



LENCO BEARCAT OPERATORS MANUAL



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BearCat Operation

I Vehicle Basics

Engine Starting (Diesel)

Vehicle should be in Park with the Parking Brake set. Rotate the key forward one position. The warning systems will momentarily illuminate. Wait for the glow-plug pre-heat indicator light to go out, vehicle is ready to start. Turn the key to the start position and release as soon as the engine starts. More information can be found in the Ford Power Stroke Owners Guide Supplement.

Four Wheel Drive System

Using Manual Shift on Stop (MSOS)

The 4WD system is engaged or disengaged by rotating the control for both front wheel hub locks from the FREE or LOCK position, then manually engaging or disengaging the transfer case with the floor-mounted shifter. For increased fuel economy in 2WD, rotate both hub locks to the FREE position. A “4x4” indicator light will illuminate when the floor mounted shifter is engaged with an additional indicator light illuminated in “LOW RANGE”.

Note: Some noise may be heard as the 4WD system shifts or engages. This is normal.

2H (2WD High) For general on-road driving. Sends power to rear wheels only.

4H (4WD High) For winter and off-road conditions. Sends power to front and rear wheels.

N (Neutral) Only used when towing the vehicle.

4L (4WD Low) For low speed off-road applications that require extra power.

Shifting from 2H (2WD High) to 4H (4WD High)

Engage the locking hubs by rotating the hub lock control from FREE to LOCK, then move the transfer case lever from 2H (2WD High) to 4H (4WD High) at a vehicle speed below 3 mph. DO NOT shift into 4H with the rear wheels slipping.

Shifting from 4H (4WD High) to 4L (4WD Low)

1. Bring the vehicle to a complete stop.
2. Place the gearshift lever in N (Neutral)
3. Move the transfer case shift lever through N directly to 4L. If the shift lever does not or only partially moves to the 4L position, perform a shift with the transmission in N and the vehicle rolling at a speed below 3 mph. This will ensure the transfer case is fully engaged into 4L.

Shifting from 4L (4WD Low) to 4H (4WD High) or 2H (2WD High)

1. Bring the vehicle to a speed below 3 mph
2. Place the gearshift lever to N (Neutral)
3. Move the transfer case shift lever through N (Neutral) directly to 4H or 2H
4. If the transfer case will not engage into 4H or 2H, let the vehicle creep at a speed above 1 mph then repeat steps 2 and 3.
5. If shifting to 2H with the vehicle at a complete stop, disengage the locking hubs (optional) by rotating the hub lock control from LOCK to FREE.

Using the N (Neutral) position

The transfer case neutral position overrides the transmission and puts the vehicle in neutral regardless of transmission gearshift lever position. The vehicle can now move forward or backwards.
This position should only be used when towing the vehicle.

Note: For more information consult the Ford Owners Manual supplied with your vehicle.

Four Wheel Drive System

Using **Electronic Shift on the Fly (ESOF)**

The system is equipped with Auto-Manual hub locks. Automatic operation of the hub locks is recommended, and will increase fuel economy. Turning the hubs to “Lock” will manually override the Auto-Manual System.

Note: Some noise may be heard as the 4WD system shifts or engages. This is normal.

The Four Wheel Drive engagement control is located to the right of the steering wheel on the dash board.

2WD – For general on-road driving. Sends power to the rear wheels only.

4x4 HIGH – For winter and off-road conditions. Sends power to front and rear wheels. **This mode is not intended for use on dry pavement.**

4x4 LOW – For low-speed off-road applications that require extra power such as steep grades, deep sand or pulling a boat out of the water. Sends power to front and rear wheels. **This mode is not intended for use on dry pavement.**

Shifting from 2WD to 4X4 HIGH

Rotate the 4x4 control to the 4x4 HIGH position at speeds up to 55 mph (88 km/h).

Shifting from 4x4 HIGH to 4x4 LOW

1. Bring the vehicle to a complete stop.
2. Depress the brake.
3. Place the gearshift in N (Neutral). If the vehicle is equipped with a manual transmission, also depress the clutch pedal.
4. Move the 4x4 control to the 4x4 LOW position.
5. Hold the shift conditions until the 4x4 LOW indicator light illuminates.
6. If the 4x4 LOW indicator light **does not** illuminate within 15 seconds, allow the vehicle to move at a speed below 5 mph (8 km/h), then repeat steps 2 through 5 while the vehicle is rolling before reporting any shift concerns to your authorized dealer.

Shifting from 4x4 LOW to 4x4 HIGH or 2WD

1. Bring the vehicle to a complete stop.
2. Depress the brake.
3. Place the gearshift in N (Neutral).
4. Move the 4x4 control to the 4x4 HIGH or 2WD position.
5. Hold the shift conditions until the 4x4 LOW indicator light shuts off.
6. If the 4x4 LOW indicator light **does not** shut off within 15 seconds, allow the vehicle to move at a speed below 5 mph (8 km/h), then repeat steps 2 through 5 while the vehicle is rolling. If the indicator light still **does not** shut off, contact your authorized Ford dealer.

Note: For more information consult the Ford Owners Manual supplied with your vehicle.

Fuel Pump Shut-Off Switch/Reset

The Fuel Pump Reset is located on the passenger side of the dash board. This switch shuts off fuel flow to the engine in the event of a substantial jolt. To reset follow the instructions outlined in the Ford Owners Guide. (Diesel Only)

For Gas Engine refer to Ford Owners Manual.



Fuel Pump Reset

II Electrical Options

Auxiliary Ford Switches



The Auxiliary Ford Switches are dash mounted and are located to the right of the steering wheel. All switches are tagged for easy identification. The four switches only have power when the ignition key is in the "ON" position. The switches control the following options.

Stationary Elevated Idle Control allows the vehicle to be in battery charge protect mode (BCP) while it is in a stationary position.

The vehicle gear shift selector must be in Park with the Parking Brake set. Flip the Idle Control Switch up. A light will come on to indicate that the switch is activated. The engine idle will change. The Idle Control can be deactivated by releasing the Parking Brake, stepping on the brake pedal or flipping the auxiliary switch down into the off position.

Once deactivated the system needs to be reset by cycling the dash mounted switch while keeping the previous parameters in place.

Driving Lights are controlled by the second switch from the left. Flip the switch up to activate. A light will come on to indicate that the switch is activated. The lights are integrated into the front bumper.

Wig-Wag Lighting is controlled by the switch labeled "Wig-Wag". A light will come on to indicate that the switch is activated. Once activated the front headlights and rear tail lights including the reverse lights will flash alternating from side to side. On vehicles equipped with HID lighting do not run the OEM headlight switch in the full "ON" position to avoid damage caused by overheating the HID bulbs.

Vehicle main power must be "ON" for these features to function.

Note: The additional switch location, AUX 4, is not in use but is available for future accessory installation.

Combustible Gas Monitoring System

The Combustible Gas Detection System is made up of a Polytron IR Gas Transmitter located under the vehicle, a Trip Amplifier mounted inside the center console and an LED Light Display with Audible Alarm mounted on the console. Although the unit is capable of detecting several gases it is calibrated for **Methane Gas**. Whenever the main vehicle power is on the unit is activated. The display uses two LED lights and an audible alarm.

The alarms are preset to function by measuring the LEL (Lower Explosive Limit) as a percentage of the gas being detected. Using 100% as fully combustible the display operates in the following manner: At 20% of LEL (Lower Explosive Limit) the High LED light is triggered. At 40% of LEL (Lower Explosive Limit) the High/High LED light and Audible Alarm are triggered. This gives the vehicle occupants advance warning before explosive concentrations are reached. The trigger points are preset and tested at the factory before delivery.

(**Note:** The Polytron IR Gas Transmitter mounted on a **BearCat** is located under the vehicle on the driver side ahead of the rear wheels. The Gas Transmitter on a **BEAR** is mounted behind the front bumper.)

For more information refer to the Drager Operation Manual.



Combustible Gas LED Display

D/C to A/C Power Inverter



D/C to A/C Power Inverter

The D/C to A/C Power Inverter is mounted inside the vehicle and provides a 120 VAC receptacle with GFCI (Ground Fault Circuit Interrupt) protection. The unit is operated using an On/Off rocker switch mounted on the front panel. The Power Inverter is equipped with a Battery Charge Feature that allows the vehicle batteries to be charged via an external 30 amp shore plug. The inverter does not need to be turned on for this feature to function. A 30 amp to 15 amp adapter is provided to allow the use of standard 120 VAC wall outlets for charging.

heavy duty extension cord, plug into the adapter and into the 120 VAC power supply, charging starts automatically. There is a Remote Temperature Sensor attached to the batteries which allows the unit to monitor the battery temperature to assure correct operation of the charge circuit. Battery state is indicated by lights on the front of the Power Inverter. When shore power is plugged in, an internal transfer switch is activated which allows 120 VAC power to be supplied direct from the wall outlet to the 120 VAC receptacle located on the Power Inverter.

Caution: When shore power is disconnected and the vehicle is not in use the Power Inverter rocker switch must be in the "OFF" position to avoid a power drain at the vehicle batteries.

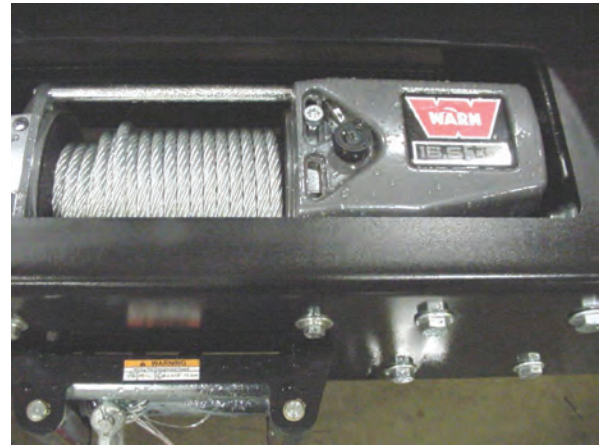
For more information refer to the D/C to A/C Power Inverter Manual supplied with your vehicle.



Shore Line

Electric Power Winch

The Electric Power Winch is mounted in the front bumper. The top of the bumper is open to allow easy access to the control plug. Remove the weather cover on the control plug and mount the Winch Remote Control onto the plug. The Remote Control is indexed to fit only one way. The Control has a 12 ft. long cord with a handheld remote which uses a rocker switch to control the spool. Pictures indicate spool direction. A Red LED light is located above the rocker switch and will flash if the winch reaches a temperature that could result in damage to the motor. When not in use the Remote Control should not be left plugged in. The spool drum clutch handle is located on the winch body opposite the control access plug. Engagement is indicated by decals and arrows. "Free Spool" releases the drum allowing the winch cable to be pulled out without the winch motor running. Always use the supplied Hook Strap to pull the cable by hand. The use of heavy leather gloves is recommended whenever the winch cable is handled. "Engaged" couples the gear train allowing the winch cable to be controlled by the hand held Remote Control. For **Safety** it is important to read and understand all **Warnings, Cautions and Notices** referenced in the Winch Operators Guide included with your vehicle.



Electric Winch



The Electric Power Winch is also available as an add on by utilizing a carrying cradle that installs into the front or rear receiver.

Caution: Do not attach the winch cable to an object and pull with the vehicle. The winch should only be operated by utilizing the winch controller.

Exterior Red/Blue Lighting

There are four LED lights mounted on the exterior of the BearCat. Two are mounted in the front grille guard and two are positioned above the rear doors. The control switches are located in the center console. They are labeled "Front LEDs" and "Rear LEDs". Vehicle main power must be "ON" for the lights to function.

Heated Windshields

The Heated Windshield Option is designed to reduce the amount of time necessary to De-Ice the exterior of the windshield. The vehicle main power must be "ON" for the system to function. To operate the Heated Windshields, depress the switch on the center console marked "Front Defrost", a Red LED light will illuminate to indicate that the feature is activated. The windshields will heat for 15 minutes and automatically shut off. The switch can be reactivated for another 15 minutes by depressing the "Front Defrost" switch a second time. At any time throughout the process the Windshields can be turned off using the same switch.

Intercom System: Inside to Outside

The two-way intercom system includes an interior master station with volume and Push-to-Talk (PTT) controls and an exterior remote station that is operated hands free. When the system is activated the remote station is always transmitting unless interrupted by a transmission from the master station.

Vehicle main power and the console mounted intercom switch must be “ON” for the system to operate. The interior master station is located in the ceiling centered between the two front seats and the exterior remote station is mounted outside the vehicle on the driver side.



Master Station



Remote Station

With the intercom switch activated outside noise can be heard through the interior speaker without opening the door. Adjust the volume using the knob located on the interior master station. Depress the Push-to-Talk (PTT) button, also located on the interior master station, to speak to the outside.

Interior Lighting

The Interior Lighting is mounted along the upper edges of the interior walls. The lights are half Red and half White and are activated by pushing on the desired lens color. The vehicle Main Power must be “ON” for the Interior Lighting to function.



Interior Light

Light Bar Prep

The Light Bar Prep includes a mount area that is located forward on the roof of the vehicle. Removable exterior panels and internal access holes through the roof armor help facilitate wiring installation. An ATC style fuse protected power circuit is located in the center console and is marked “Lightbar”. One of the locations in the center console is left blank for installation of your light bar controls. The maximum width for a **BearCat** light bar is **44 inches**.

Long Range Acoustical Device

The Long Range Acoustical Device (LRAD) consists of an acoustic transducer module and a separate control module. Audio signals from this unit are amplified and projected to distances of up to 500 meters or more. Pre-recorded tones can be played at extreme volume levels. The speaker system is yoke mounted to the Rescue Hatch base plate with the control panel mounted inside the vehicle. Refer to the LRAD Operations Manual that is included with your vehicle for specific operating instructions.



LRAD Control Unit



Roof Mounted LRAD

Radiation Detection with External Detector

The Digital Radiation Detector consists of two parts, a Model 375 Digital Wall-Mount Monitor located in the rear of the vehicle, with an attached 44-2 Gamma Scintillator mounted inside the vehicle at the top edge of the passenger side windshield. A Pocket Survey Meter for hand held detection is also included.

Vehicle main power must be “ON” for Model 375 Digital Wall-Mount Area Monitor to function. A Green Status Light will be displayed when the monitor is on. If the Green Status Light is not on, there is an additional power switch located on the left side of the wall unit.

The Model 375 Wall Mount Detector measures the level of Gamma radiation and is calibrated in kcpm (thousand counts per minute). When the unit is activated an audible alarm will sound and a number will be displayed indicating the back round radiation for your area. The Low Alarm is preset at 20 kcpm and is indicated by a Yellow light and a slow beep (1 per second). The High Alarm is preset at 50 kcpm and is indicated by a Red light and a fast beep (4 per second). If the Detector experiences an overload or instrument failure the Det Fail will be activated and is indicated by a Red light and an audible tone greater than 68 dB.



Digital Wall Monitor

A “Radiation Area” is equal to 2 mR/hr.

A “High Radiation Area” is equal to 100 mR/hr.

Rem = (Roentgen Equivalent Man) relates the dose of radiation to the biological effect of that dose on human tissue.

R/hr = rem per hour.

mR/hr = millirem per hour or 1000 rem per hour.

cpm = (counts per minute) the signal that indicates a radiation event has been detected.

kcpm = (thousand counts per minute) Model 375 Digital Wall-Mount Monitor calibration.

175 kcpm = 1mR/hr

350 kcpm = 2 mR/hr “Radiation Area”

The Pocket Survey Meter 2401-P is a hand held device that measures alpha, beta and gamma radiation in cpm and mR/hr.

Due to the complicated nature of Radiation Detection it is recommended that you read the instruction manuals provided with the Model 375 Digital Radiation Detector and Model 2401-P Pocket Survey Meter. The manuals outline the specific functions of each of the components. Section Six of the 2401 Pocket Survey Meter Manual gives an overview of radiation basics.

For more information contact Atlantic Nuclear at 800 878-9118 or Ludlum Measurements, Inc. www.ludlums.com
Additional information and links can be found at the Center for Disease Control web site www.bt.cdc.gov/radiation

Radio Prep Option

The following components are part of the Radio Prep Option.

- Max Rad 118-940 MHz ¼ wave Antenna mounted on the rear light box at roof level. The RG 58 antenna wire is run to the front of the vehicle via wire ways located along the upper interior walls. The antenna wire terminates inside the center console located between the front seats.
- Keyed radio power is located inside the console on the power module. Attach your power wire to any of the spade connectors marked “Radio” and install an ATC style blade fuse for circuit protection.

Rear Auxiliary Heat/Air Conditioning



Interior Rear Wall Heat/AC

The Rear Heat/Air Conditioning Unit runs tandem with the existing vehicle Climate Control System. All Auxiliary Heater/Air Conditioners require that the vehicle be running and the existing vehicle Climate Control System be set to the desired temperature before adjusting the controls for the tandem unit. For optimum operation set the vehicle climate controls and the rear controls to maximum. There are two types of optional Auxiliary Heat/Air Conditioners.

- The interior compartment rear wall mounted unit with controls located on the Auxiliary Heater/Air Conditioner.
- The interior compartment front wall mounted unit with controls located on the Auxiliary Heater/Air Conditioner.



Interior Front Wall Heat/AC

Rear Blackout

Rear Blackout is controlled by a switch located on the center console. Activation of the switch will shut off the rear brake lights, and reverse lights including the optional backup alarm. A console mounted LED with an audible beeper reminds the operator that the system is activated. For full Blackout all other lighting will need to be shut off using their individual function switches, including Headlights, Taillights, Running lights and Wig-Wags. Vehicle main power must be “ON” for the Blackout System to function.

Caution: This system is for Tactical Operations Only. Operating the vehicle in Rear Blackout mode may be hazardous to other drivers who are behind you.

Rear View Backup Camera

The optional Rear View Backup Camera has a display that is integrated into the existing rear view mirror. Half of the unit is a video display and the other half is a rear view mirror. The display is activated when the vehicle main power is “ON”. The camera function can be deactivated by pushing the power button located in the center below the mirror face.



Rear View Camera



Rear View Mirror/Screen

The camera will remain on until the ignition key is switched to the off position.

For more information refer to the Rear View Backup Camera owner manual that was supplied with your vehicle.

Roof Mounted Spot Lights



Roof Mounted Spot Light

If you have multiple lights, each roof location is indicated on the individual controller. The Spot light can be positioned by hand without the power being activated. It is recommended that the Spot lights face rearward during over the road travel.

The Roof Mounted Spot light is a permanently affixed searchlight. Common locations are at the corners of the vehicle roof. The light is controlled by a 4-way joystick/power switch located on the header between the sun visors. Vehicle main power must be “ON” for searchlight to function. Activate the toggle switch on the light controller, a Red LED indicates the light is on. Rotate the light up to 370 degrees horizontal and 135 degrees vertical using the 4-way joystick.



Spot Light Control

Siren / Public Address

The Siren P/A consists of an Amplifier mounted under the driver seat, a Control Head mounted in the center console and two 100 watt speakers mounted behind the front bumper. Main vehicle power must be “ON” for the system to function. Unit power is controlled by a rocker switch on the control head. The various modes are well marked and have back lighting for easy readability. The primary operating modes are Rad, PA, Man, HF, Wail, Yelp, and Pier.

The operating modes can be selected by using the rotary selector switch. Turning the switch to Wail, Yelp, or Pier will result in distinct tones being emitted from the speakers.

Manual is a silent mode that allows manual operation of the siren. HF will result in the siren being activated after the Manual switch is pushed.

For more information including Microphone volume adjustment refer to the Siren Installation Guide supplied with your vehicle.



Siren P/A

Thermal Camera

The Thermal Camera is mounted on the right hand side of the vehicle exterior. The camera control joy stick is attached to the center console inside the vehicle. There is approximately 3 feet of control wire to allow ease of movement throughout the front cab. The camera system power switch is located on the center console. (Note: Vehicle main power must be “ON” to operate camera system.)



Thermal Camera



Camera Control

The monitors are located above the windshield centered between the sun visors and in each of the front seat headrests. Activation is controlled by the power button at each monitor location. Toggling between AV1 and AV2 allows each monitor to show color or thermal at the operators' discretion. Picture adjustment can be accomplished using the monitor control buttons. Access the adjustment options and use the left and right arrows to change color and orientation. A remote control is also provided with each monitor and controls the monitor functions only.

In models with rear facing seats the monitors will be located as follows, one centered above the windshield between the sun visors and one on the rear wall facing forward.

Once the system is powered up, control left/right and up/down movement using the joystick control. When the camera is not in use it is recommended that it be stowed facing rearward to protect the camera lens.



Monitor Location Above Windshield

For more information refer to the Camera System manuals that were supplied with your vehicle.



Monitor Location in Headrests



Monitor Location in Rear

III Mechanical Options

Ballistic Skip Round Shields

The Ballistic Skip Round Shield is made of a Kevlar material and provides protection to NIJ Level 3A. The Shield is designed to be hung from the running boards of the vehicle to prevent stray rounds from “skipping” under the truck during an operation. The Shields are stowed in the vehicle and can be utilized as stretchers if needed.

Door Hold Opens

The Rear Door Hold Open allows the rear doors to be latched in the fully open position. Open the door until the door stop is engaged and rotate the latch located above the door to the locked position. The rear doors can also be locked in a 90 degree open position. Open the rear doors to approximately halfway, rotate the interior Door Hold Open until it drops into the corresponding floor location.



Rear Door Hold Open



Rear Door Hold Open Locked

The forward Door Hold Opens allow the front and side doors to be locked in an open position. Open the door until it hits the door stop and rotate the Door Hold Open latch located on the interior side of the door into the latch holder located on the vehicle floor.



Forward Door Hold Open



Forward Door Hold Open Locked



Rear Door Hold Open Locked 90°

Door Locks

The Doors can be locked from the outside using the door key. The operator should unlock all doors before proceeding to an operation. The inside latch handle will override the exterior lock but it will not unlock it.

The interior Battle Bolts are located at each door. Turn the handle 90 degrees and the spring loaded lock will slide into place. The doors cannot be opened from the outside with the Battle Bolts engaged.



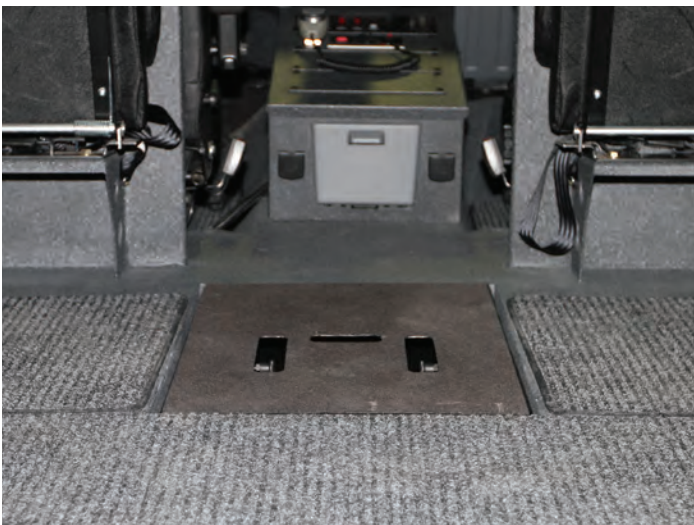
Interior Battle Bolt Front



Interior Battle Bolt Side

Gunner Stand Military / Law Enforcement

The Gunner Stand is recessed into the floor below the roof mounted hatch. The height can be adjusted to three predetermined locations by lifting up on the two handholds in the platform. The platform will lock with an audible click at each location. The top position is approximately 22 inches above the vehicle floor. The Gunner Stand can be lowered or fully closed by grasping the release pins located inside the handholds and pulling in as the stand is guided to the lower positions. When the Gunner Stand is up always ensure that the locks are fully engaged before weight is put on the platform.



Military / Law Enforcement Gunner Stand

Gunports

The Gunports are firing positions located throughout the vehicle. Common locations include: one at each door, three per side wall, and one in the roof mounted hatch lid. The Gunports are opened by pushing the spring loaded handle with the palm of your hand, fingers open, allowing the weight of the port to turn the Ballistic plate. To close grasp the port handle and rotate the Ballistic plate back into the closed position. The spring mechanism will assist in properly seating the Ballistic plate.

Rectangular ports with larger openings are located at key positions. The larger openings are meant to accommodate weapons with various sights and other attachments.

Note: If a Gunport has an arrow on the interior surface it can only be opened in the direction of the arrow.

Optional Gunport Locks are available as a bolt on accessory to keep ports locked closed when not in use.



Round Gunport



Rectangular Gunport

Hood Release/ Hood Prop Rod

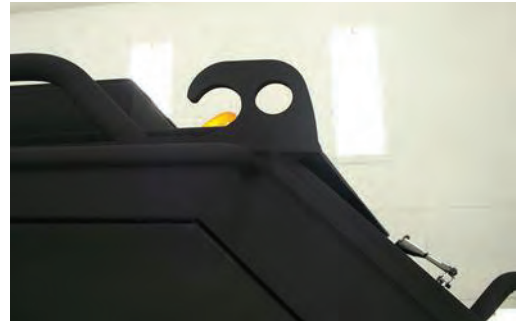
The Hood Prop Rod is a safety device designed to assist in holding the Ballistic hood open during servicing. Open the hood by pulling the Hood Release located inside the vehicle at the driver side kick panel. Go to the front of the vehicle and release the secondary lock located centered just below the front edge of the hood. Apply slight down pressure to the hood while releasing the secondary latch. Move to the side and lift the hood from a corner. Once the hood is fully open swing the Prop Rod into place. When closing, return the Prop Rod to its original stowed position in the retaining clip and pull the hood closed until it is in the full latched position.



Hood Prop Rod

Pull Points

There are Pull Points at various locations on the vehicle. Forward locations include four on the front bumper and two on the forward corners of the roof. Rear locations are at the left and right of the rear wall above the running board and two on the rear corners of the roof. The roof mounted points can be utilized when an object needs to be pulled from over a fence or other high obstruction. The lower points can be used for pulling when height is not a factor.

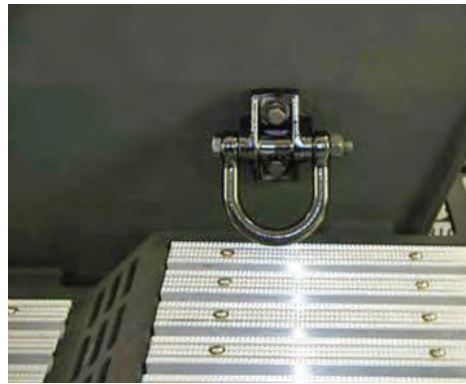


Roof Mounted Pull Point

Caution: When using the roof mounted Pull Points use extreme caution to avoid damage to the Ballistic Glass. Be aware of the path that debris will follow once it has dislodged. Always attach from a single anchor point on the vehicle to the object to be pulled.



Front Bumper Mounted Pull Point



Rear Pull Point

Ram Bar System (Static)

The Ram Bar System is a breaching tool that is deployed by inserting the Ram Bars into the receiver located at the front of the vehicle. Slide pins on safety lanyards secure the Ram Bars to the vehicle and to each other. A push plate is mounted in the end of the lead Ram Bar using the same type of safety lanyard.

When not in use the Ram Bars are stowed on the exterior brackets located on the driver side of the vehicle. The side mounted carry brackets have slide pins with hitch pins and safety lanyards to secure the assembly during transport.



Ram Bar System Stowed

Ram Bar System (Hydraulic)

The Ram Bar System is also available with a hydraulic lift system that allows height adjustability from the ground to approximately 10 plus feet. The vehicle can be maneuvered with the Ram Bar in place and at different heights.

The following procedure should be used as the basis for any breaching operation that utilizes the Ram Bar System.

Once the Ram Bar is in place at the front receiver with the safety pin engaged, proceed to the object to be breached, ease up to the object and put pressure against the front Push Plate.

With pressure against the plate drive forward with the vehicle keeping constant pressure until the breach is complete. When backing out always keep the vehicle as straight as possible to avoid “hooking” the front push plate.

Caution: Failure to follow the basic breaching procedure can result in Ram Bar damage.



Front Receiver



Ram Bar System Deployed

Rotating Roof Hatch (Police)

The roof mounted Rotating Hatch can be opened by releasing the rotary latch and pushing up on the hatch lid. The Counter Balance hinge system allows the ballistic lid to be lifted with one hand. In the fully open position the hatch lid will “Lock Open”. The Roof Hatch can be rotated by depressing the secondary Red handle on the rotation gear lock and pulling the handle toward you.



Hatch Rotary Latch



Rotation Lock

Manually rotate the hatch to the desired location utilizing the handholds that are built into the hatch riser and engage the gear rotation lock. A Gunport is located in the hatch lid. Push the Gunport actuating handle with the palm of your hand, fingers open, allowing the weight of the port to rotate the Ballistic plate. There is a metal rain cover attached to the outside of the hatch Gunport which can be removed as needed. Once removed the rain cover should be stowed inside the vehicle.



Hatch Rotary Latch

The hatch lid can be closed by pulling the “Hatch Release” located on the right side of the lid as indicated by the label. Before driving it is recommended that the rain cover is reinstalled on the outside of the Gunport. The rain cover can only be secured from outside the vehicle with the Gunport in the closed position. During over the road travel the lid should be in the down and locked position with the rotation gear lock engaged.

Rotating Roof Turret (Military)

The Rotating Roof Turret provides a protected gunner position out the top of the vehicle. The hatch is opened from inside the vehicle by releasing the rotary latch. The Counter Balance hinge system allows the ballistic hatch lid to be lifted with one hand. In the fully open position the hatch will “Lock Open”. A crew served weapons mount is located on the front of the Rotating Roof Turret.



Military Turret



G-4 Rotating Roof Turret

The Turret position can be changed by depressing the secondary Red handle on the rotation gear lock and pulling the handle toward you to unlock the gear. Use the Turret Gear Rotation handle located to your left outside the hatch to change the orientation of the Turret. The Roof Turret will spin 360 degrees and lock in any position. It is recommended that the Turret Gear Rotation Lock be engaged when firing a weapon from the platform.

Run Flat Tire Inserts

The CRF Run Flat Tire Insert is a polymer device designed to provide flat tire mobility in the event of tire air loss. The insert is secured around the drop center of the rim. The Run Flat is made of a composite material that reduces friction and heat build up. The interior of the tire crown is coated with a lubricant to further dissipate heat when the Run Flat is in use. Although the rims are marked with a sticker indicating that a run flat insert has been

installed, it is important to alert your servicing technicians about the Run Flat Insert to avoid damage during tire changes. Insert installation tools can be obtained by contacting the Lenco Industries Parts Department.

The **VFI** Run Flat Insert is used in our off road style tires. The insert consists of one piece reinforced molded rubber that is hydraulically inserted into the tire and is designed for use with two piece rims. The insert also serves as a bead lock device. This style insert cannot be changed on site without the use of a special hydraulic machine. Replacement tires can be supplied with the **VFI** insert already installed.

The **CMRF** Runflat is used in our off road style tires. The insert consists of a three piece field serviceable unit used in a two piece rim which includes internal bead lock bands.

Self Contained Breathing Apparatus (SCBA)

The SCBA System consists of two 6000 PSI tanks mounted below floor level in ballistic holders. Air flow is controlled through an interior mounted regulator with multiple quick connect fittings located throughout the vehicle.

The regulator also includes a remote connection for refilling the storage tanks. Based on a ten man team with under stress air usage at 45 cu ft. / ½ hr. the onboard air supply would last approximately .75-1.0 hrs.



SCBA Connector



SCBA Regulator w/Remote Fill Valve

Scheduled Maintenance

The scheduled maintenance is outlined in the Ford Scheduled Maintenance Guide included with your vehicle. The Special Operating Conditions section of the guide should be used. Due to the tendency for extensive engine idling; it is recommended that the total hours be used as the guide for vehicle maintenance and service intervals.

The Engine Hour Meter is accessed by pushing the Setup button and then Reset button located on the steering wheel left side. Pressing Reset will give you a system check which will include Engine Hours and Engine Idle Hours. Although some vehicles are equipped with oil viscosity alert systems the oil should be changed at 200 hours. Refer to the Ford Maintenance Guide for more information.

Ballistic Glass Care and Maintenance

All windows in the Lenco BearCat are Glass-clad Polycarbonate; a laminate of multi-layered glass and a polycarbonate core layer with glass on both the inboard and outboards sides to prevent scratching. This product requires special attention and a higher degree of care than conventional automotive glazing.

The interior and exterior surfaces of the Ballistic Glass should be cleaned using mild soap and water or a non-solvent based commercial glass cleaner. Lenco uses "CRL Glass Cleaner No. 1973". You may use glass cleaners that contain Vinegar or other environmentally-friendly / 'green' solutions.

Do not use products that contain Ammonia, Acetone, Lacquer Thinner, Turpentine or other petroleum distillates. These solvents may attack or cause degradation of the polyurethane inner layers, which will manifest itself as Delamination (inner layer ply separation) or Crazing (small hairline cracks) of the inner layers. Use all cleaning products sparingly. Any excess cleaning product that runs down the glass interior should be wiped away from the bottom framework to prevent it from seeping into the frame.

Store out of the sun. When not in use, it is important to park your BearCat armored vehicle out of the direct harmful rays of the sun and its ultraviolet light. Over time, direct sunlight will have an adverse affect on the Ballistic Glass and will cause Delamination; separation of the inner layers. Direct summer sun may also cause the vehicle's interior temperature to rise to excessive levels, which may also have an adverse affect on the Ballistic Glass. Always park your BearCat in the shade or under a covered structure out of direct sunlight. It will prolong the life of your Ballistic Glass.

Paint Care

Military Chemical Agent Resistant Coating (CARC)

Wash the vehicle using mild soap and water and a soft brush. Rinse with water using a standard hose. A lint free rag may be used for spot cleaning as needed.

Caution: This type of paint cannot be waxed.

Lusterless Polyurethane Topcoat

Wash the vehicle using mild soap and water and a soft brush. Rinse with water using a standard hose. A lint free rag may be used for spot cleaning as needed.

Caution: This type of paint cannot be waxed.

High Gloss Polyurethane Topcoat

Wash the vehicle using mild soap and water and a soft brush. Rinse with water using a standard hose. A lint free rag may be used for spot cleaning as needed.

This type of paint can be polished using automotive car wax.

Touchup Kits are available through the Parts Department by using the contact information located at the back of the Operators Manual.

Specifications

Tire Pressures/ Wheel Torque

BearCat Model	Rim Size	Air Pressure	Wheel Torque
G-2	19.5	110 psi max cold	160 ft lbs.
G-2	22.5	120 psi max cold	160 ft lbs.
G-3	20	75 psi max cold	160 ft lbs. Michelin
G-3	20	90 psi max cold	160 ft lbs. Continental
G-4	20	90 psi max cold	160 ft lbs.
G-3 / G-4	20		165 ft lbs. Rim Halves.



G-3/G-4 12.5 R 20 Military Style Continental Tires are directional. Arrow indicates the direction of rotation.

Torque Specifications

Rear Driveshaft/Rear Yoke- 46 ft lbs.
Rear Driveshaft to circular transmission flange-76 ft lbs.
Rear Axle U-Bolts -295 ft lbs.

Tire and Wheels

Rim sizes for the **G-2** are 19.5 inch standard with an optional 22.5 inch available. Both options come fitted with aggressive profile heavy duty tires.

Rim size for the **G-3** and **G-4** is 20 inch fitted with military style rough terrain tires.

All vehicles can be ordered with optional Run Flat Inserts.

Air Conditioning R134A Refrigerant amount:

2.7 lbs. (with optional rear Auxiliary Heater/Air Conditioner)

Glass

Install Materials:

Dinitrol D-538 one step primer

Dinitrol D-500 urethane (low viscosity)

CRL Glass Cleaner -1973

CRL General Purpose Solvent-2032

CRL Glazing Tape 74418X14BL

Rubber setting Blocks

Lubrication

Ring Gear- Multipurpose High Temp Grease NLG1 2 ISO VG460 or equivalent.

Door Hinge (machined one piece)- Multipurpose High Temp Grease NLG1 2 ISO VG460 or equivalent.

Door Hinge (continuous 3/8 pin)- Non-petroleum based lubricant to avoid dust/dirt buildup.

Gun Ports equipped with metal oil lite bushing- No lubrication needed.

Gunner Stands with bronze slide ways - No lubrication needed to avoid dust/dirt buildup.

Welding Precautions

It is recommended that Technical Services be contacted at 800-444-5362 before any welding or cutting operation is undertaken. Electronic equipment damage can occur.

IV Lenco Armored Vehicles Contact Information

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