



**ULTIMATE TOP DRIVES
MANUFACTURING, LLC**

CABRA OWNER'S MANUAL

Ultimate Top Drives Manufacturing, LLC

7451 FM 3009 Schertz, Texas 78154
210-651-5700

CABRA OWNER'S MANUAL

CONTENTS

INTRODUCTION	3
SAFETY	4
□ OPERATOR.....	4
□ ROLLOVER.....	4
□ CRUSHING HAZARD	4
□ QUAIL SEAT	6
□ ELECTROCUTION	6
□ STEERING	7
□ BRAKES	7
□ PARKING BRAKE	8
□ GUNS	8
□ SEAT BELTS	8
□ DRIVING THROUGH WATER	8
□ DOORS	8
CAPACITIES, DIMENSIONS, AND WEIGHTS	9
NORMAL OPERATIONS	10
□ IGNITION.....	10
□ SHIFTER	10
□ STEERING	10
□ ELECTRIC DRIVETRAIN.....	10
□ LITHIUM ION BATTERY PACK AND CHARGING	11
□ HYBRID SYSTEM WITH GENERATOR (IF EQUIPPED).....	13
□ 12-VOLT SYSTEMS	14
□ CAB LIFTING SYSTEM.....	14
□ DISPLAY	15
□ LIGHTS	16
□ WINDSHIELD WIPER.....	17
□ FOLDING WINDSHIELD AND FRAME	17
□ CONVERTIBLE TOP	17
□ BAZOOKA SOUND BAR (IF EQUIPPED).....	18
□ FEEDERS (IF EQUIPPED).....	19
□ RECOVERY WINCH (IF EQUIPPED)	19
□ GAME LIFT SYSTEM (IF EQUIPPED)	19
MAINTENANCE.....	21
□ GENERATOR (IF EQUIPPED).....	21

CABRA OWNER'S MANUAL

□ AXLE FLUID.....	21
□ SUSPENSION LUBRICATION	22
□ QUAIL SEAT DOORS AND CHARGE DOOR SENSORS	22
TROUBLESHOOTING.....	23
□ TOWING THE CABRA	23
□ VEHICLE WILL NOT TURN ON	23
□ VEHICLE WILL NOT RESPOND TO THROTTLE INPUTS (WILL NOT MOVE)	23
□ VEHICLE BARELY MOVES AND FEELS LIKE A PARKING BRAKE IS ON.....	24
□ VEHICLE WILL NOT GO OVER 12 MPH.....	24
□ STEERING SEEMS LOOSE.....	25
□ JACKING VEHICLE	26
WARRANTY.....	27
SUPPLEMENT MANUALS	
□ CUMMINS GENERATOR MANUAL	
□ BAZOOKA SOUNDBAR MANUALS	
□ RECOVERY WINCH MANUAL	
□ GAME WINCH MANUAL	



CABRA OWNER'S MANUAL

INTRODUCTION

Congratulations on the purchase of your Cabra! We hope it enhances the way you hunt and enjoy the outdoors.

Due to the unique design of this vehicle, it has significant differences in operation from typical cars, trucks, and other off-road utility vehicles. Some of the differences can have dire consequences if this vehicle is not operated properly.

READ AND BE FAMILIAR WITH ALL ASPECTS OF THIS OWNER'S MANUAL BEFORE OPERATING THIS VEHICLE.



CABRA OWNER'S MANUAL

SAFETY

- **OPERATOR** – The operator of the Cabra must be at least 16 years old and have a valid driver's license. They must not be under the influence of drugs or alcohol. The operator must ensure that all operating guidelines including maximum capacities are being followed.
- **ROLLOVER** – The Cabra has a higher center of gravity than a typical car or truck and is thus more prone to rollover. Extreme care must be taken to not turn sharply, especially at high speeds. This issue is even more critical with a full load of occupants and the cab raised up. Overloading the cab of the Cabra will drastically change the design center of gravity and make the vehicle much more prone to rollover.

Driving on extreme side to side slopes will also cause the vehicle to rollover. The guidelines for maximum side to side grade is as follows:



-CAB IN LOWEST POSITION: DO NOT EXCEED 22 DEGREES SIDE TO SIDE SLOPE.

-CAB ANYWHERE ABOVE THE LOWEST POSITION: DO NOT EXCEED 12 DEGREES SIDE TO SIDE SLOPE.

THE SIDE TO SIDE SLOPE IS INDICATED BY THE LEV-O-GUAGE ABOVE THE STEERING WHEEL.

***EVEN IF YOU DON'T EXCEED THE SLOPE GUIDELINES, THE CABRA CAN STILL ROLLOVER IF YOU MAKE SHARP TURNS. THE COMBINATION OF SIDE TO SIDE SLOPES AND SHARP TURNS IS VERY DANGEROUS.**

- **CRUSHING HAZARD** – Because the cab of the Cabra moves up and down, there is an inherent risk of crushing anyone or anything that is below the cab when it is lowering. By design there is a safety gap between the bottom of the cab and the base of the vehicle.

CABRA OWNER'S MANUAL

Never place objects on the base of the vehicle below the cab as this will diminish the safety gap.

IF ANYONE NEEDS TO BE UNDER THE CAB FOR MAINTENANCE OR ANY OTHER REASON, THE CAB SHOULD BE RAISED UP HIGH ENOUGH TO DEPLOY THE 4 SAFETY TUBE LOCKING PINS AND THE CAB SHOULD BE LOWERED DOWN TO REST ON THE PINS. This is accomplished using the remote cab raising/lowering switch located inside the charge door. The power does not have to be on to operate this switch.



Before each use of the Cabra, always make sure the hydraulic hose going into the hydraulic rams is free to move and that there is no chafing. There is a safety hose burst valve installed on the rams so that if the hydraulic hose breaks the valve closes and the cab will not come down. The only way to get the cab to come down in that event is to restore hydraulic pressure to the hydraulic rams.

NEVER ALLOW ANYONE TO GET UNDER THE CAB WITHOUT THE TUBE LOCKING PINS DEPLOYED. EVEN THOUGH THERE ARE SAFETY FEATURES BUILT IN, THE ONLY THING KEEPING THE CAB FROM CRASHING DOWN IS THE HYDRAULIC RAMS. IT IS POSSIBLE FOR THEM TO CRACK OR HAVE A SEAL BLOW OUT.

WHEN LOWERING THE CAB FROM THE DRIVER'S SEAT ALWAYS CHECK THE CAMERA VIEW ON THE DISPLAY TO MAKE SURE THERE ARE NO OBSTRUCTIONS BELOW. WHEN THE CAB IS LOWERING, THE IMAGE AUTOMATICALLY COMES UP ON THE DISPLAY, HOWEVER, IF YOU ARE PARKED AND SUSPECT THAT PEOPLE OR ANIMALS MIGHT BE BELOW, THE CAMERA IMAGE CAN BE BROUGHT UP BY PUSHING THE APPROPRIATE BUTTON ON THE DISPLAY BEFORE LOWERING.



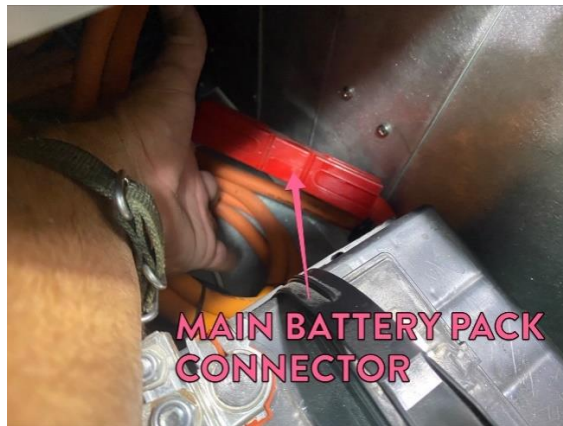
CABRA OWNER'S MANUAL

- **QUAIL SEAT** – No occupants under the age of 16 years old are allowed on the front quail seat and platform. All occupants shall wear a seatbelt while the vehicle is moving. **IF A PERSON STEPS OFF OF THE PLATFORM WHILE THE VEHICLE IS MOVING, THE FRONT TIRE CAN RUN OVER THEM.** The safety gates on the platform are designed to prevent this hazard. If the gate is opened while the vehicle is moving, the vehicle should go into regenerative braking and come to a stop on flat terrain. On sloping terrain, the driver will have to apply brake pedal pressure to come to a complete stop. If occupants are going to use the quail seat, the gates should be tested by opening the gates and making sure the vehicle will not move. The switches can get sticky over time and a quick spray of WD40 on the switch will make sure it operates properly.



- **ELECTROCUTION** – The Cabra utilizes a 20 KWH 96-volt DC battery pack. Touching the bare portions of those power cables or components can cause electrocution resulting in injury or death. The battery compartment is accessible below the access panel behind the quail seat. **THE BATTERY PACK CAN BE DISCONNECTED BY PULLING APART THE RED BATTERY CABLE CONNECTOR BELOW THE QUAIL SEAT. THE BATTERY PACK MUST BE DISCONNECTED BEFORE REMOVING THE BATTERY PACK ACCESS PANEL OR DOING ANY WORK ON THE 96-VOLT SYSTEM WHICH INCLUDES THE MOTORS AND CONTROLLERS.** Care must be taken any time the quail seat cover is raised. The front motor controller and front motor are accessible from here. The rear motor controller and motor are accessible from the rear compartment hatch. The battery must be disconnected before handling them. The main power cables running from the battery pack area to the rear motor controller run underneath the right-side dog boxes. **DO NOT DRILL, WELD, OR CUT ANYWHERE ON THE VEHICLE WITHOUT FIRST CONSULTING UTD. DOING SO COULD CAUSE A DIRECT SHORT ON THE 96-VOLT SYSTEM AND CAUSE ELECTROCUTION OR FIRE.**

CABRA OWNER'S MANUAL



- **STEERING** – The Cabra utilizes an electric over hydraulic power steering system. The shaft from the steering wheel goes through an electric power steering gearbox which boosts the input power of the driver turning the steering wheel. There is an electronic control unit next to the steering gearbox which senses the input torque. **CARE MUST BE TAKEN WHEN OPENING THE DASH PANEL TO NOT DISTURB THE SIGNAL WIRES WHICH COULD CAUSE UN-COMMANDED TURNING WHILE DRIVING. WORK BEHIND THE DASH PANEL SHOULD ONLY BE PERFORMED BY UTD TECHNICIANS OR THOSE TRAINED ON THE CABRA.** The output shaft of the electric power steering gearbox turns a hydraulic pump which then uses hydraulic fluid to actuate the hydraulic ram which turns the wheels. In the event of a loss of electric power you will still have steering, but it will require much more effort to steer.
- **BRAKES** – The Cabra utilizes regenerative braking. The position of the foot throttle determines the speed the motor controllers are constantly working to achieve. The brake pedal is not linked to this system. The regenerative braking is only determined by the position of the foot throttle. For example, if the driver pushes the foot throttle to 50%, the controllers will accelerate the vehicle to approximately 18 mph. If the driver then releases the throttle to 0%, the controllers will command regenerative braking which reverses the flow of electricity and charges the battery pack until the vehicle comes to a stop on flat ground. (If going downhill it will not come to a complete stop without pressing on the brake pedal.) **IF THE BATTERY PACK IS FULLY CHARGED AND THE VEHICLE IMMEDIATELY GOES DOWN A STEEP HILL, THE BATTERY MANAGEMENT SYSTEM (BMS) WILL PROTECT THE BATTERY PACK FROM OVERCHARGING AND WILL SIGNIFICANTLY REDUCE REGENERATIVE BRAKING. RUNNING THE CABRA IN HYBRID MODE WHILE THE STATE OF CHARGE (SOC) IS ABOVE 80% WILL ALSO REDUCE REGENERATIVE BRAKING. LOSS OF ELECTRICAL POWER TO THE MOTOR CONTROLLERS WILL COMPLETELY ELIMINATE REGENERATIVE BRAKING.** With little or no regenerative braking, the force required on the brake pedal is significantly more than a typical modern vehicle since it is a manual hydraulic brake system without any power assist.

CABRA OWNER'S MANUAL

- **PARKING BRAKE** – The parking brake is an electrically actuated brake mounted directly on each electric motor. The parking brake is only actuated when the shifter is in park, however, **IF THE SHIFTER IS MOVED TO THE PARK POSITION WHILE THE VEHICLE IS MOVING, THE PARKING BRAKE WILL NOT ENGAGE UNTIL THE VEHICLE COMES TO A COMPLETE STOP.** If the ignition is turned off, the parking brake is immediately turned on. Turning off the ignition while the vehicle is moving will damage the parking brakes.
- **GUNS** – Guns must be unloaded and secured in the scabbards or gun racks while the vehicle is moving.
- **SEAT BELTS** – All occupants must wear seat belts while the vehicle is moving.
- **DRIVING THROUGH WATER** – Do not drive through more than 18” of water. Doing so may get water into the generator or electrical systems which can cause significant damage.
- **DOORS** – Cab doors must be closed when the vehicle is moving. The doors are equipped with electronic locks for safety purposes. The latch is disabled when the cab is raised above the fully down position to prevent the opening of doors from an elevated position.

CAPACITIES, DIMENSIONS, AND WEIGHTS

- **MAXIMUM LOADS**

- 7 people maximum
- 5 people or 1,000 pounds in cab including gear (whichever is greater)
- 2 people or 500 pounds on quail seat and platform including gear (whichever is greater)
- 1,900 pounds total maximum weight capacity in vehicle (including people, gear, dogs, and harvested game)

OVERLOADING THE CABRA WILL DRAMATICALLY CHANGE THE CENTER OF GRAVITY AND MAKE THE VEHICLE MORE SUSCEPTIBLE TO ROLLOVER.

- Vehicle empty weight – 5,100 pounds
- Wheelbase – 129"
- Width –98" to steps – 93" with Steps up - 82" O/S tire to O/S tire
- Length – 221" with spare tire – 213" w/o spare tire
- Cab down height – 93" – 121" with convertible top up
- Cab up height – 129" – 157" with convertible top up
- generator fuel capacity – 15 gallons – (Use unleaded gasoline with a minimum octane rating of 87 and less than 10% ethanol or 5% methanol)
- Hydraulic power unit – 5-quart capacity – fill to 4 quarts with cab **DOWN**

NORMAL OPERATIONS

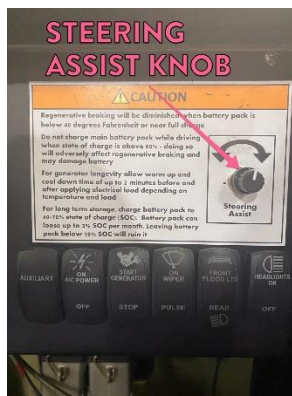
- **IGNITION** – The Cabra utilizes a 3-position switch to power up the vehicle. You must turn the key all the way to the right until the display comes on, then release the key which will spring back to center and stay on. Turn the key all the way to the left to turn off.

If the Cabra is left on for 15 minutes drawing less than 5 amps, it will automatically turn off to protect from accidentally draining the battery pack. If this occurs, simply turn the key all the way to the right again to wake it up.

- **SHIFTER** – The shifter is a 3-position shifter with park, reverse, and drive. In the park position, the motor controllers are in neutral and the parking brake is on. In the reverse or drive position, the parking brake is automatically disengaged. Since there is no typical transmission, shifting while moving will not damage the vehicle, however, **IF THE DRIVER SHIFTS GEARS FROM FORWARD TO REVERSE OR REVERSE TO FORWARD WHILE APPLYING THE FOOT THROTTLE, THE CABRA WILL VIOLENTLY STOP AND GO THE OTHER DIRECTION.**

Shifting into park while moving will not damage the vehicle but **THE PARKING BRAKE WILL NOT COME ON UNTIL THE VEHICLE COMES TO A COMPLETE STOP.**

- **STEERING** – The steering system utilizes electric power assist. The amount of assist can be adjusted with the small knob to the right of the steering wheel. The best position for typical driving is around 50% assist. 100% assist should only be used while turning in tight spots. Leaving the assist at 100% with lots of turning could overheat the unit and decrease or even stop all assist. If the assist shuts down completely, it can usually be reset by turning the ignition off and back on. When driving at high speeds, turn down the assist so that the steering is less sensitive.



- **ELECTRIC DRIVETRAIN** – The Cabra utilizes an electric drive train which consists of an electric motor on each axle. Each motor has its own controller and these controllers are

CABRA OWNER'S MANUAL

constantly communicating with each other to keep their speed synchronized to improve traction in muddy or loose terrain. The Cabra drives a little differently than typical internal combustion engine vehicles. The position of the foot throttle determines the speed the motor controllers are targeting to achieve. When the driver takes their foot off the throttle the controllers will begin slowing the vehicle using regenerative braking. Under normal conditions the foot brake is hardly used unless trying to stop fast or going down a steep hill. **IN SOME CASES, REGENERATIVE BRAKING CAN BE DIMINISHED SO THE DRIVER SHOULD ALWAYS BE READY TO USE THE FOOT BRAKE IF NEEDED.**

- **LITHIUM ION BATTERY PACK AND CHARGING** - The most expensive component in the Cabra is the battery pack. There is a battery management system (BMS) installed which constantly monitors multiple parameters of the battery pack and controls other components in the Cabra to protect the battery pack. Multiple diagnostic pages are available to the user on the display. If the Cabra does not seem to drive normally, contact UTD and we can usually diagnose over the phone while the user is looking at the diagnostic pages.

THE CABRA SHOULD NEVER INTENTIONALLY BE DRIVEN BELOW 5% STATE OF CHARGE (SOC). At 5% the BMS will significantly reduce power output and shut down if it gets too low. Leaving the battery pack at a low SOC will damage the pack.

The Cabra can be charged at 120V or 240V. At 120V it will take approximately 13 hours to charge to 95% from 5% SOC. At 240V it will take a little over 3 hours to charge to 95% from 5% SOC.

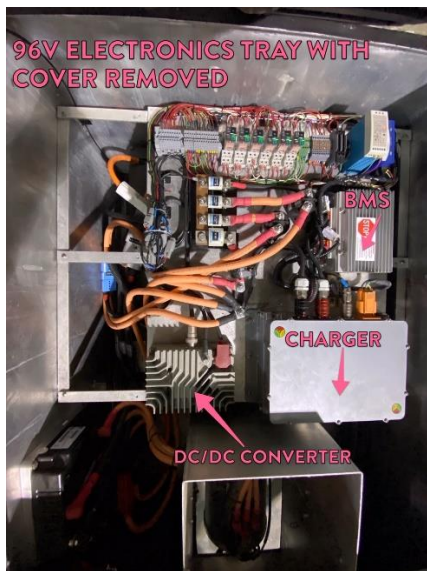
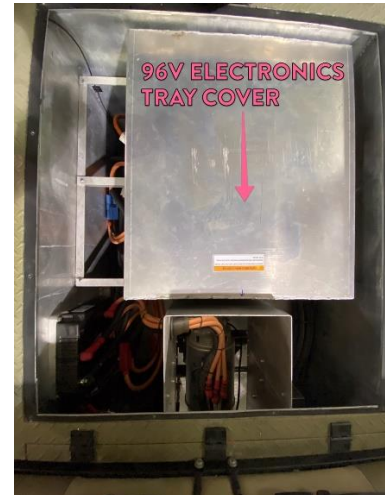
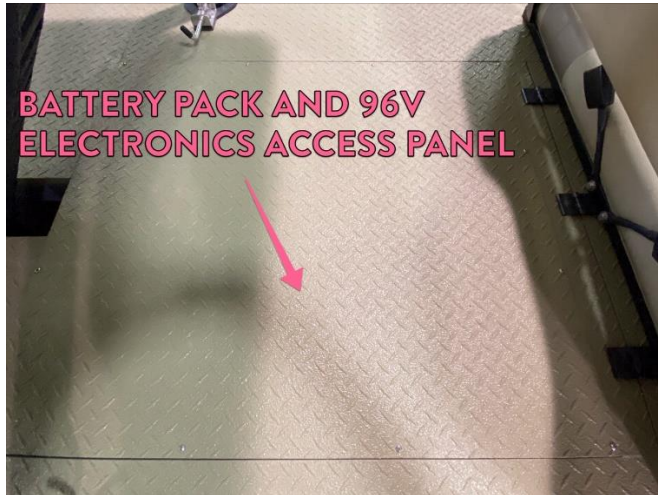
The full state of charge on the Cabra is de-rated to 97% to increase the longevity of the battery pack.

When storing the Cabra for long periods of time it is best to leave it with a 40-70% SOC and not leave it plugged in. The Lithium Ion batteries maintain their charge state extremely well and should not lose more than 3% SOC per month. **LEAVING THE BATTERY PACK AT FULL CHARGE CAN DIMINISH THE LONGEVITY OF THE PACK AND LETTING THE PACK FALL TO 0% SOC WILL RUIN THE BATTERY PACK.**

Charging is achieved by using one of the supplied adapters to plug into a 120V or 240V outlet. **DO NOT USE ANY OTHER ADAPTERS THAN THOSE SUPPLIED WITH THE VEHICLE AS DOING SO CAN CAUSE DAMAGE TO THE VEHICLE.** If you need a different adaptor, contact UTD, and we can probably make you one.

CABRA OWNER'S MANUAL

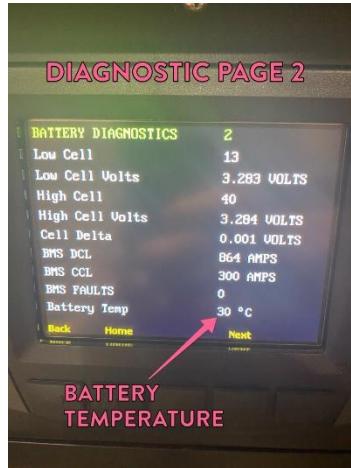
The charge door in the Cabra has a safety switch which will force the motor controllers into neutral so the Cabra cannot accidentally be driven when it is plugged in. **PERIODICALLY CHECK TO MAKE SURE THE SAFETY SWITCH DISABLES DRIVING AS THIS SWITCH CAN GET STICKY. A SPRAY OF WD40 WILL LOOSEN UP THE SWITCH.**



COLD WEATHER OPERATIONS – The BMS constantly monitors the temperature of the battery pack. If the battery pack gets below 40 degrees Fahrenheit, it will start to limit the amount of charge it will take and will not allow charging when it is below 32 degrees Fahrenheit which affects regenerative braking. If the battery pack gets below 0 degrees Fahrenheit, the BMS will not allow discharge. This is usually not an issue in climates like Texas because the act of charging and discharging will raise the battery temperature above the ambient temperature but if the Cabra is left outside in sub-freezing

CABRA OWNER'S MANUAL

temperatures, the battery pack will have to warm up by driving before it will allow charging.

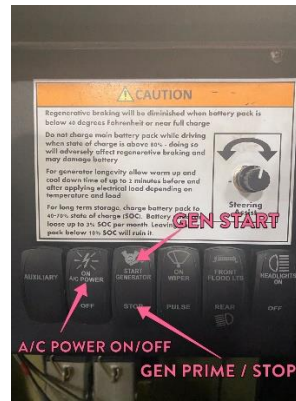


- **HYBRID SYSTEM WITH GENERATOR (IF EQUIPPED)** – The Cabra is equipped with a 7,000-watt Cummins generator which can charge the battery pack while driving or parked if there is no electrical power available in a remote location. The power output of the generator can also be used to power electric tools and appliances in remote locations. **DO NOT TRY TO RUN ANY OTHER TOOLS OR APPLIANCE WHILE CHARGING AS THIS WILL OVERLOAD THE SYSTEM.**

To charge the Cabra with the generator make sure the charging cord is plugged into the generator output panel and the breaker switch on the panel is on. Start the generator with the generator start switch on the dash panel. If the generator has not been started recently, push the bottom of the switch for a few seconds first to prime, before pushing the top of the switch to start. Let the generator warm up for a minute or two and then turn on the A/C power switch - this energizes the generator output panel. Check the display to make sure “hybrid mode” is indicated. Now the generator is charging the battery pack. **DO NOT DRIVE IN HYBRID MODE WHEN THE SOC IS ABOVE 80% AS THIS WILL ADVERSELY AFFECT REGENERATIVE BRAKING AND MAY DAMAGE THE BATTERY PACK.** It is fine to charge with the generator above 80% SOC as long as the Cabra is not moving. Once full SOC is achieved it will automatically stop charging but the generator will keep running.

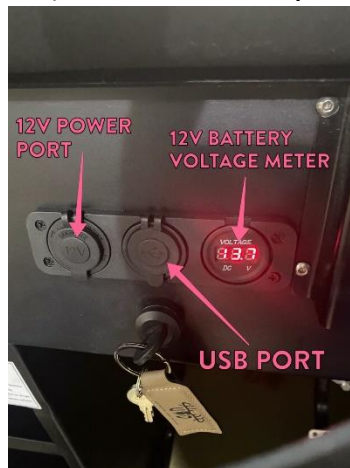
PLAN YOUR TRIP. A full SOC will go approximately 30-35 miles under normal driving conditions. The generator provides enough power output to drive the vehicle an average of 11-13 MPH. When driving faster, the SOC will be slowly diminished, and when driving slower, the SOC will slowly increase. Typical use is to run the generator while driving fast to get to the area you want to hunt and turn off the generator while driving slowly when stealth is needed. If you do not need to drive more than 30 miles before being able to plug in, you do not need to use the generator at all.

CABRA OWNER'S MANUAL



READ THE CUMMINS GENERATOR OWNER'S MANUAL IN THE SUPPLEMENTS BEFORE OPERATING.

- **12-VOLT SYSTEMS** – All other Cabra electrical systems (besides the drivetrain and generator) run on 12-volt power. The main 96-volt battery pack powers a DC/DC converter which converts the 96 volts down to 12 volts. This works like an alternator on an internal combustion engine. The converter puts out 1,000 watts at 12 volts DC which is sufficient to handle all the constant demand power requirements on the Cabra. When power is on, it is constantly charging the 12-volt battery which is in the compartment below the quail seat. When more than 1,000 watts is required (such as when raising the cab or using one of the winches) the 12V battery steps in to handle the peak loads.



- **CAB LIFTING SYSTEM** – The cab of the Cabra is raised and lowered hydraulically. There is an electrically operated hydraulic power unit in the rear compartment of the vehicle. There are 2 rocker switches that control the raising and lowering of the cab. One switch is on the generator output panel inside the charge door - that switch does not need vehicle power to be on to operate. There is also a rocker switch on the shifter console. Vehicle power must be on for that switch to operate. To raise the cab, push the top of the rocker switch. This pumps fluid from the tank in the hydraulic power unit into the lifting

CABRA OWNER'S MANUAL

hydraulic rams and raises the cab. To lower the cab, push the bottom of the rocker switch which opens a valve in the hydraulic power unit which allows gravity to lower the cab and return the fluid to the tank. **DO NOT FILL THE TANK ON THE HYDRAULIC POWER UNIT WITH THE CAB RAISED. WHEN THE CAB LOWERED IT WILL OVER FILL THE TANK AND BLOW HYDRAULIC FLUID INTO THAT COMPARTMENT.**

WHEN LOWERING THE CAB FROM THE DRIVER'S SEAT ALWAYS CHECK THE CAMERA VIEW ON THE DISPLAY TO MAKE SURE THERE ARE NO OBSTRUCTIONS BELOW. IF YOU ARE PARKED AND SUSPECT THAT PEOPLE OR ANIMALS MIGHT BE BELOW, THE CAMERA IMAGE CAN BE BROUGHT UP BY PUSHING THE APPROPRIATE BUTTON ON THE DISPLAY BEFORE LOWERING.

When the cab is raised anywhere above the fully down position a magnetic switch is opened which does two things: (1) the speed is governed to 12 MPH and (2) the electronic cab door latches are disabled.

There is a relief valve in the hydraulic power system that will relieve pressure if the cab is significantly overloaded and will not raise the cab.



WATCH OUT FOR POWER LINES – BECAUSE OF THE HEIGHT OF THE CABRA, THE VEHICLE OR PEOPLE COULD COME INTO CONTACT WITH LOW HANGING POWER LINES WHICH COULD CAUSE SERIOUS INJURY OR DEATH.

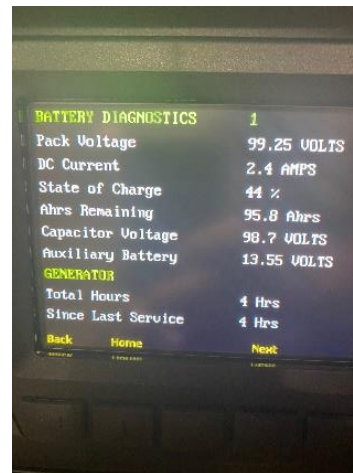
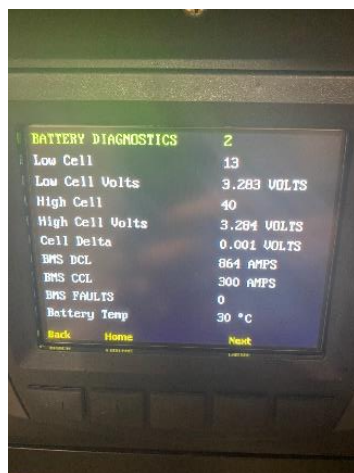
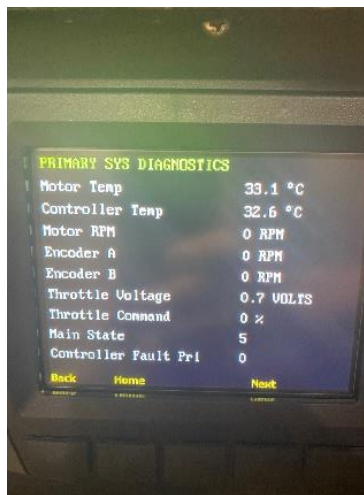
BALANCE THE LOAD IN THE CAB – If the weight in the cab is significantly unevenly distributed, it will cause the cab to sit out of level. In this state, the support tubes can rub against the guide tubes while raising and lowering and scratch the paint on the tubes. However, since they are aluminum, the damage is only cosmetic.

- **DISPLAY** – The main page of the display in the Cabra shows all pertinent driving information such as speed, state of charge, main battery pack voltage, amperage draw,

CABRA OWNER'S MANUAL

generator fuel level and more. Upon turning on the vehicle the status should say “system ok”. If the generator is on and charging it will say “hybrid mode”. If the cab is raised it will say “cab raised” and the speed is governed to 12 MPH and the electronic door latches are disabled. Other status indicators may describe a fault in which you should contact UTD for troubleshooting.

There are multiple diagnostic pages which help a qualified technician troubleshoot issues or problems. In the event there are problems, consult a UTD technician to walk you through them over the phone.



- **LIGHTS** – There are two light switches on the instrument panel to the right of the steering wheel. One switch turns on and off the headlights. The other rocker switch turns on the front light bar with the top of the switch and the rear bed lights with the bottom of the rocker switch.

There is also an interior light on the Bazooka sound bar if equipped. See below for operating instructions.

CABRA OWNER'S MANUAL

- **WINDSHIELD WIPER** – The windshield wiper switch is on the instrument panel to the right of the steering wheel. The top of the rocker switch turns on the wiper for continuous use. The bottom of the rocker switch is spring loaded momentary switch which operates the wiper for as long as you hold the button. There is a magnetic switch on the windshield frame that opens and disables the wiper when the windshield is folded down.
- **FOLDING WINDSHIELD AND FRAME** – The windshield frame can be folded up with or without the windshield. The windshield frame must be up to use the convertible top. To raise the frame, remove the thumb screws from each side of the dash cap, pull the windshield up, and replace the thumb screws tightly. It can take a good bit of effort to pull the windshield out of the receiver sockets when it is down. The windshield can be raised and lowered with the frame up by opening the black windshield latches. When mating the windshield to the frame make sure the latches are open so that the windshield seats properly into the frame.

When raising or lowering the windshield, make sure the shooting rail is collapsed to its lowest position because it will hinder holding onto the windshield all the way down to where it sits in the sockets.

***NEVER TRAILER THE CABRA WITH THE WINDSHIELD FRAME AND CONVERTIBLE TOP UP.**



- **CONVERTIBLE TOP** – To raise the top, remove the thumbscrews from the side of the cab, raise the top to vertical and put the thumbscrews in the other holes on the side of the cab. Always make sure the thumbscrews are tight, to prevent loss. Unfold the top and pin it to the windshield frame with the 3/8" pins while moving the other pinned joint slightly up and down to get the pins lined up with the receiver holes on the windshield frame. Once the front of the top is pinned to the windshield frame, insert the pins in the other pinned joint. To lower the top, reverse the process. Always make sure to secure the tube frame of the top to the 3/8" thick aluminum side pieces to keep the top secure in the wind.

CABRA OWNER'S MANUAL



- **BAZOOKA SOUND BAR (IF EQUIPPED)** – The Bazooka sound bar is located in front of and below the rear cab bench seat. The controller is on the dash panel and there is also a loose remote controller. The sound bar can also be controlled by an iphone app.

DETAILED INSTRUCTIONS FOR THE BAZOOKA SOUND BAR ARE FOUND IN THE SUPPLEMENTAL MANUALS.

- **BATTERY COMPARTMENT HEATER (IF EQUIPPED)** – The available battery compartment heater is activated by the BMS. The heater will turn on when vehicle power is on or the charge cord is plugged into an energized outlet, and the battery pack gets below 40 degrees Fahrenheit. When leaving the Cabra out in sub-freezing weather leave the charge cord plugged into an energized outlet so that the battery pack will be kept warm and ready for use.

There is a switch on the battery heater. This switch should be left in the “HIGH” position at all times.



CABRA OWNER'S MANUAL

- **FEEDERS (IF EQUIPPED)** – There are two separate 100# feeders built into the rear of the vehicle. To fill the feeders, lower the tailgate and raise the cover. There are two momentary rocker switches on the shifter console which activate the feeders.
- **RECOVERY WINCH (IF EQUIPPED)** – The Cabra is equipped with a 5000# portable recovery winch. This winch is intended for light duty recovery and is light enough to be moved and installed on the front or the rear receiver hitch of the Cabra. Simply install in either receiver hitch and plug it into the Anderson connector adjacent to the receiver. The remote is then plugged into the connector just above the charge door. (There are two connectors – one is for the recovery winch and one is for the game lift winch. They both use the same remote). The remote can be held by the driver and operated while driving the Cabra.



***USING A RECOVERY WINCH CAN BE DANGEROUS**

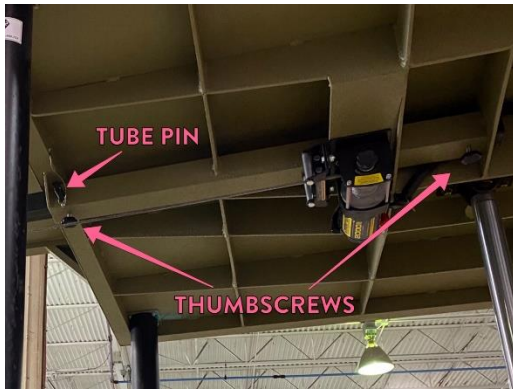
THE OWNER'S MANUAL FOR THE GAME RECOVERY WINCH IS FOUND IN THE SUPPLEMENTAL MANUALS.

- **GAME LIFT SYSTEM (IF EQUIPPED)** – The game lift system on the Cabra is designed to aid the loading of game into the rear bed. It is designed to lift a maximum of 700 pounds. To use the system, first plug the remote into the connector above the charge door and raise the cab up high enough to access the thumb screws and tube pin for the 2" square telescoping tube below the cab. Loosen the thumb screws, pull out the tube pin, let out about 10' of winch rope, slide the 2" tube all the way back, reinsert tube pin and raise the cab all the way up. Lower the tailgate and attach the winch rope to the appropriate part

CABRA OWNER'S MANUAL

of the animal. Aid in manipulating the animal while lifting it up so that it does not hang up.

BE SURE TO STOW THE 2" TUBE BEFORE LOWERING THE CAB AND TIGHTEN THE THUMB SCREWS TO PREVENT RATTLING. LEAVING THE TUBE EXTENDED WILL DAMAGE THE BED WALL WHEN LOWERING THE CAB.

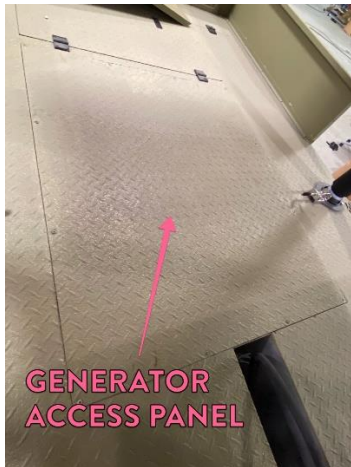


THE OWNER'S MANUAL FOR THE GAME LIFTING WINCH IS FOUND IN THE SUPPLEMENTAL MANUALS.

MAINTENANCE

Due to the electric drivetrain on the Cabra, it requires little scheduled maintenance, however there are a few systems that need attention as follows:

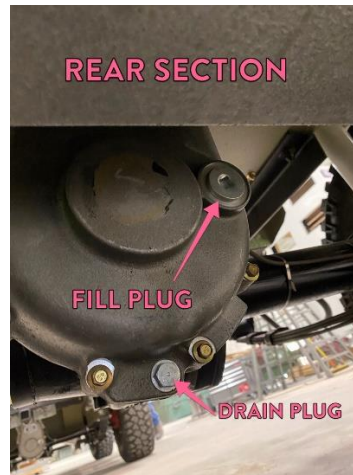
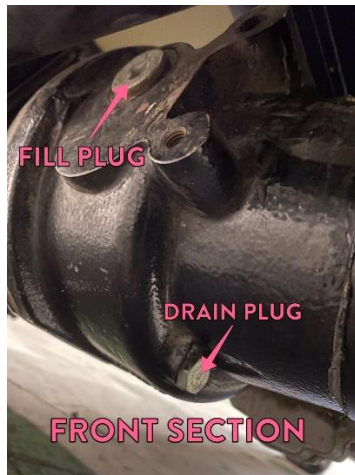
- **GENERATOR (IF EQUIPPED)** – To access the Cummins generator for maintenance first raise the cab, deploy the tube pins, and lower the cab to rest on the pins. Remove the front bed panel and then the access panel over the generator. There is an access panel on the generator cover which faces the rear of the Cabra. Most all maintenance can be done with this cover removed. To access the bottom of the generator for the oil drain, remove the air prefilter on the bottom of the Cabra below the generator.



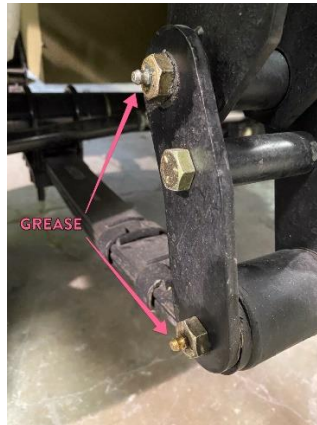
THE GENERATOR MAINTENANCE GUIDELINES ARE FOUND IN THE SUPPLEMENT MANUALS

- **AXLE FLUID** – Drain and replace the fluid in both sections of each axle every 1000 hours, 12,000 miles, or 24 months, whichever is first. Each axle has 2 fluid reservoirs - one in the front and one in the rear. To drain, remove the corresponding drain plug on the bottom of each section. Replace with 80W90 hypoid oil by removing the fill plugs on the sides of each section. The rear helical gearbox section takes 21 ounces and the front hypoid carrier section takes 47 ounces.

CABRA OWNER'S MANUAL



- **SUSPENSION LUBRICATION** – The leaf spring suspension has greaseable shackle pins on the joints that move. Use a standard grease gun to lubricate these joints if they start squeaking.



- **QUAIL SEAT DOORS AND CHARGE DOOR SENSORS** – Periodically (prior to use of the quail seats each time) check to make sure that the latches open completely, and the vehicle will not move with any one of these doors open. A spray of WD40 on the latch mechanism should loosen them up. If that does not work, replace the switch. **DO NOT CONTINUE TO OPERATE THE CABRA WITH ANY OF THE SAFETY SENSORS INOPERATIVE.**



TROUBLESHOOTING

- **TOWING THE CABRA** – The parking brakes on the Cabra are fail-on. If there is no power to either parking brake, they are on. There is an electromagnetic brake on the front of each motor. The only way to get power to the parking brake is for the motor controller to command power to it, so if the controller is not working the brake will be on. If the Cabra must be towed a short distance and the controllers are working, a driver can sit in the driver seat with the Cabra in drive while someone tows the Cabra. If there is no power, the brakes must be removed. To remove the brakes, first **MAKE SURE THE TIRES ARE PROPERLY CHOCKED**, since once the brakes are removed, there are no parking brakes. Disconnect the red battery cable connector to ensure the wires you are working with are de-energized. Disconnect the brake wires at the brake, then use the 10 mm wrench from the provided tool kit to remove the 3 bolts on each brake and pull the brake away from the motor and remove. Once this is accomplished on both parking brakes, the Cabra can be towed with the power off. **NEVER TOW THE CABRA FASTER THAN 35 MPH AS THIS WILL RUIN THE MOTORS AND AXLE GEARBOXES.**



- **VEHICLE WILL NOT TURN ON** – First make sure you are turning the key all the way to the right for a second to wake it up. If still no power, check the voltage on the 12-volt battery to make sure it is at least 12 volts. If voltage is below 12 volts, the BMS cannot wake up. It can be “jumped” by connecting to any 12-volt battery. It only takes a little power to wake up the BMS and start the DC/DC converter charging up the 12 Volt battery. The vehicle should run in this condition but if the 12-volt battery will not charge up and maintain 12 volts it will need to be replaced.
- **VEHICLE WILL NOT RESPOND TO THROTTLE INPUTS (WILL NOT MOVE)** – First check to make sure the gear position shown on the display matches the position of the shifter. If

CABRA OWNER'S MANUAL

the shifter is in drive or reverse and the display shows neutral and the parking brake off, the likely problem is either the charge door or one of the quail seat doors are open. Open and close all 3 doors. If the problem persists there is an override on the relays under the quail seat. There is one labeled “charge door” and one labeled “quail seat”. Raise the small green tab on the back of one of the relays and check. Then try the other one to isolate the problem. If this fixes the problem, then one of the switches is bad. It will not damage the vehicle to drive temporarily with the relays overridden but those safety features will not work. **BE SURE TO GET THE PROBLEM REPAIRED AS SOON AS POSSIBLE AND DO NOT CONTINUE TO OPERATE THE CABRA IN THIS CONDITION.**



- **VEHICLE BARELY MOVES AND FEELS LIKE A PARKING BRAKE IS ON** – The motor controllers on the Cabra are normally communicating with each other and constantly trying to synchronize speeds. If any of the wires between the two controllers gets damaged or cut, the motors can fight each other. The most probable place for this to happen is the wiring at the motors. Visually check the wiring on the top of the motors to make sure all connectors are intact and there are no cut or chafed wires. **DO NOT TOUCH ANY OF THESE WIRES UNTIL THE RED BATTERY CABLE CONNECTOR HAS BEEN DISCONNECTED.**



- **VEHICLE WILL NOT GO OVER 12 MPH** – There is a magnetic sensor on the right front cab stability tube which opens as soon as the cab is raised. If this sensor is broken or damaged, the motor controllers will think the cab is up and govern the speed to 12 MPH. First, make sure the cab is all the way down. If the problem persists there is an override on the relay under the quail seat. There is one labeled “platform econ”. Raise the small green tab on

CABRA OWNER'S MANUAL

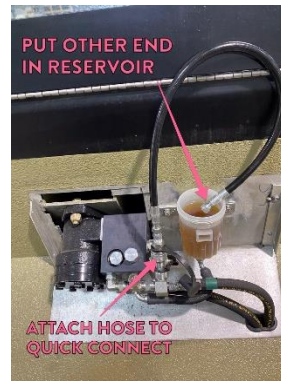
the back of the relay. It will not damage the vehicle to drive temporarily with the relay overridden but those safety features (including the cab door shunt switch) will not work. **BE SURE TO GET THE PROBLEM REPAIRED AS SOON AS POSSIBLE AND DO NOT CONTINUE TO OPERATE THE CABRA IN THIS CONDITION.**



- **STEERING SEEMS LOOSE** – It is possible over time for air to get into the hydraulic steering lines which would make the steering feel less responsive than normal. First, check to make sure the hydraulic reservoir is at least $\frac{1}{2}$ full. If it is low, check for leaks in the hydraulic lines. If the fluid level is normal and there are no apparent leaks, then bleed the system.

To bleed the system, let the Cabra sit without turning the steering wheel for at least 15 minutes so any trapped air will move to the top. Bleeding is accomplished by connecting the provided hydraulic hose with quick connects on each end to the quick connects at the steering cylinder. Then remove the steering pump cover on the top front of the cab and connect the hydraulic hose with one quick connect to the quick connect at the steering valve. Remove the cap from the fluid reservoir and hold the other end of the hose so that fluid can drain into the reservoir, but do not stick the hose down into the fluid. Slowly turn the steering wheel to the right (about 1 revolution every 2-3 seconds) for about 20 revolutions being careful not to turn to the left at all. If possible, have a second person remove the quick connect and the hose from the steering valve while the steering wheel is turning. Then remove the hose from the steering cylinder and replace the cap on the fluid reservoir.

CABRA OWNER'S MANUAL



- **JACKING VEHICLE** – A hydraulic bottle jack is provided with the Cabra for changing tires along with a steel plate for use in off road conditions. The jacking points are on the plate holding the u-bolts to the axle just behind the tire being changed.

WARRANTY

- The Generator is warranted for 3 years from the date of purchase per the Cummins Onan warranty policy which covers everything except routine maintenance for the first 2 years and covers parts and labor on major power train and generator set parts during the third year.
- The Axles and Gearboxes are warranted for 2 years from the date of purchase for defects in materials and workmanship.
- The Lithium Ion Battery Pack is warranted for 2 years or 2000 charge cycles from the date of purchase per the CALB USA warranty policy.
- The Electric Traction Motors are warranted for 2 years from the date of purchase per the HPEVS warranty policy.
- The Motor Controllers are warranted for 2 years from the date of purchase per the Curtis warranty policy.
- The entire vehicle is warranted for one full year from the date of purchase for defects in materials and workmanship.

Negligence or abuse may void the warranty. Purchaser shall be responsible to perform all scheduled maintenance on the vehicle and follow all safety and operating procedures.