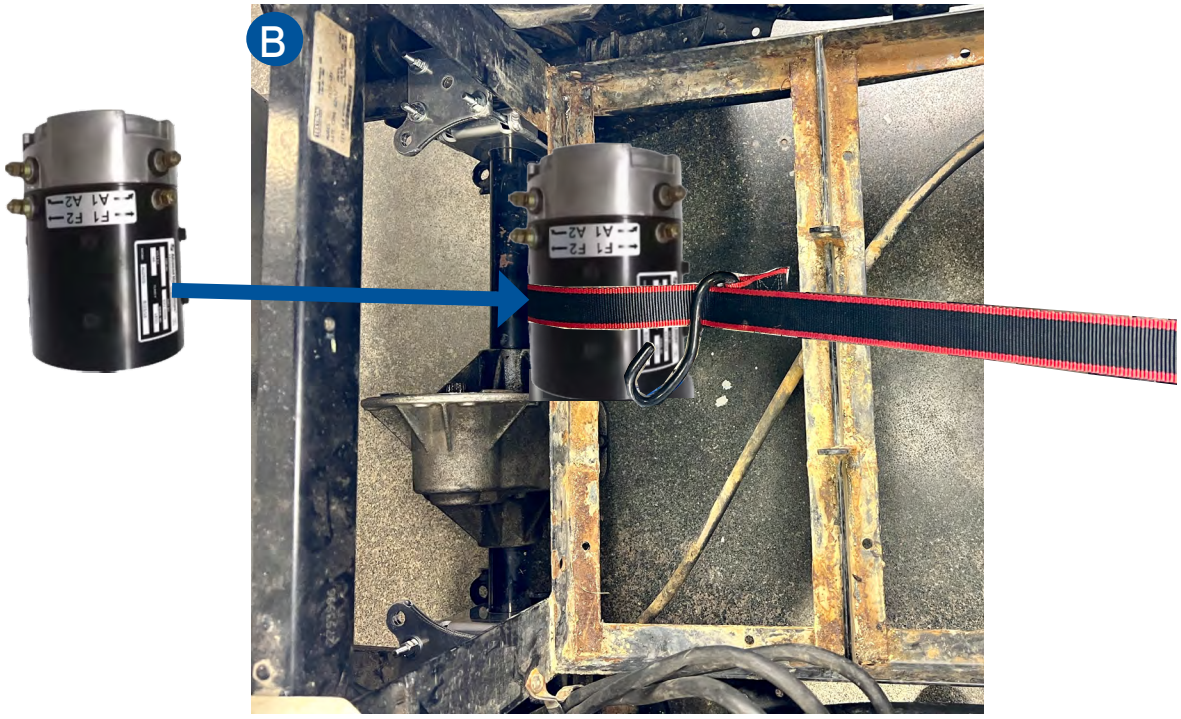


B. Remove the original Motor by removing the 4 Motor Cables and 3 Mounting Bolts.

The Motor is heavy and can cause injury if not removed correctly. A 2nd person is recommend for this step.

Use a Nylon Strap or Tie Down (rated for 100 lbs or more) around the Motor. Run the Strap up over the Seat Back and have a 2nd person support the Motor by applying tension on the Strap.

Do not put tension on the Strap until all Wires and the Mounting Hardware are removed. Apply Tension while the Motor is being slid off the Shaft. **Note:** When sliding the Motor off the Axle Shaft keep it level to make it easier to remove.



2 Controller Installation

A. Use a small piece of wood about 1/2" -3/4" thick to raise and align the Controller in place as shown below. Place the Controller Locking Plates about halfway up the Controller. Mark the 4 holes.

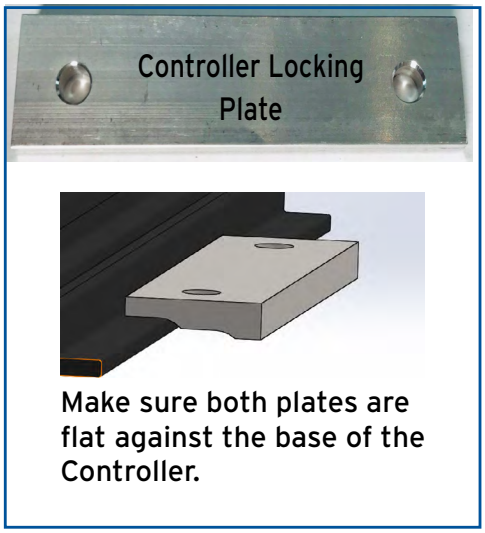
Move the Controller to the side and using the Drill Driver and 2 of the Self Tapping Screws loosely install 1 of the Plates.



Note: A small pilot hole (no bigger than 1/8") can be drilled to help align and start the Self Tapping Screws.

B. Slide the Controller under the Controller Plate on top of the piece of wood placing the 2nd Plate into place on the Controller. Once it is lined up use the other 2 Self Tapping Screws to secure the 2nd Plate. Now tighten all 4 Screws and remove the piece of wood.





Make sure both plates are flat against the base of the Controller.



1/2"-3/4" Plywood



3 Motor Installation (No Wiring)

The Motor is not as heavy as the original, to avoice injury a 2nd person is recommend for this step.

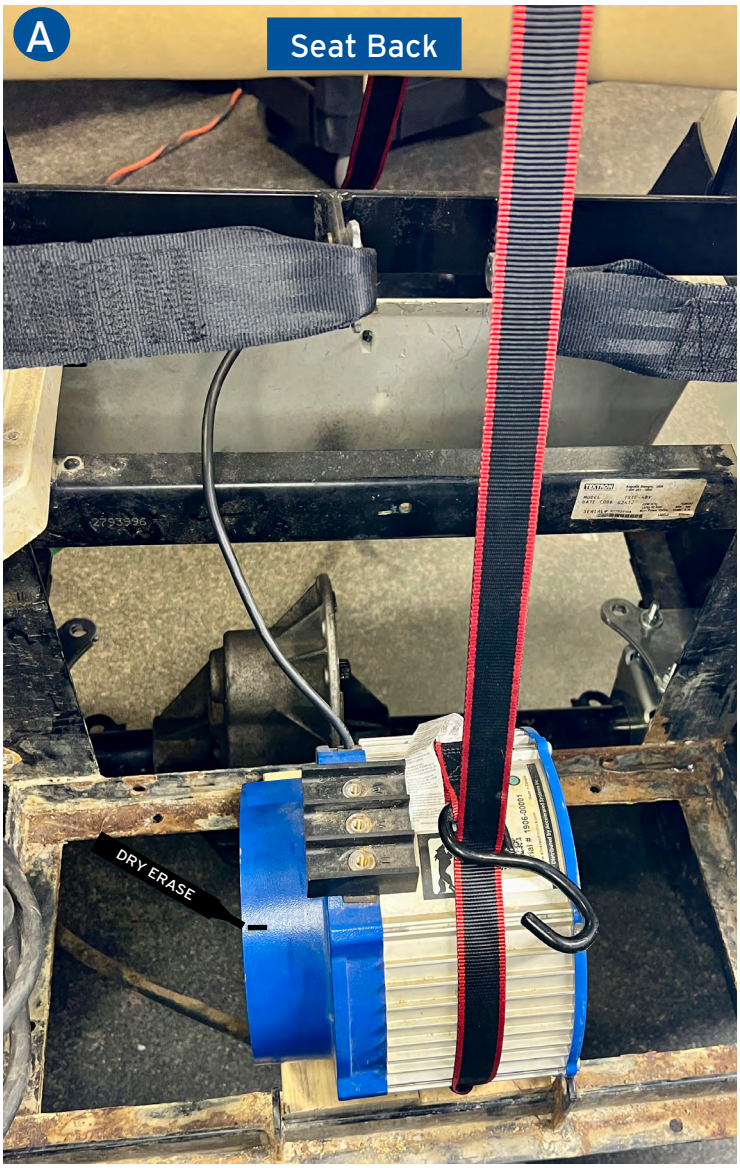
A. Before Sliding the Motor into place mark 2 of the Motor Bolt Holes with a Dry Erase Marker; this will help align the Motor.

Use a Nylon Strap or Tie Down (rated for 100 lbs or more) around the Motor. Run the Strap up over the Seat Back and have a 2nd person support the Motor by applying tension on the Strap. This will make it easier to align and lower the Motor into place.

Slide the Silverwolf™ AC E-Z-GO TXT Motor (19 Spline) on to the Shaft of the Transaxle, making sure the Motor is level. This may require turning the inner Motor Shaft until it lines up. Align it with the marks on the Motor as shown in photo B below.

B. Loosely install the 3 Original 1/4" Hex Bolts, and Lock Washers. Once they are aligned and in place tighten all 3 bolts at the same time to pull the motor in evenly.

Note: See Vehicle Manufacturers Service Manual for Bolt Torque Rating.

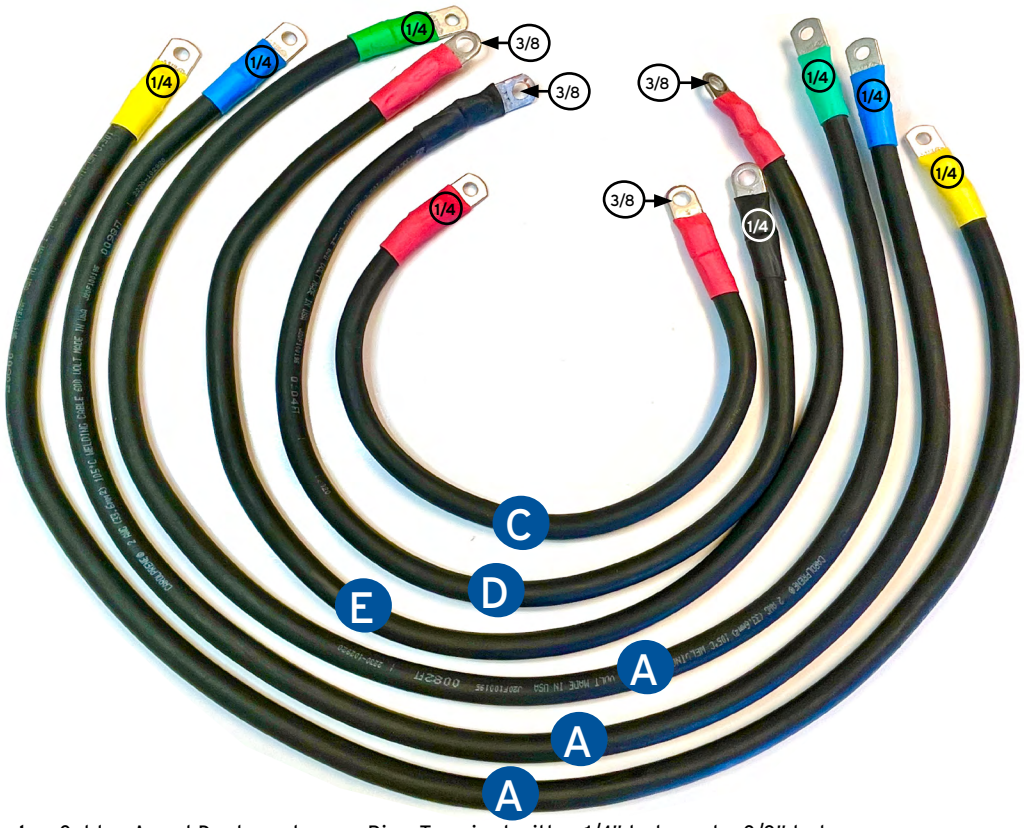




3 Motor Power Cables

2ga Heavy Duty Power Cable Kit PK-000011 (Sold Separately)

CABLE ID & LOCATION



Note: Cables A and D above have a Ring Terminal with a 1/4" hole and a 3/8" hole.

1/4" Terminal Hole goes to the Controller.

3/8" Terminal Hole goes to the Battery and Solenoid.

See Photo on following page;

This kit requires the 2GA AC Power Cables (Sold Separately); they replace the Original Power Cables.

Use all 6 of the New Heavy Duty 2ga Cables going from the Motor to the Controller and from the Controller to the main positive + and negative - on the Battery.
To help identify each Cable in the steps below see the **"Cable ID & Location" Diagram** above.

A. Remove and re-use the three M6 Truss Head Bolts from the Motor. Use these 3 Bolts to Install the 3 Phase Cables to the Motor.
Note: Make sure to match the Cable Colors between the Motor and the Controller.

PHASE CABLE COLOR CODE
U = GREEN
V = YELLOW
W = BLUE

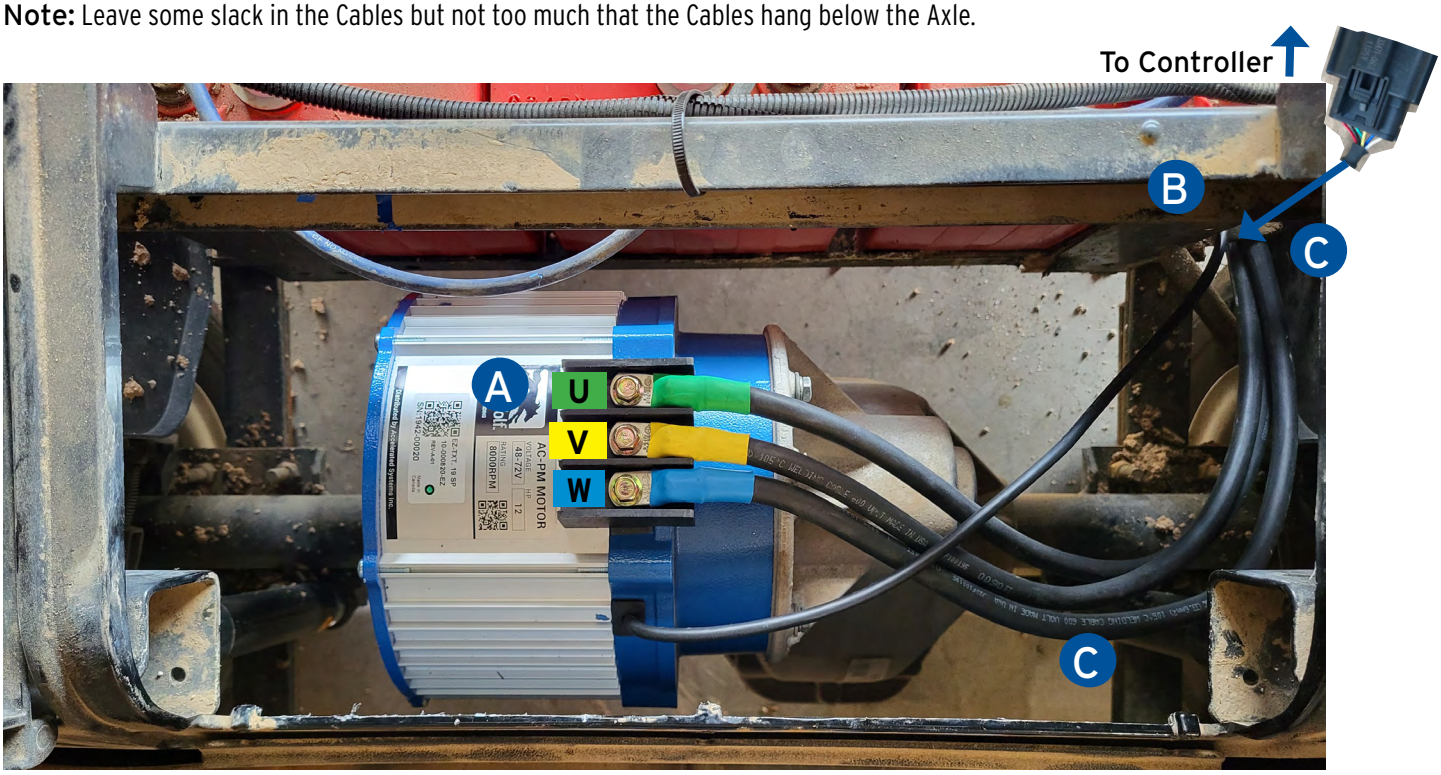
! Tighten the 3 Motor Bolts with a Torque Wrench to 70in-lbs/8 Nm Do Not Overtighten!

3 Motor Power Cables

B. Feed the 6 pin Connector Wire from the Motor back into the Controller area as shown in the Photo below.

C. Slide the 3 - 2GA Motor Phase Cables through the Cable Clamp on the frame on the Passenger Side of the Cart up in to the Controller area.

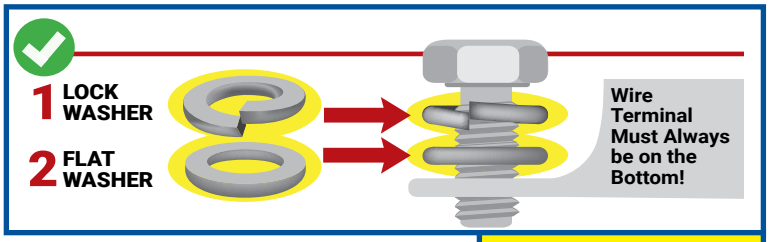
Note: Leave some slack in the Cables but not too much that the Cables hang below the Axle.



4 Controller Wiring / Power Cables

A. Install the 3 Phase Cables to the **U,V** and **W** on the Controller using three M6 Hex Bolts, Lock Washers & Flat Washers. Make sure each Cable is attached to the matching post on the Motor.

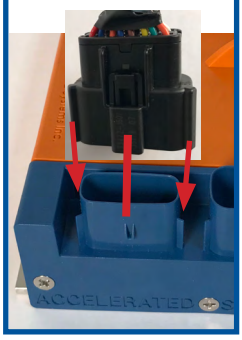
B. Gently connect the 6 Pin Connector from the Motor on to the 6 Pin Receptacle on the Controller. Make sure it is aligned before pushing it in to place. See the "Connector Alignment" diagram below before installing.

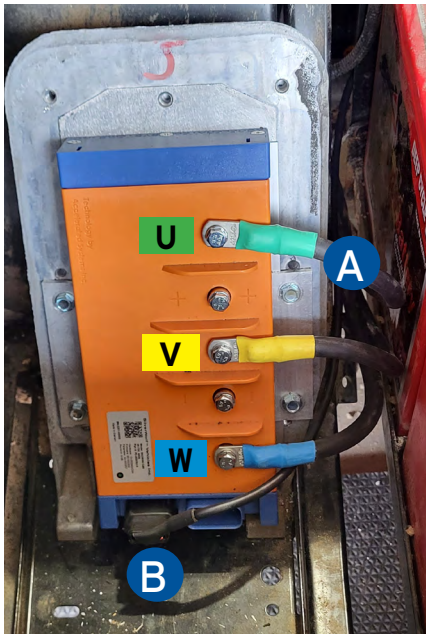


THE CONTROLLER HARDWARE MUST BE INSTALLED IN THE ORDER SHOWN!

Tighten the 5 Controller Bolts with a Torque Wrench to
70in-lbs/8 Nm
DO NOT OVER TIGHTEN!

Connector Alignment



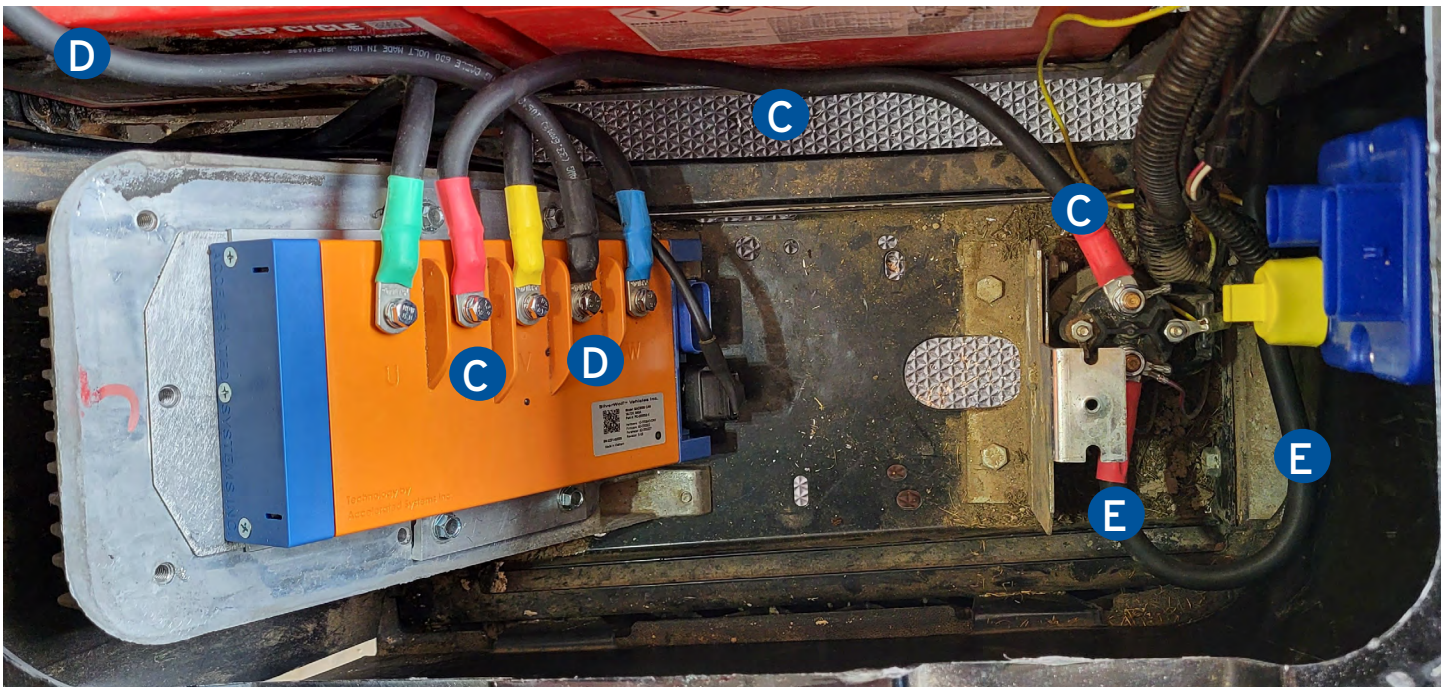


4 Controller Wiring / Power Cables

C. Install the shorter Red Cable (end with 1/4" hole) to the Positive Post on the Controller using a M6 Hex Bolt, Lock Washer & Flat Washer. Install the other end of the Cable to the Positive + Post on the Solenoid as shown below using the existing hardware.

D. Install the Black Battery Cable with the 1/4" Hole to the Negative Post on the Controller. The other end of this Cable will go to the Main Negative- on the Battery. DO NOT Install until instructed at the end of the installation steps.

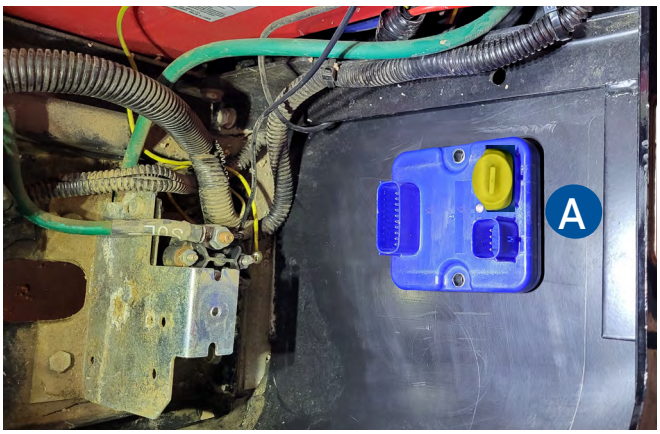
E. Install the longer Red Battery Cable with the 3/8" Hole to the large Post on the other side of the Solenoid. The other end of this Cable will go to the Main Positive + on the Battery. DO NOT Install until instructed at the end of the installation steps.



5 GCM & Controller Harnesses Cables

A. Using the Velcro provided attach the GCM to the front of the Battery Compartment as shown below.

B. Attach the 2 Cable Tie Mounts to the side of the Battery Compartment as shown on the following page. These will be used to secure the extra length of the GCM & Vehicle Harnesses.





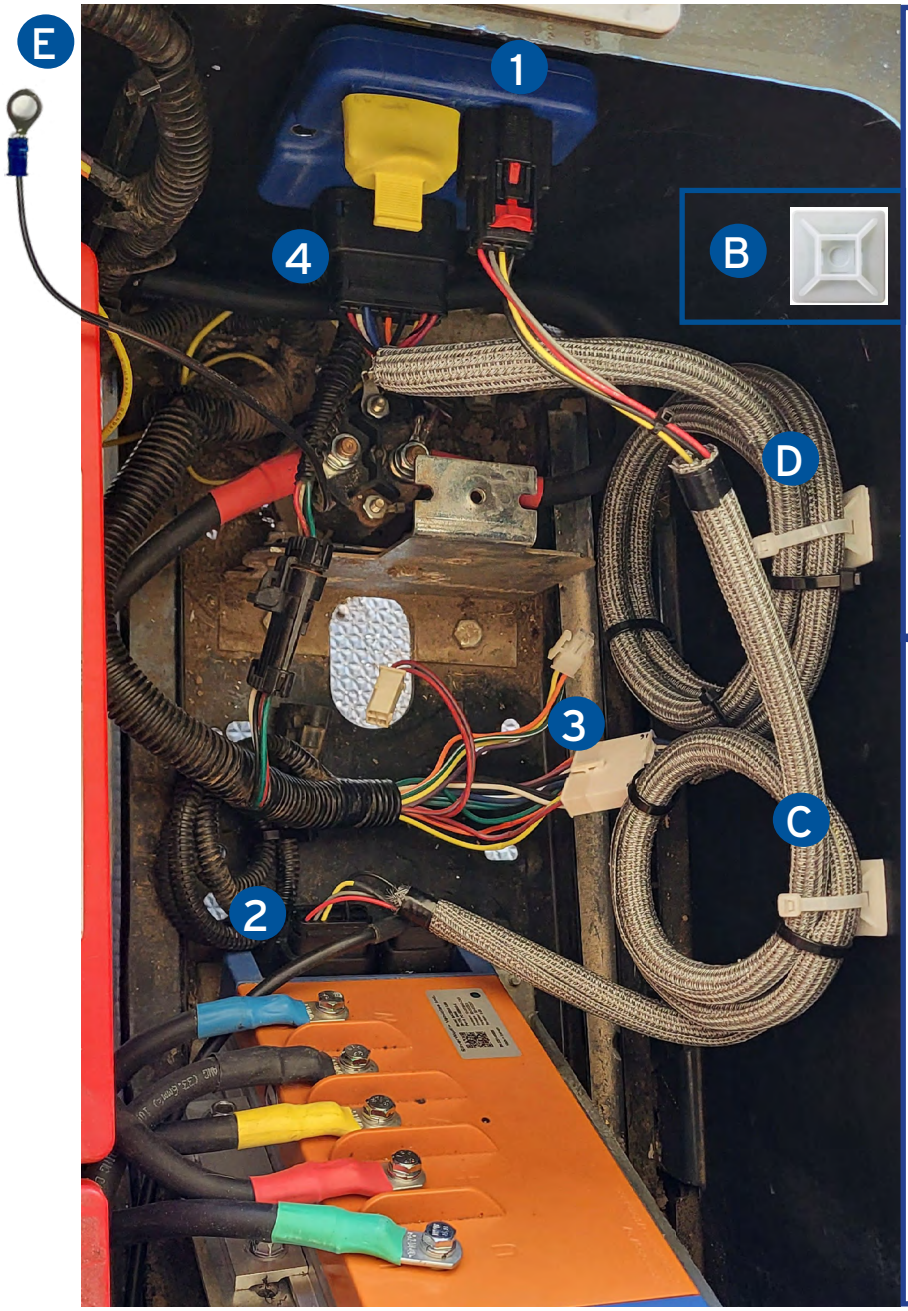
5 GCM & Controller Harnesses Cables

C. Align and Gently Install the GCM Main Harness as shown in steps 1 & 2 making sure the Connectors lock into place. Before connecting the 2nd Connector roll up the extra Harness length and use a zip tie to secure it to one of the Cable Tie Mounts.

D. Align and Gently Install the Vehicle Specific Harness as shown in steps 3 & 4 making sure the Connectors lock into place. Before connecting the 4th Connector roll up the extra Harness length and use a zip tie to secure it to one of the Cable Tie Mounts.

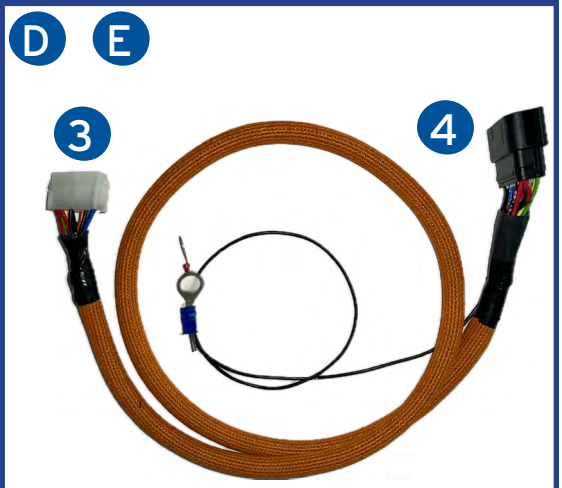
E. The Single Black Negative Wire from the Vehicle Specific Harness will be installed on the Battery Main Negative -. DO NOT Install until instructed at the end of the installation steps.
Note: Lay it near the Main Positive of the Battery Negative to make sure it is not left disconnected.

This Ring Terminal MUST be connected to the Battery Main Negative - before the Batteries or the RUN/ TOW are turned On!





TEEKON GCM MAIN HARNESS
GCM to Controller
44-000101



TEEKON VEHICLE SPECIFIC HARNESS
GCM to Original Vehicle Harness
44-000106

6 Controller Cover Modification

In order to install the RUN/TOW Switch in the same location and reuse part of the original Controller Cover the Cover will need to be modified. See Below

Note: It is recommended to remove the RUN/TOW Switch before cutting the cover so as not to damage the Wires.



Before removing the Switch use a marker to draw a line on the switch and the cover so that it can be put back in the same direction. This will make sure the RUN/TOW will not be installed backwards.

A. Measure 2" up from the bottom of the Cover; this will be about 1/2" below the bottom of the Warning Label. Mark a line across the cover using Tape or a Marker. Note: Secure the cover to a table or a board to make a cleaner cut. Use a sharp Saw and slowly cut off the bottom section of the Cover.





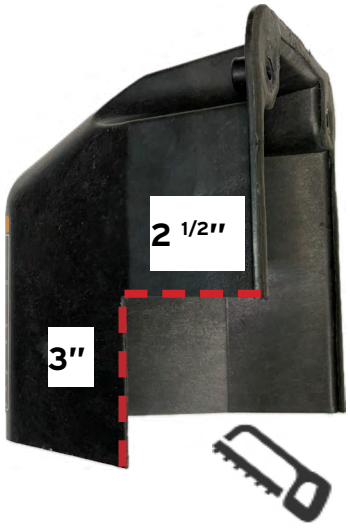


B. On the right side of the Cover measure 3" up from the bottom and mark a line. Make a 2nd line at the bass up 2 1/2" towards the middle of the cover. from

Secure the Cover to the Table with a Clamp and carefully cut this section out.

Now reinstall the RUN/TOW Switch aligning the mark on the Switch and Cover.







Finished Part

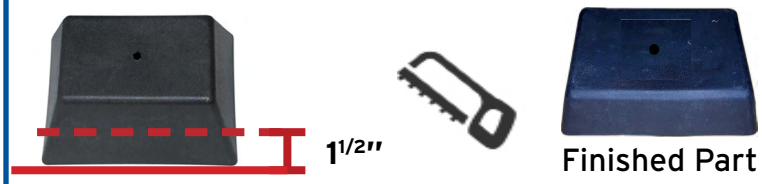
6 Controller Cover Modification

A. The Modified Controller Cover can now be reinstalled in the original location using the 2 upper bolts.

B. Reconnect the RUN/TOW Switch Connector.



Note: If the Cart has a Cover over the Solenoid and a Heavy Duty Solenoid is being installed this cover will need to be cut to fit over the Heavy Duty Solenoid.

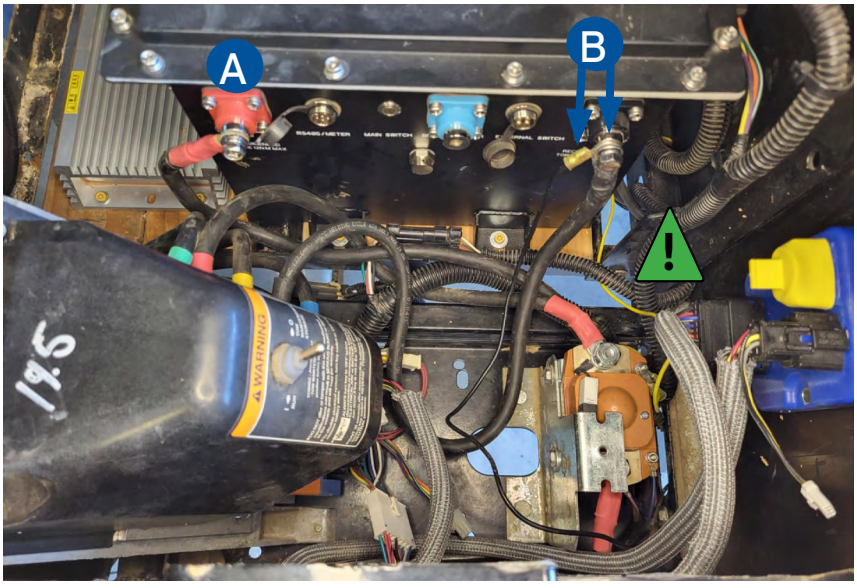


7 Reconnecting the System Power

A. Reconnect the Main Positive Cable to the Main Positive on the Battery.

B. Reconnect the Main Negative Cable along with the Small Ring Terminal from the Vehicle Specific Harness to the Main Negative on the Battery.
Note: Install the Ring Terminals smallest to largest with the largest against the Battery.

Note: The Cart Wiring may include a Positive and/or Negative Cable from the Charger and/or Accessories. They should be installed at this time. There location can be confirmed from the photo or note take at the beginning of the installation.



DO NOT Power Up the System this will be done after a final installation check!



This is the end of the TEEKON AC Kit Installation. Before re-assembling the Cart a Pre-Drive Test is recommended.

8 Pre-Drive Test Check List

BEFORE POWERING UP THE VEHICLE!
Check that all Cables and Connectors are secure and in the correct location.

A Cables & Connectors at the Controller

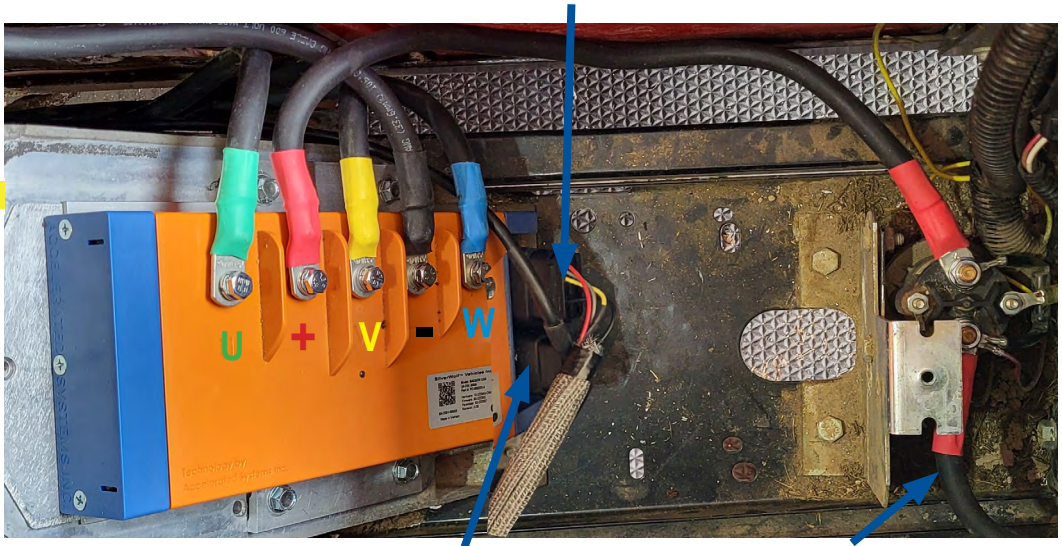
✚ Cable is on the Positive Controller Post

▬ Cable is on the Negative Controller Post

DO NOT SWITCH THESE CABLES!

Motor Phase Wires

U	Green
V	Yellow
W	Blue

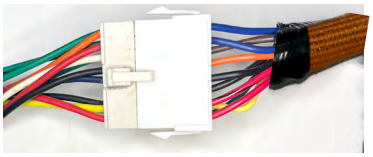




RUN/ TOW Connector



TEEKON Vehicle Specific Harness Connector



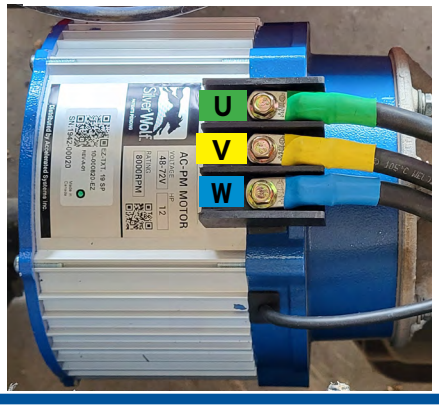
B GCM Connectors



TEEKON Main Harness Connector

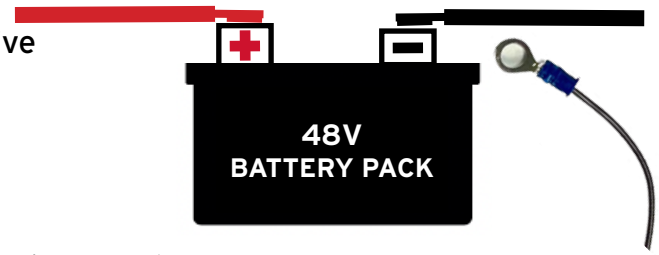
Vehicle Specific Harness Connector

C Motor Cables



E

Main (Red) Positive Cable



Main (Black) Negative Cable & Small Ring Terminal from Vehicle Specific Harness

8 Pre-Drive Test - Power Up

Before testing the Vehicle make sure the Rear Wheels are off the ground and safely supported with Automotive Jack Stands. The Front Wheels must be Chocked!

A 

Move the **RUN/TOW Switch to RUN**

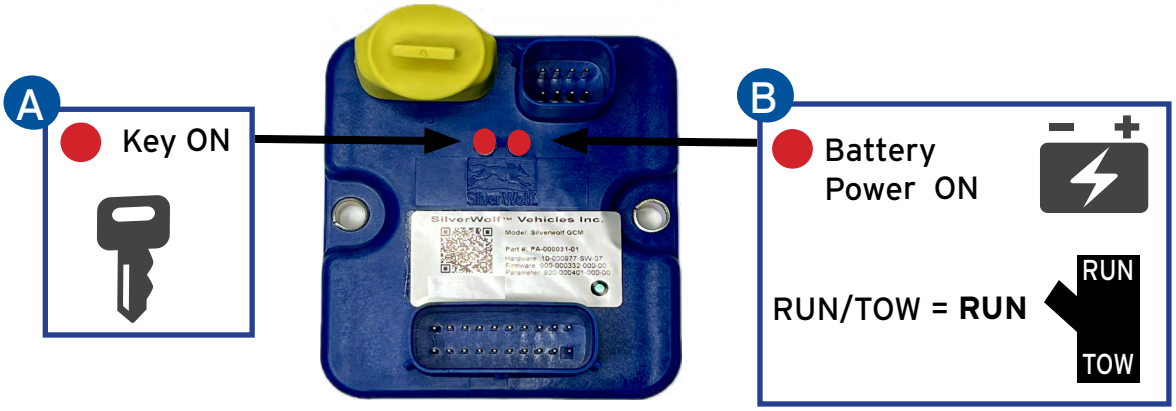
The Battery Power LED on the GCM will turn ON.

B 

Turn **ON** the **Key**

The Key ON LED will turn ON.

Note: The Solenoid should engage (click) when the Key is turned ON (this is normal behavior for the SilverWolf System.



With both Red LEDs ON and Solid proceed to the next steps.

LED Light Flashing = See Flash Code List in the Troubleshooting Section

To complete the pre-drive test and set up of the TEEKON AC System the SilverWolf App is required. Download and Register as a New User to complete the pairing and setup process.

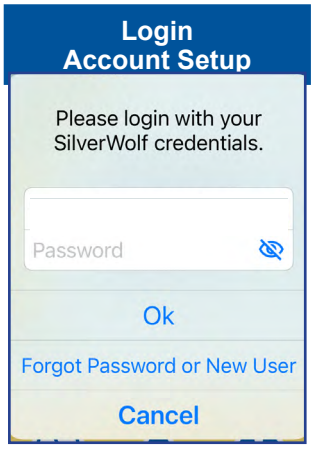
SilverWolf App - Pairing

Get the SilverWolf™ App at; Download on the App Store | GET IT ON Google Play

To complete the pre-drive test and set up of the TEEKON System

- Download the SilverWolf App.
- Open the App and Select "New User" to setup your User Credentials and register the TEEKON Kit.
- Create a Login using the e-mail address related to the Device being used to pair, then create a Password.
- Complete the registration.

Note: You do not need to select "New User" if you are already using the SilverWolf App with the Discovery 4wd Kit. The GCM will recognize the added Rear Motor & Controller and proceed to update the System to communicate with all 3 Controllers.



SilverWolf App - Pairing to the Vehicle

Once the App registration is complete open the SilverWolf App;

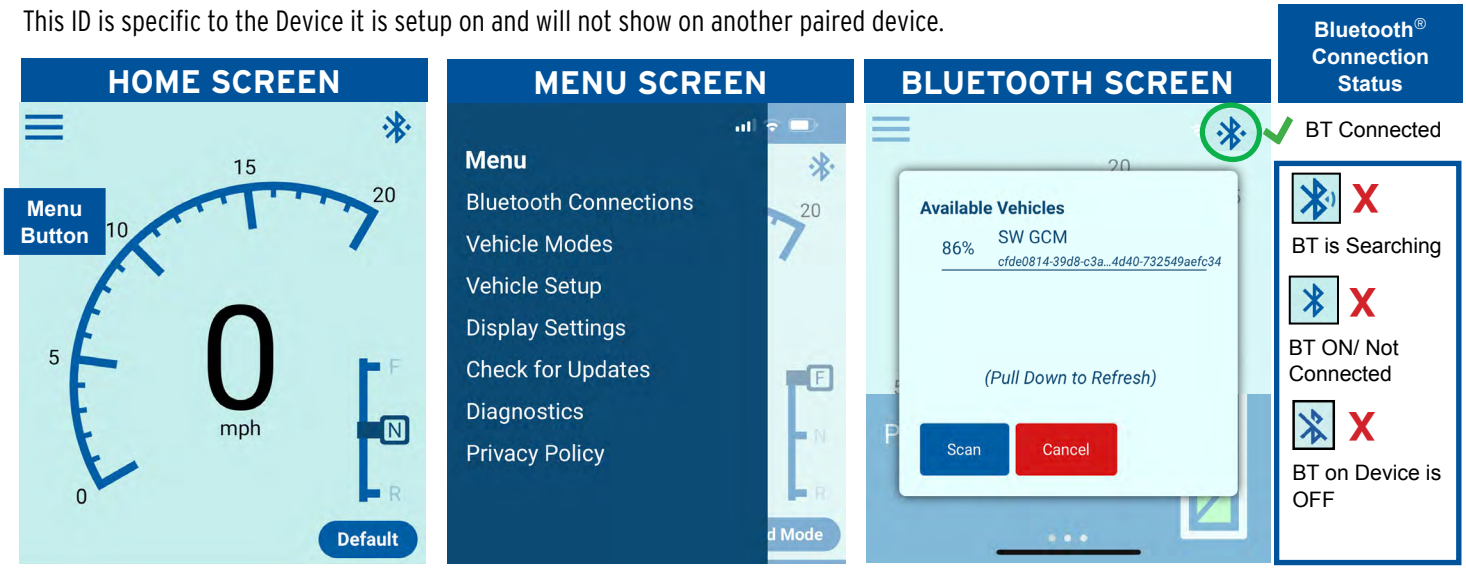
- Select the Menu Button ☰
- Select Bluetooth Connections to find the signal labeled "SW GCM"

Note: If the signal "SW GCM" does not show up select the Scan button to locate the Vehicle ID.

- Select the signal to connect to the Cart and follow the in App steps to complete the pairing process.

Note: The app will ask for Vehicle Type, Tire Size & Battery Type. For help or more details see the "Vehicle Setup" instructions under the SilverWolf App Features section in this Manual.

Note: The bluetooth® ID description (currently labeled "SW GCM" can be changed and given a specific ID. Such as "BlueCart 1"
Selecting the Edit Button (Android™) or Swipe Left (Apple™) to allow editing.
This ID is specific to the Device it is setup on and will not show on another paired device.



Vehicle has been CONNECTED | Vehicle has been DISCONNECTED **Note:** this will display for 3-5 secs after the Key is turned Off or On.

When the Key is turned on the Backup Buzzer will beep **1x** to confirm the Cart is ready to go.

Pre-Drive Test

This Pre-Drive Test must be done while sitting in the Driver Seat.

A. Move the Cart Switch to FWD - Press the Throttle - Confirm the Rear Wheels are turning Forward

B. Move the Cart Switch to REV - Press the Throttle - Confirm the Rear Wheels are turning in Reverse.

C. Use the SilverWolf App to confirm the Cart is working properly.

The Cart is now ready for a Test Drive!

Before performing a Test Drive check for any loose Wires or Parts that could get caught or damaged. Make sure the area around the Vehicle is Clear and proceed Slowly allowing time to get use to the extra power and speed!

GCM/Controller LED Flashing

TROUBLESHOOTING without the SilverWolf™ SMART PHONE APP

If the SilverWolf™ App is not being used or it will not connect, there are Red Lights on the Controller and the GCM which will indicate the status of the cart.

Note: Before contacting the dealer or SilverWolf™ for support, make sure that the Batteries have a full charge.

For SilverWolf™ Support contact support@silverwolf.com.

GCM (GOLF CART MODULE)- LED LIGHTS



LIGHT STATUS			STATUS DESCRIPTION	NEXT STEP
1	●	SOLID	• GCM Power = ON • RUN/TOW = Run	• Turn ON Key Switch
2	●	SOLID	• Key Switch = ON • Solenoid =Engaged	• Car is ready to Drive
1	○	OFF	• Key Switch = OFF • GCM Issue	• Turn on Key- Check Key / Wiring • Contact dealer
2	✹	FLASHING	Count # of Flashes See chart below	• Check SilverWolf App for Fault or Warning. • Contact dealer

✹ **Status Light = Flashing** *See Flash Code List below
LED (2) The Key (left side) will blink 2, 3 or 4 times, pause and then repeat when an error is detected.

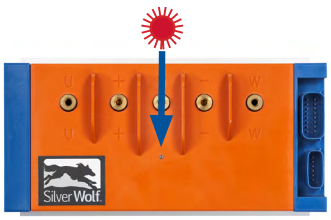
FLASHES	STATUS / DESCRIPTION	NEXT STEP
2	**There is an issue with the GCM or Battery.** This could be a configuration issue, such as incorrect battery configuration, or wrong parameter file loaded.	• Check for Updates • Confirm Battery Configuration
3	**There is a peripheral or Non- SilverWolf Component issue.** This occurs if the GCM detects an issue with a connected Switch, Throttle, Solenoid or other peripheral input or if that peripheral is configured incorrectly.	• Recalibrate the Throttle • Check the wiring of Throttle, FWD/ REV Switch,Key Switch, Solenoid and 4H/4L Switch
4	**There is an issue with a connected Motor or Controller.** - This could be a communication/Harness issue such as a Harness is damaged or loose. - It can indicate an issue with the Motor connected to that Controller - It can indicate that a configuration change in the Motor Controller settings is required.	• Check for Updates • Select "Update Controller Configuration" in the Setup Menu. • Check the Harness & Cables from the Motor to the Controller

SW CONTROLLER- LED Flash Codes

There is also a Red LED on the Controller that will flash if there is an error.

If the LED the Controllers is Flashing, count the # of flashes. This will be a 2 digit sequence with a pause between the 1st and 2nd #. i.e. 2 - 8.

If the SilverWolf App can not connect to the system note the flash code and contact the Dealer or support@silverwolf.com.

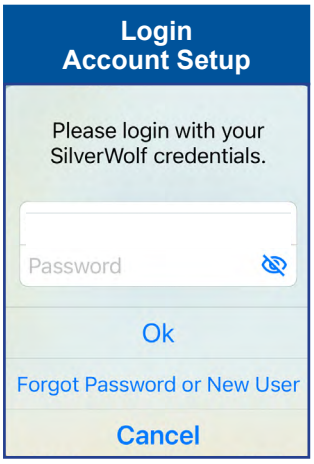


For more Troubleshooting support go to the support section at SilverWolf.com

SilverWolf App Set Up

New User

Get the SilverWolf™ App at; Download on the App Store | GET IT ON Google Play



To pair a Device/ Phone to the Cart via the SilverWolf App:

- Download the SilverWolf App.
- Open the App and Select "New User" to setup your User Credentials and register the TEEKON Kit.
- Create a Login using the e-mail address related to the Device being used to pair, then create a Password.
- Complete the registration.

Note: You do not need to select "New User" if you are already using the SilverWolf App with the Discovery 4wd Kit. The GCM will recognize the added Rear Motor & Controller and proceed to update the System to communicate with all 3 Controllers.

2nd Device or 2nd User

To pair a 2nd Device/ Phone to the same Car:

- Download the SilverWolf App.
- Open the App and Select "New User" to setup your User Credentials and register the TEEKON Kit.
- Create a Login using the e-mail address related to the Device being used to pair, then create a Password. Note: It can not be the same e-mail as an already paired Device.
- Complete the registration.
- **Note** Only 1 Device/ Phone can be connected at a time. The 2nd Device or User can only connect if the 1st one is disconnected.

Pairing to the Vehicle

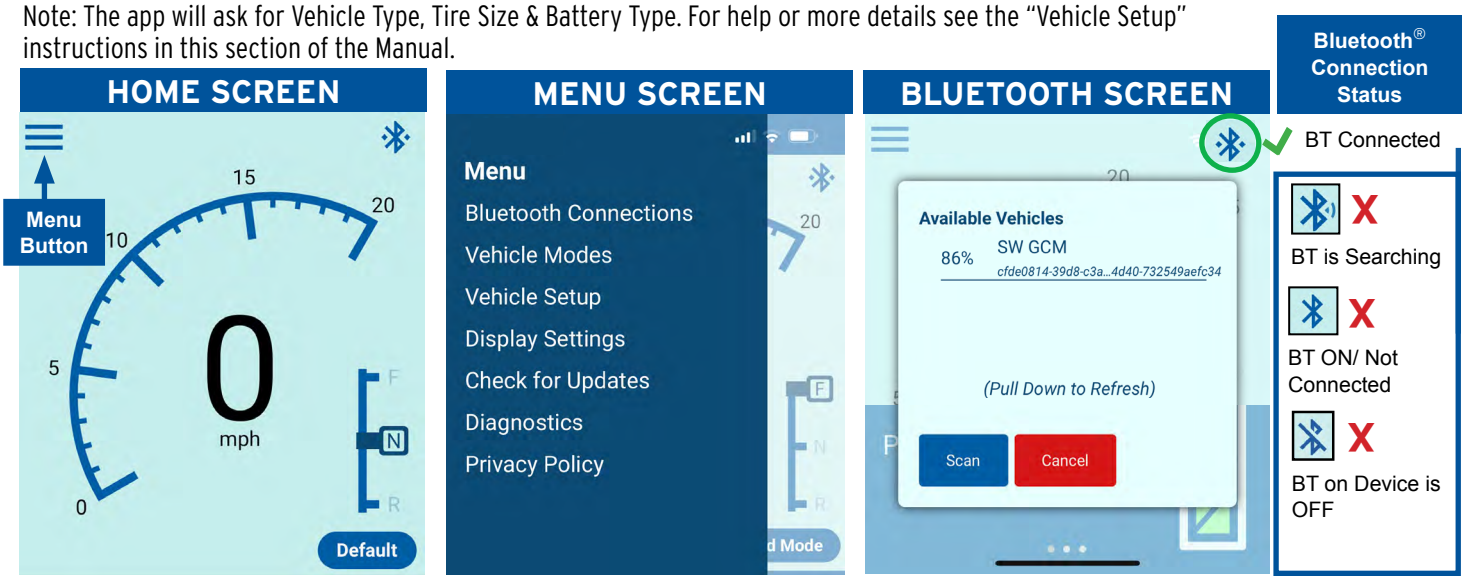
Once the App registration is complete open the SilverWolf App;

- Select the Menu Button
- Select Bluetooth Connections to find the signal labeled "SW GCM"

Note: If the signal "SW GCM" does not show up select the Scan button to locate the Vehicle ID.

- Select the signal to connect to the Cart and follow the in App steps to complete the pairing process.

Note: The app will ask for Vehicle Type, Tire Size & Battery Type. For help or more details see the "Vehicle Setup" instructions in this section of the Manual.



Vehicle has been CONNECTED | Vehicle has been DISCONNECTED **Note:** this will display for 3-5 secs. after the Key is turned Off or On.

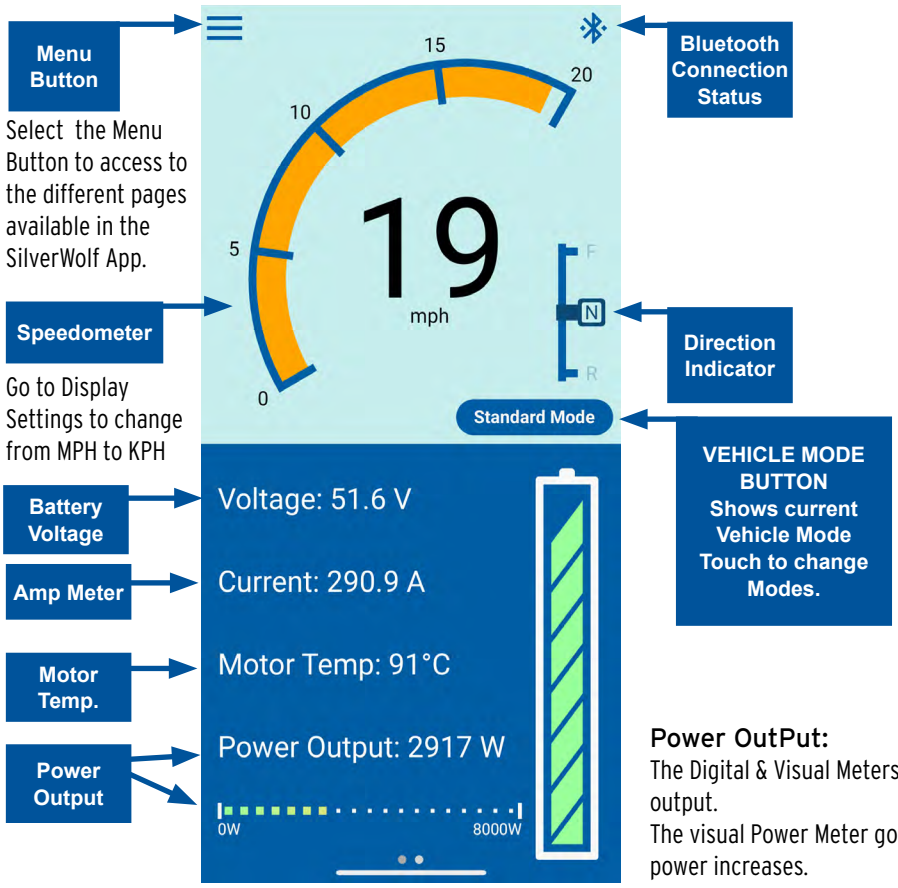
AutoConnect

The Vehicle will automatically reconnect or disconnect when the Key is turned ON or OFF.

This feature will only work with the paired Device, when it is in range and if another Device is not connected to it.

The Backup Buzzer will beep **2x** when connected.

HOME SCREEN

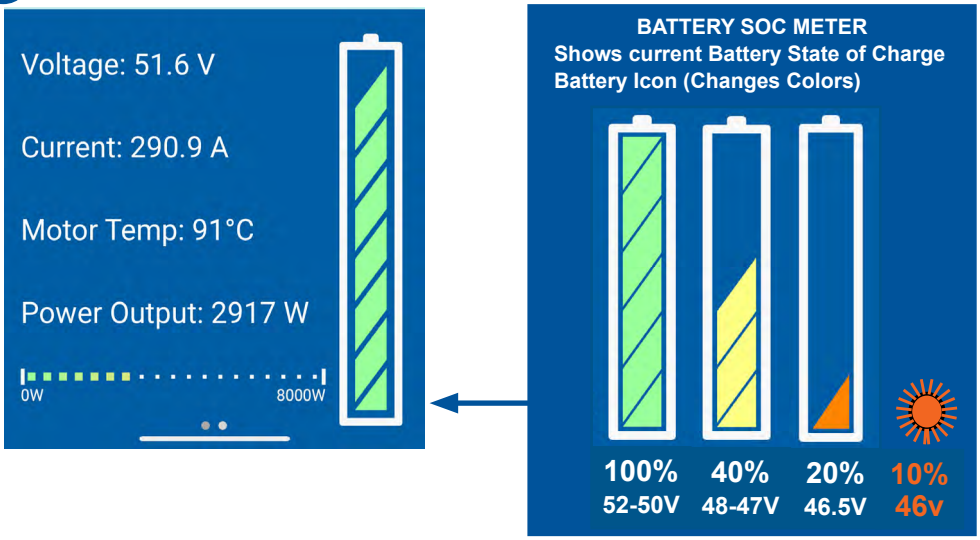


Power OutPut:
The Digital & Visual Meters show current power output.
The visual Power Meter goes from Yellow to Red as power increases.

Home Screen (Lower Screens)

On the lower half of the Home Screen swipe left to scroll through the various information Screens.

1 Vehicle Status

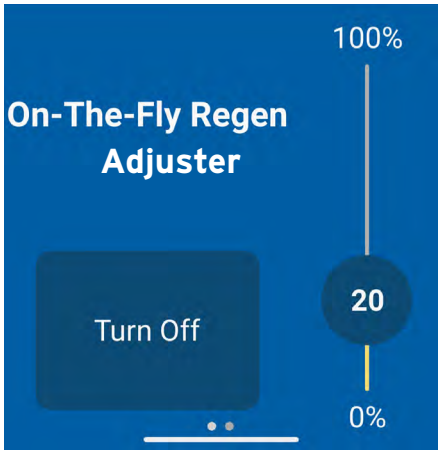


When the Battery Charge Icon goes Orange there is about 20% of the Charge left . When it starts to Flash Orange the Battery State of Charge is at about 10% and should be charged as soon as possible.

Note: The Battery State of Charge will vary depending on the condition and type of the Batteries.

Home Screen (Lower Screens)

2 On-The-Fly Regen Adjuster



SWIPE

On-The-Fly Regenerative Braking:

The Regen Electric Braking can be adjusted while the Vehicle is moving to help slow it down and can help in cases such as when going down hill where extra braking may be required.

How to use:

1. Swipe left at the bottom of the Home Screen to bring up the On-The-Fly Regen Braking Slider.
2. Select On to turn on this feature.
3. Then slowly slide the adjustment circle up to increase the Regen Braking or down to decrease the Regen Braking of the SilverWolf Motor(s).

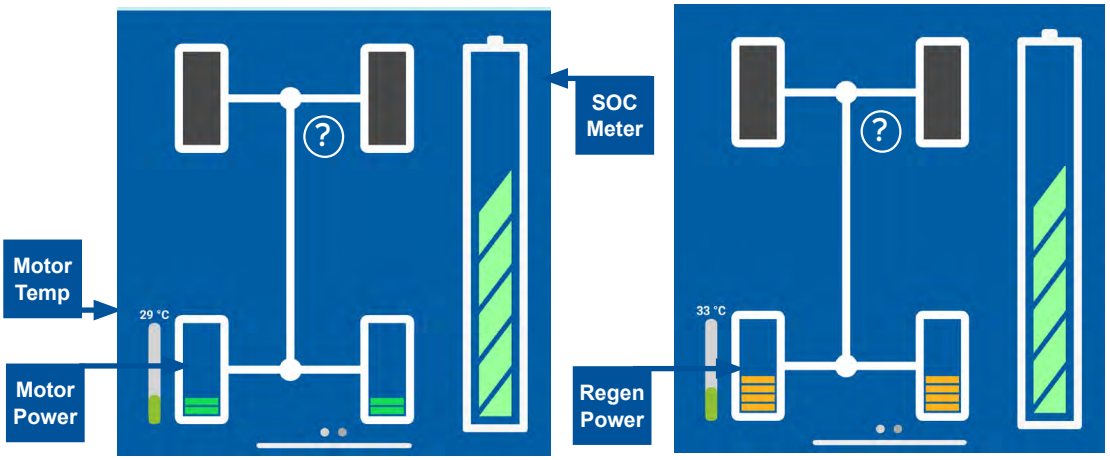
Note: to go back to the Original or Default Regen Braking setting touch the "Off" Button at the bottom of the screen.

OR

When the Key is Turned off & on the Regen Braking setting will revert back to the setting of the last Vehicle Mode it was in. I.e. "Default Mode.

Regenerative Braking does not replace the Vehicle's Original Mechanical Brakes! Always make sure the Mechanical Brakes are working properly and to the manufacturers specifications!

3 SilverWolf Motor Status



? No Motors installed. **Discovery 4wd Kit** available from **SilverWolf**

SWIPE

Motor or Regen Power is showing in the Wheel graphic with the Bars increasing as power is increased.

Green = Vehicle (Motor) in Forward Motion

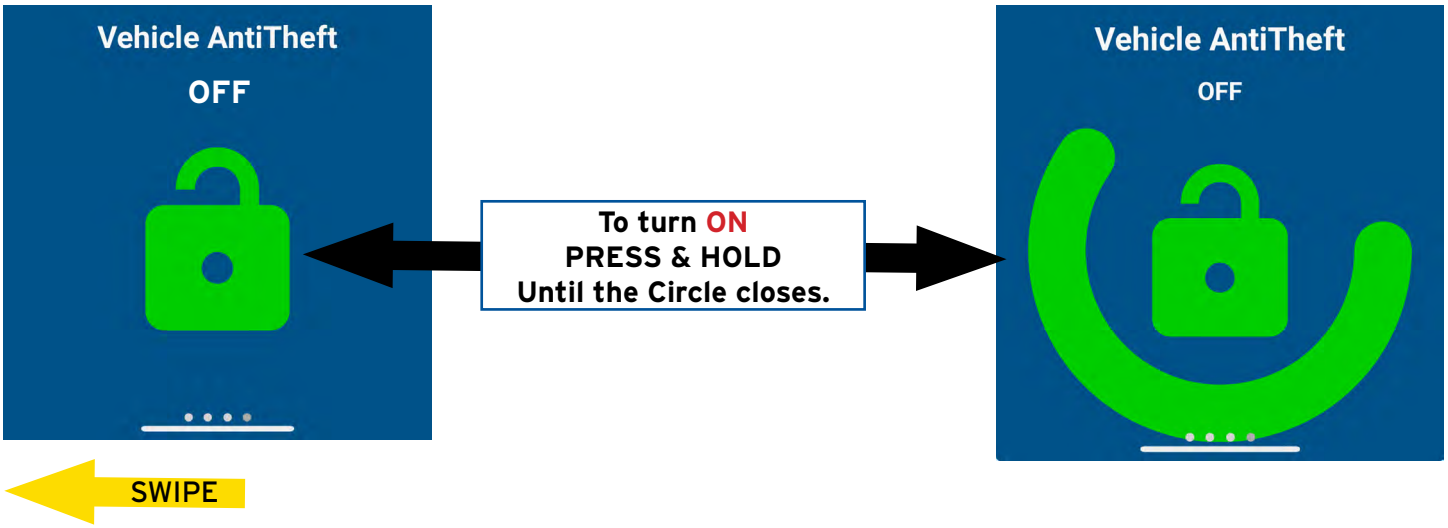
Orange= Vehicle (Motor) in Regen Braking Mode

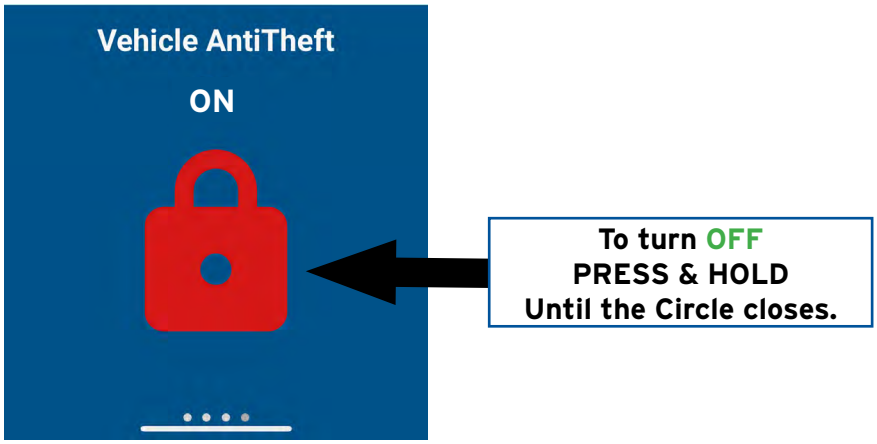
Home Screen (Lower Screens)

4 Vehicle AntiTheft Lock Out

This feature will not allow the SilverWolf Motor and Cart to move.

TEEKON: If movement is detected while Locked or Engaged the Cart will beep and actively Brake to limit speed to a maximum of 1 mph.



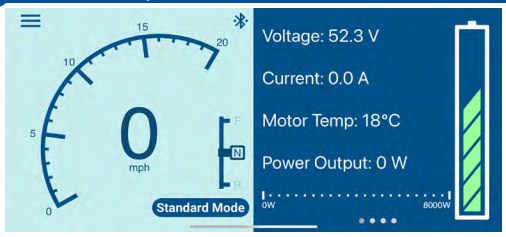


Vehicle AntiTheft Lock Out		
ENGAGED	ON	SYSTEM LOCKED
DISENGAGED	OFF	SYSTEM UNLOCKED

When Engaged this feature can only be Disengaged or turned OFF by the User who turned it ON. It can be Disengaged with another Phone but it has to be with the same User's Credentials / Login.



5 Landscape View

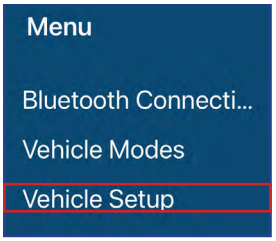


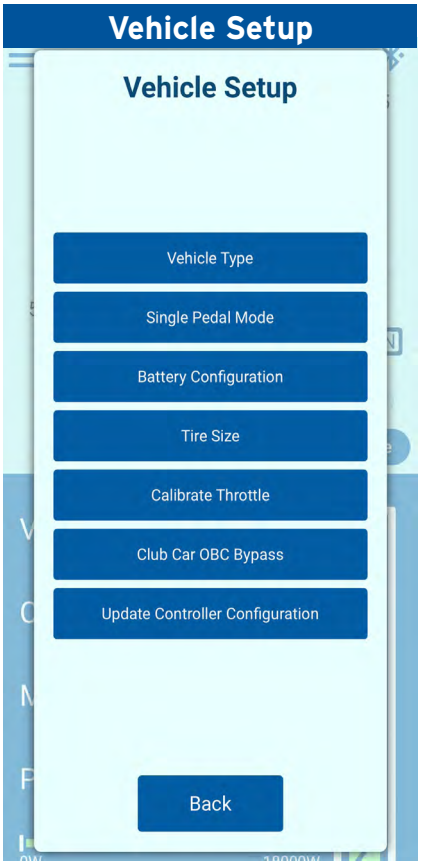
The Phone can be turned to allow the SilverWolf App to be viewed in Landscape

Vehicle Setup

Before using the Vehicle make sure to accurately set the Vehicle specifications as shown below! Selecting the incorrect settings can damage the Vehicle and/or cause serious injury!

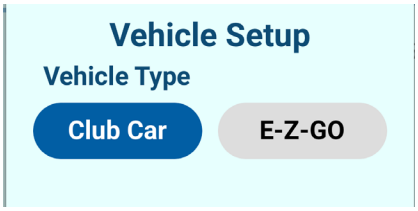
To change or update the Vehicle Settings open the Menu Screen and select Vehicle Setup. Choose the setting to be changed.





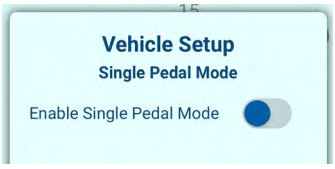
In the Vehicle Setup screen choose from the options shown below:

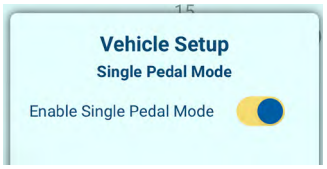
Vehicle Type



Select the Vehicle Manufacturer.

Single Pedal Mode





Single Pedal Mode allows the first 25% of the Pedal/Throttle to apply partial Regen Braking.

Single Pedal Mode Enabled:

The Pedal/Throttle has partial Regen Braking in the first 25% of movement.

Single Pedal Mode -OFF

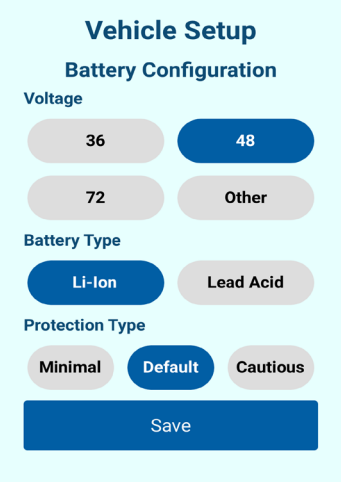
The Pedal/Throttle has no Regen Braking until it is completely released.

Changing the Regenerative (Motor) Braking setting in the advanced settings will affect this feature.

Note: This feature does not turn off when the Key is off and will need to be turned on and off here.

Vehicle Setup

Battery Configuration



Select the Battery Pack Voltage

Note: for Lithium Ion Batteries select Other and enter the Battery manufactures nominal rating (not maximum charge). i.e. 52.1v

Select the Battery Protection Settings.

Note: for Lead Acid Batteries there is only one setting.

For Lithium Ion Batteries choose the settings according to the Batteries performance.

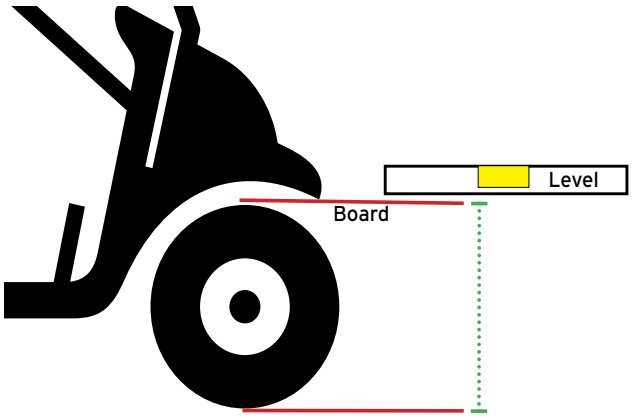
Minimal: provides the least amount of Battery Protection, allowing the Controllers to pull more current at a lower Battery Charge.
Note: This can damage the Battery(s) or Components if used with a Battery Management System (BMS) that can not properly control the Battery discharge.

Default: provides standard battery protection.

Cautious: provides the most amount of Battery protection, by more rapidly reducing the power limit as the Battery discharges.

Tire Size

Make sure to select the correct Wheel Size. Selecting the incorrect size will give an inaccurate speed reading.



For the most accurate Speed reading first make sure the tires are filled to the manufacturer specified PSI rating on the tire.
Then measure the height of the Wheel with a Tape Measure, Flat Board and a Level. Select the closest size.



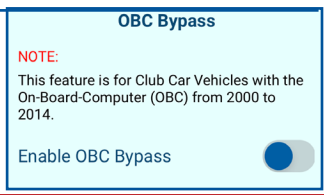
Calibrate Throttle

This will match the Vehicles Throttle range to the Controller for smoother performance. This is recommended when first pairing the Vehicle or if the Throttle is not responding not operating properly.

Club Car OBC Bypass

This option allows the On-Board-Computer (OBC) to be Bypassed without requiring a OBC Bypass Harness. The OBC will still need to be unplugged in order for this selection to activate.

* OBC ByPass Harness no longer required unless the original Charger Port is being used.



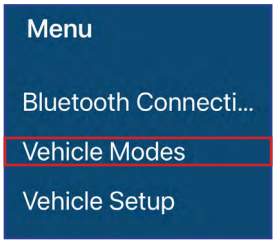
When enabled the Vehicle can operate/ move while the Charger is plugged in!

Update Controller Configuration

Only select if the SilverWolf App says a Controller Configuration is required.

Vehicle (PreSet) Modes

When using the SilverWolf™ App make sure the Device (Phone or Tablet) is mounted in the Vehicle! DO NOT pickup or hold on to the Device while operating the Vehicle!

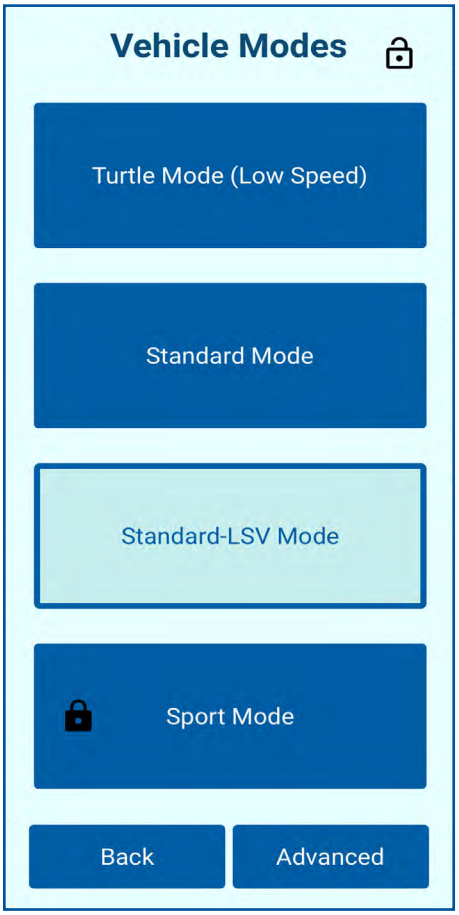


In the Vehicle Modes Screen there are 4 pre-programmed driving modes. 3 modes are included with the App.

The 4th mode-Sport Mode can be unlocked by contacting SilverWolf by e-mail at support@silverwolf.com

In order to access Sport Mode SilverWolf requires you to sign a Liability Waiver. Once it is received and confirmed by SilverWolf an update will be sent to your device that will allow you to unlock Sport Mode.

Simply select "Check for Updates" Note: this can take up 2 business days.



Turtle Mode (Low Speed):
Limit speed and acceleration. These setting are good for new drivers or indoor use.

Standard Mode:
Speed, acceleration and regen braking are set to match a Standard Golf Cart. Speed will top out at 19 mph. (with Standard 18" Tires)

Standard-LSV Mode:
Speed, acceleration and regen braking are set to that of a standard Low Speed Vehicle (LSV). Speed will top out at 25 mph. (with 23" Tires)

Sport Mode: (Requires unlocking by SilverWolf)
Settings are adjusted to give maximum speed and acceleration. This Mode will reduce Battery run time.

Advanced Mode:
New Modes can be added by selecting the Advanced Button at the bottom of the screen. Move the sliders to change the values and then save the changes as a new Mode.

Note: If the new settings are not saved as a new Mode the Vehicle will revert back to the last Mode it was in when the Key is turned OFF & ON.

For a description of each Advanced Mode Settings see the next page.

Note: The maximum Speed and Acceleration is limited to the unlocked Mode.

Lock Mode Unlocked Locked

Select the Lock Icon at the top right corner of the Vehicle Modes Screen to lock the Vehicle in the current mode. To unlock simply touch the Lock Icon again.

Note: When the Vehicle is locked in one of the modes it can only be unlocked by the User who turned it ON. It can be unlocked with another Phone but it has to be with the same User's Credentials/ Login or by contacting SilverWolf at support@silverwolf.com

Advanced Settings

Along with the pre-set Vehicle Modes there is an Advanced Setting Button at the bottom of Vehicle Modes Screen.

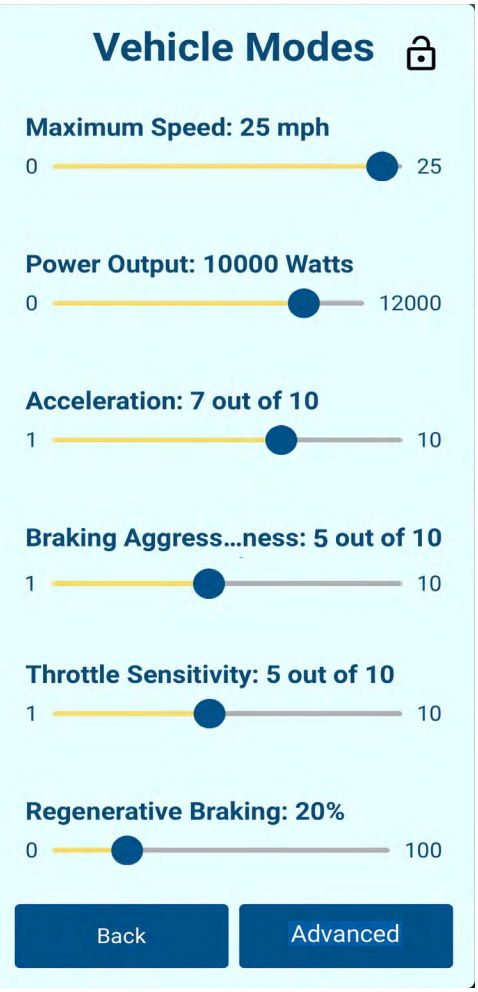
In this Mode there are 6 sliders that can be adjusted to change the performance of the Vehicle.
The new settings can then be saved as a New Mode with a new name i.e.: "Street Mode".

Note: The new settings must be saved as a new Mode or the Vehicle will revert back to the last Pre-Set Mode it was in when the Key is turned OFF & ON.

New Saved Modes can be deleted by pressing and holding that Modes Button till the message "Remove Mode" shows up.

Making changes or adjustments in the Advance Settings can significantly change how the Vehicle operates. When making changes or adjustments make sure to test the Vehicle in a flat open area away from people, pets, obstacles or any thing that could come in contact with the Vehicle.

Maximum settings will affect how the vehicle handles and reduce its range. It is recommended to keep settings in the low to mid range for best overall performance and Safety.



Maximum Speed:

This setting limits the Vehicle's Maximum speed from 4 mph to 25 mph.

Additional Speed is available with the Sport Mode.

Recommended Setting = 19 mph or lower depending on terrain and location.

Power Output:

This setting allows the Vehicle's Power to be adjusted, giving more power to the Motor when needed; such as on hilly terrain.

Note: The higher the Power Output the quicker the battery will discharge.

Recommended Setting = 6000-10000 Watts

Acceleration:

This setting will allow the Acceleration (throttle) to be changed, which will affect how fast the Vehicle will reach maximum speed.

Note: The higher the Acceleration the quicker the battery will discharge.

Recommended Setting = 4-6 depending on the location and terrain.

Braking Aggressiveness:

This setting will increase how quickly the Regen Braking reaches the Maximum Limit

Note: The Maximum Limit is set in the Regen Braking Setting.

Recommended Setting = 2-5 depending on the location and terrain.

Throttle Sensitivity:

This Setting controls the response time of the throttle; a low setting will make the Throttle less responsive and require it to be depressed further. This will be more noticeable when driving the Vehicle at more than 10 mph and when the Throttle is released and then pressed again.

Recommended Setting = 3-4

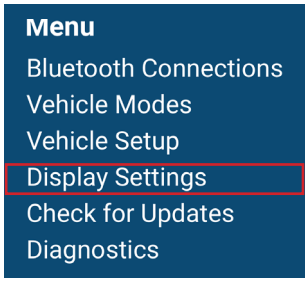
Regenerative (Motor) Braking:

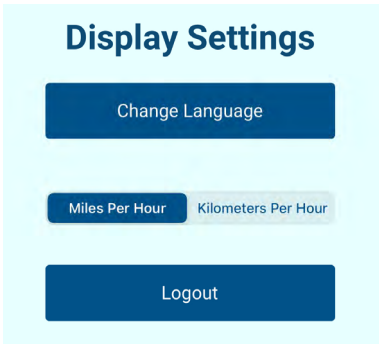
This setting also know as "Regen Braking" adjusts the maximum electric Braking Force. The higher the setting the harder the Vehicle will come to a stop.

Recommended Setting = 20% -50% depending on the location and terrain.

Regenerative Braking does not replace the Vehicle's Original Mechanical Brakes! Always make sure the Mechanical Brakes are working properly and to the manufacturers specifications!

Display Settings





Display Settings allows the User to change Language, Speedometer reading and Logout of the App.

Check for Updates

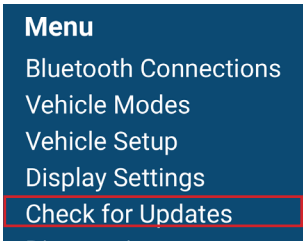
Checks for Online Updates to keep the firmware and configuration up to date.

Select "Check for Updates"

Note: In order to receive the updates, you will need to be connected to wifi or use your smartphone's data.

You do NOT need to be connected to the cart.

When connected to the cart select "Check for Updates" to complete the update.



Other App Features

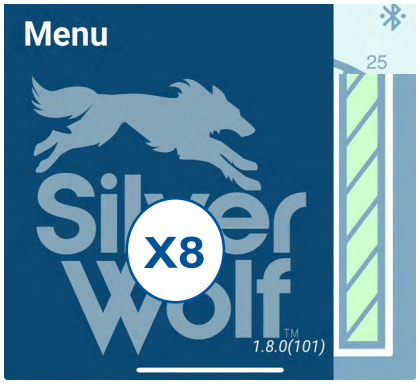
Demo Mode

Demo Mode: To access Demo Mode, tap the SilverWolf Log 8x to show the "Start Demo Mode" selection.

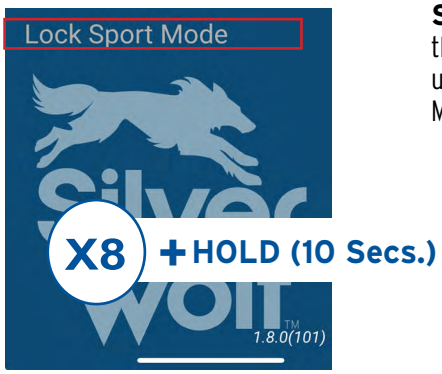
This is a demonstration tool to show how the Silverwolf™ Smart Phone App works when a Cart is not available. Changes made are not live and do not affect the Vehicle.

Note: When in this mode the Vehicle is disconnected and will not re-connect until the Demo Mode is stopped.

Start Demo Mode Stop Demo Mode



Sport Mode Lock



Sport Mode Lock: To access "Sport Mode Lock" tap the SilverWolf Log 8x then hold down in the same spot on the SilverWolf Logo for about 10 secs. The Sport Mode Lock selection will show up. This will allow Sport Mode to be re-locked and limit the speed and power to Standard LSV Mode'

Sport Mode Lock can only be Unlocked by SilverWolf. If this is selected the User will need to contact support@silverwolf.com to have it Unlocked!

BlueTooth® ID Rename

Note: The bluetooth® ID description (currently labeled "SW GCM" can be changed and given a specific ID. Such as "BlueCart 1"

Selecting the Edit Button (Android™) or Swipe Left (Apple™) to allow editing. This ID is specific to the Device it is setup on and will not show on another paired device.

Diagnostics

Warning Icons- Main Screen

The SilverWolf™ App includes a troubleshooting Icon as well as a more detailed diagnostics page.

On the Main Screen a **Warning Icon** will appear when there is a potential problem. Touching the Icon will reveal a description of the fault and the next steps that should be taken.

For a more detailed diagnostic go to the " Diagnostics" section in the Menu.

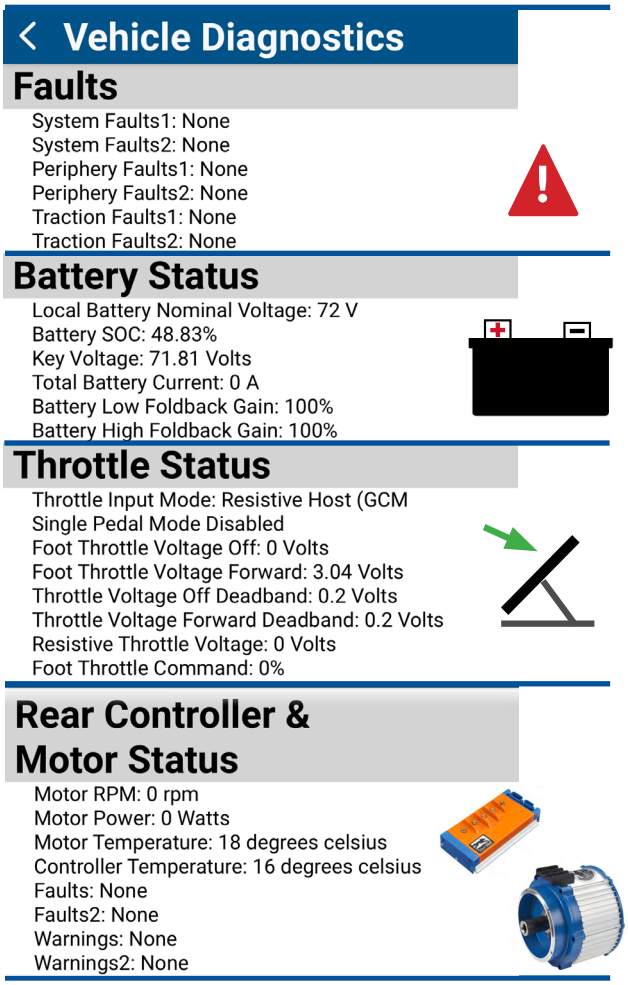
Select the Diagnostics Page and scroll down to see Vehicle Faults, Warnings and the status of the Main Components of the Vehicle.

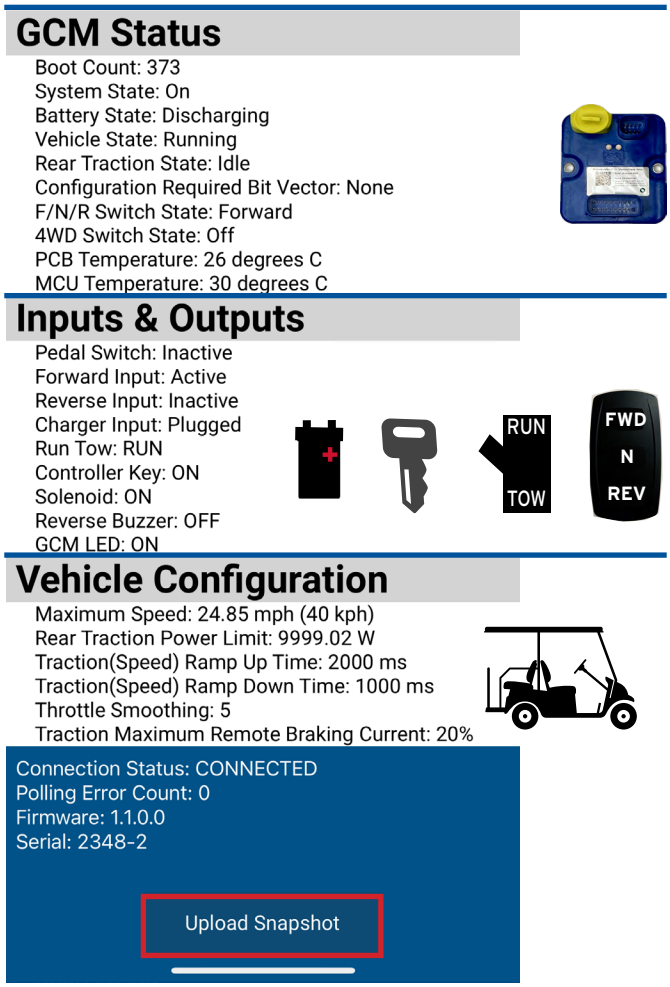
The diagnostics page shows the current Status of the Vehicle and it's Main Components.

For more help with troubleshooting select **"Upload Snapshot"** at the bottom of the Diagnostics page; this will send the current Vehicle diagnostic status to the Dealer or SilverWolf for further analysis by an authorized technician.

Send an e-mail to the dealer or to support@silverwolf.com to inform them of the "Uploaded Snapshot" or for further assistance.

Note: To select "Upload Snapshot" a Wifi connection or the use of Cellular Data is required.





SILVERWOLF 2 YEAR WARRANTY

SilverWolf™ Vehicles Inc. warranty obligations are limited to the terms set forth below:

SilverWolf™ Vehicles Inc. hereby warrants to the original purchaser of a new motor kit and/or accessories that they shall be free from defects in material and workmanship, under normal use and service, subject to the exclusions and limitations set forth below, for a period of two (2) years from date of original retail purchase to customer or End-User.
The purchaser must provide proof of the date of purchase with any warranty claim. If a defect exists, at its option, SilverWolf™ Vehicles Inc. will;

1. Repair the Product at no charge, at a place and location of its choosing,
2. Exchange the Product with a Product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original Product.
3. Refund the purchase price of the Product.

A replacement product/part assumes the remaining warranty of the original Product or ninety (90) days from the date of replacement or repair whichever provides longer coverage for you. When a Product or part is exchanged, any replacement item becomes your property and the replaced items become SilverWolf™Vehicles Inc.'s property. When a refund is given, your Product becomes the property of SilverWolf™ Vehicles Inc.

Exclusions and Limitations

SilverWolf™ Vehicles Inc.'s Limited Warranty does not cover the following items:

1. Products lost or damaged during shipment;
2. Abnormal strain, neglect or abuse
3. Installation and use of parts or accessories that are not genuine SilverWolf™ parts (unless approved by the SilverWolf™ Vehicles Inc. in writing)
4. Accident or collision damage
5. Damage to product due to misuse, accident, theft or fire
6. Modification or disassembly of motor, controller and/or any other original parts and components This limited warranty covers material & workmanship for the above-specified period.

Voiding of Warranty:
This warranty shall be void if the motors or accessories are abused or used in any unintended manner or if they show indications that they been altered in any way to cause them to perform outside of SilverWolf's™ specifications.
Motors kits which are installed on vehicles used for rentals or free public use are not covered under warranty.
Any modifications or alterations leading to changes in the stability or speed of the vehicle, can cause serious personal injury or death.

SILVERWOLF 2 YEAR WARRANTY

Disclaimer

This limited warranty is exclusive. SilverWolf™ makes no other warranty of any kind, expressed or implied. Any implied warranties of merchantability or fitness for a particular purpose which exceed the obligations or time limits stated in this warranty are hereby disclaimed by SilverWolf™ Vehicles Inc. and excluded from this warranty. The purchaser and SilverWolf™ Vehicles Inc. expressly agree that the remedy of the replacement or repair or the defective component thereof is the sole remedy of the purchaser. SilverWolf™ Vehicles Inc. makes no other representation or warranty of any kind.

No SilverWolf™ Vehicles Inc. Dealer, Distributor, Reseller, Agent or Employee is authorized to make any modification, extension or addition to this warranty.

No Consequential Damages
SilverWolf™ Vehicles is not responsible for direct, special, incidental, or consequential damages including, but not limited to, loss related to property, loss of use, loss of time, inconvenience, or any other economic loss.

How to Make a Warranty Claim:
To make a warranty claim under this limited warranty, you must present defective component to an authorized SilverWolf™ dealer. SilverWolf™ Vehicles Inc. will return the replacement item to the end user.

How to Contact SilverWolf™ Vehicles Inc;
60 Northland Dr. Unit 6
Waterloo, ON Canada N2V 2B8

Tel: 1-888-398-7078
E-mail: support@silverwolf.com
For parts and repair contact your local dealer. or support@silverwolf.com