2014 **F-150 SVT Raptor Supplement**







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Introduction

ABOUT THIS SUPPLEMENT

Congratulations on your decision to purchase or lease the latest from Ford SVT — the F-150 SVT Raptor. If you've owned or leased an SVT product in the past, we're glad you're back. If this is your first SVT vehicle, welcome to the SVT family! We are confident that our dedication to performance, quality, craftsmanship and customer service will ensure many miles of exhilarating, safe and comfortable driving in your new F-150 SVT Raptor.

Your choice of an SVT product is an intelligent and informed one. SVT strives to build engaging vehicles that involve the driver in every aspect of the driving experience. Although performance is at the heart of every SVT vehicle, we go much further. Our goal is to deliver a comprehensive, complete vehicle. Sweating the details such as the sound of the exhaust, the quality of the interior materials, and the functionality and comfort of the seats. All to make sure the driver enjoys not only an exceptional performance, but an outstanding driving environment as well. In the F-150 SVT Raptor, that philosophy is expressed by a sophisticated powertrain, outstanding chassis dynamics and significant interior and exterior enhancements.

This supplement complements your F-150 Owner's Manual and provides information specific to SVT and the Raptor. By referring to the pages listed in this supplement, you can identify those features, recommendations and specifications unique to your new SVT vehicle. If there are any discrepancies between this supplement and the F-150 Owner's Manual, this supplement supersedes the information found in the Owner's Manual.

PRODUCT HISTORY

The History of Special Vehicle Team (SVT)

The Ford Special Vehicle Team (SVT) was established in 1991 to polish the Ford Oval by creating low-volume, factory-produced vehicles designed for those select few whose idea of driving is a high-powered, passionate experience — not just a means of getting from point A to point B.

In a move to support this spirited enthusiasm, Ford Motor Company carefully integrated the wide array of talent in the company into a small, cross-functional group of engineers and product planners, housed together under one roof with a common mission: to create vehicles specifically designed to meet the unique needs and desires of the knowledgeable driving enthusiast.

Each of nearly 150000 SVT vehicles produced since the 1993 model year has been designed and developed with the four SVT Hallmarks in mind:

- Performance
- Substance
- Exclusivity
- Value

These hallmarks have driven the SVT Mustang Cobra and the Cobra R, the SVT F-150 Lightning, the SVT Contour, the SVT Focus, Ford GT, Shelby GT500, GT500KR and the F-150 SVT Raptor.

We are proud and passionate about what we do, and we're glad you have made us your choice.

At a Glance



F-150 SVT Raptor-Specific Exterior Features

- 6.2L Boss V8 engine
- 6R80 6-speed automatic transmission
- 4x4 electronic shift-on-the-fly transfer case
- Modified rear differential capable of locking in 2H, 4H and 4L
- Torsen helical front differential for increased capability
- 4.10 front and rear axle ratios
- 35 tooth spline rear axle shafts for increased capability
- Super Cab or Crew Cab 5.5 foot box with unique outer box
- Box graphics
- Hood with functional air extractors
- Hood graphics

- Unique grille
- Front off-road camera
- Front camera washer
- Dual exhaust, 3.5 inch exhaust tips
- Modified rear bumper with integrated rear tow hooks
- Heavy duty front skid plate and engine skid plate, and front tow hooks
- Cast aluminum running board/sill protector with Durabed protection
- Front fenders with functional air extractors
- Seats with increased bolstering and unique covers
- Front and rear LED marker lamps
- Switch pack with off-road mode and hill descent buttons, and four auxiliary switches

At a Glance

- Longer, cast aluminum lower control arms
- Longer, forged steel upper control arms
- Front coil springs and rear leaf springs
- Fox Racing 1.8 inch piston internal bypass front shocks
- Fox Racing 1.8 inch, internal bypass, remote reservoir rear shocks
- Micro-cellular urethane jounce bumpers (front and rear)
- Raptor navigation welcome screen
- · Full-size all-terrain spare tire
- Off-road specific calibrations for engine, transmission and AdvanceTrac system

- Standard 17 inch Cast Aluminum Wheels
- Optional 17 inch forged aluminum beadlock compatible wheels
- LT 315/70-17 BF Goodrich all-terrain tires

Note: Your F-150 SVT Raptor is equipped with unique front and rear high-performance Fox shock absorbers designed for severe off-road use. Due to the hydraulic motion of the shock fluid in the unique internal bypass system, you can expect some noise during on-road driving, including boom, chirp, or clunk noises. This is a normal characteristic of the shock absorbers and you should not attempt repair.

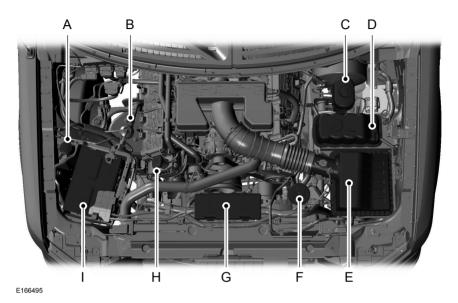
F-150 SVT Raptor-Specific Interior Features



- · Instrument panel cluster graphics
- High line LCD cluster with unique SVT off-road screen
- Steering wheel unique wrap with on-center marker, thumb pads and improved grip contour
- · Door trim inserts and center stack trim
- Off-road style floor mats with SVT logo

At a Glance

6.2L V8 Engine



- A. Windshield washer fluid reservoir
- B. Engine oil dipstick
- C. Brake fluid reservoir
- D. Engine coolant reservoir
- E. Air filter assembly
- F. Power steering fluid reservoir
- G. Power distribution box
- H. Engine oil filler cap
- I. Battery

Fuel and Refueling

FUEL QUALITY

Note: Use of any fuel other than those recommended may cause powertrain damage, a loss of vehicle performance, and repairs may not be covered under warranty.

Choosing the Right Fuel

Use only UNLEADED gasoline or UNLEADED gasoline blended with a maximum of 15% ethanol in your gasoline vehicle. If your vehicle is a Flex Fuel Vehicle (FFV), it will have a yellow bezel placed over the fuel fill inlet.

Do not use:

- fuels containing more than 15% ethanol or E-85 fuel
- fuels containing methanol
- fuels containing metallic based additives, including manganese-based compounds
- fuels containing the octane booster additive, methylcyclopentadienyl manganese tricarbonyl (MMT)
- leaded-fuel (The use of leaded fuel is prohibited by law)

Note: Use of any fuel other than the recommended fuel can cause powertrain damage, impair the emission control system or cause loss of vehicle performance. Any damage to the vehicle that is caused by the use of fuel not recommended will not be covered under warranty.

Octane Recommendations

87(R+M)/2 METHOD

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Regular unleaded gasoline with a pump (R+M)/2 octane rating of 87 is recommended. Some stations offer fuels posted as Regular with an octane rating below 87, particularly in high altitude areas. Fuels with octane levels below 87 are not recommended.

Do not be concerned if your engine sometimes knocks lightly. However, if it knocks heavily under most driving conditions while you are using fuel with the recommended octane rating, see your authorized dealer to prevent any engine damage.

Terrain Response

PRINCIPLE OF OPERATION

WARNINGS

Hill descent control cannot control descent in all surface conditions and circumstances, such as ice or extremely steep grades. Hill descent control is a driver assist system and cannot substitute for good judgment by the driver. Failure to do so may result in loss of vehicle control, crash or serious injury.

Hill descent control does not provide hill hold at zero miles per hour (0 kilometers per hour). When stopped, the parking brake must be applied or the

vehicle must be placed in **P** (Park) or it may roll away.

Hill descent control allows the driver to set and maintain vehicle speed while descending steep grades in various surface conditions.

Hill descent control can maintain vehicle speeds on downhill grades between 2 mph (3 km/h) and 12 mph (20 km/h). Above 20 mph (32 km/h), the system remains armed, but descent speed cannot be set or maintained.

Hill descent control requires a cooling down interval after a period of sustained use. The amount of time that the feature can remain active before cooling varies with conditions. The system will provide a warning in the message center and a chime will sound when the system is about to disengage for cooling. At this time, manually apply the brakes as needed to maintain descent speed.

USING HILL DESCENT CONTROL



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- Press and release the hill descent button located on the center console. Switching on this feature will light the button and sound a tone.
- Press the accelerator pedal to increase descent speed until you have reached the desired speed.
- 3. Press the brake pedal to decrease descent speed until you have reached the desired speed.

Note: Once you have reached the desired descent speed, remove your feet from the pedals to maintain the chosen vehicle speed.

See the **Information Displays** chapter of your **Owner's Manual** for hill descent mode messages.

Disabling Hill Descent Control

To switch off the hill descent control, press the button located on the center console a second time. The light will turn off and the information display will indicate that you have switched this off.

Driving Aids

FRONT VIEW CAMERA

Front Off-Road Camera System

WARNINGS

The off-road mode camera system is an off-road aid supplement device that still requires the driver to use it in conjunction with viewing the front of the vehicle.



Due to the limited coverage of the camera system, objects close to either corner of the bumper may not be visible on the screen.



Drive forward as slowly as possible since higher speeds might limit your reaction time to stop the vehicle.



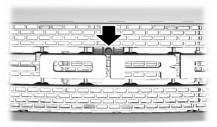
Do not use the camera system with the hood open. If the hood is open, the camera will be out of position and the video image may be incorrect.



Use caution when turning the front camera features on or off while in **D** (Drive). Make sure the vehicle is not moving.

Note: The front off-road camera system is a convenience feature and is not a substitute for your front windshield. Always be aware of the environment around you.

The front view camera provides a video image of the area in front of the vehicle. which appears on the touchscreen. This feature will aid you in off-road conditions. such as rock-climbing, slow-speed maneuvering and cresting hills, when your view through the front windshield is unclear.



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The front camera system is located on the front grille.

If the front grille of your vehicle sustains damage, check with your authorized dealer to have your front off-road video system. checked for proper coverage and operation.

Using the Front Off-road Camera System

Note: At nighttime or in dark areas, the camera system relies on the front-headlamps lighting to produce an image.

Note: The vehicle must be traveling below 15 mph (25 km/h) for the front off-road camera to operate. Traveling above 15 mph (25 km/h) while the camera is active will cause the camera to shut off, it will not turn back on until the vehicle goes below 13 mph $(21 \, \text{km/h}).$

Note: Adjusting the brightness and contrast of the screen may help the image on the screen become more clear. You can adjust these settings in the **Settings** menu when the front camera is active.

Note: The front off-road mode camera system image may become unclear or seem distorted from water droplets, snow, mud or any other substance. If this occurs, clean the camera lens with the front camera washer system, or with a soft, lint-free cloth and non-abrasive cleaner.

Driving Aids

Turning on the Front Off-road Camera System

Your vehicle must meet the following conditions to turn the system on:

 You must be in off-road mode with electronic locking differential (ELD) activated or in 41.

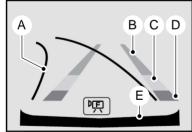
See the **Off-Road Mode** section in the **Driving Hints** chapter of this supplement, and Electronic Locking Differential (ELD) in the **Four-Wheel Drive** chapter of your **Owner's Manual** for information on how to activate these systems.

- Select the **Truck Apps** menu in your information display screen.
- 2. Select the sub-menu **Off-Road Camera**
- 3. Press **OK** to enable and disable the camera.

The area displayed on the screen may vary according to the vehicle orientation and road conditions.

Active and Fixed Guidelines

Fixed guidelines



- E167337
 - A. Active guidelines (will appear in blue)
 - B. Objects in the green zone are further away

- C. Yellow zone
- D. Objects in the red zone are closest to your vehicle
- E. Front bumper

As objects are getting closer to your vehicle, they move from the green zone (B) to the yellow (C) or red zones (D). Look through your windshield to get a better field of vision from the front of the vehicle while driving forward.

Active guidelines

The active guidelines (A) show the path of intended forward motion of the vehicle and assist a driver to align with an object in front of the vehicle.

To use active guidelines, turn the steering wheel and point the active guidelines toward an intended path. If the steering wheel position is changed, the vehicle might deviate from the original intended path.

Note: The active guidelines will fade in and out depending on the steering wheel position. When the steering wheel position is straight, the active guidelines are covered by the static guidelines and are not shown.

Front camera washer control

The front off-road camera washer control is located on the wiper stalk.



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Driving Aids



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O - Front camera washer off.

F - Front camera washer on.

To use the front camera washer, rotate the dial until the dot mark lines up with the **F** front camera position. The washer will clean for as long as desired. Return the dial to line up with the **O** position when you are finished washing the camera.

Towing

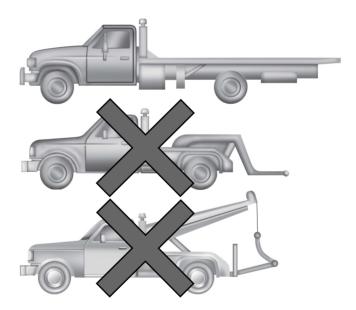
TOWING A TRAILER

Towing Capacity

Vehicle type	Maximum tow weight	Gross combination weight rating (GCWR)
SuperCab	6000 lb (2721 kg)	12500 lb (5670 kg)
SuperCrew	8000 lb (3629 kg)	14700 lb (6668 kg)

Refer to the **Towing** chapter in your **Owner's Manual** for additional towing information.

TRANSPORTING THE VEHICLE



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If you need to have your vehicle towed, contact your roadside assistance center or a professional towing service.

Towing

It is required that your vehicle be towed with flatbed equipment. When towing with a flatbed, 4x4 blocks must be used when loading and unloading your vehicle. Do not tow with a slingbelt. Ford Motor Company has not approved a slingbelt towing procedure.

Note: If the vehicle is towed by other means or incorrectly, vehicle damage may occur.

TOWING THE VEHICLE ON FOUR WHEELS

Emergency Towing

If your vehicle becomes inoperable (without access to wheel dollies, car-hauling trailer, or flatbed transport vehicle), it can be flat-towed (all wheels on the ground, regardless of the powertrain and transmission configuration) under the following conditions:

- Your vehicle is facing forward for towing in a forward direction.
- Place the transmission in position N. If you cannot move the transmission into N, you may need to override it.
- Maximum speed is 35 mph (56 km/h).
- Maximum distance is 50 miles (80 kilometers).

Recreational Towing

Note: Put your climate control system in recirculated air mode to prevent exhaust fumes from entering your vehicle.

Follow these guidelines if you have a need for recreational towing, such as towing your vehicle behind a motorhome. We designed these guidelines to prevent damage to your transmission.

Four-wheel-down Towing

You can only tow a four-wheel drive vehicle with all wheels on the ground by placing the transfer case in its neutral position and engaging the four-wheel-down towing feature. Perform the steps outlined in the following section after positioning your vehicle behind the tow vehicle and properly securing them together.

- 1. Turn the ignition to the on position. Do not start the engine.
- 2. Press and hold the brake pedal.
- 3. Rotate the four-wheel drive switch to **2H**
- 4. Shift the transmission to position **N**.
- Rotate the four-wheel drive switch from 2H to 4L and back to 2H five times within seven seconds.

Note: If completed successfully, the information display shows **NEUTRAL TOW LEAVE IN N** or **NEUTRAL TOW ENABLED LEAVE TRANSMISSION IN NEUTRAL**.

This indicates that your vehicle is safe to tow with all wheels on the ground

Note: If you do not see the message in the display, you must perform the procedure again from the beginning.

Note: You may hear an audible noise as the transfer case shifts into its neutral position. This is normal.

- 6. Leave the transmission in position N and turn the ignition as far as it will go toward the off position (it will not turn fully off when the transmission is in position N. You must leave the key in the ignition while towing. To lock and unlock your vehicle, use the keyless entry keypad or extra set of keys.
- 7. Release the brake pedal.

Towing

WARNINGS

Do not disconnect the battery during recreational towing. Doing so will prevent the transfer case from shifting properly and may cause the vehicle to roll even if the transmission is in P (Park).



Shifting the transfer case to its neutral position for recreational

towing may cause the vehicle to be able to roll even if the transmission is in P (Park). The driver or others could be injured. Make sure the foot brake is depressed and the vehicle is in a secure and safe position while the transfer case is being shifted to its neutral position.



Failing to put the transfer case in its neutral position will damage vehicle components.

Note: You can check four-wheel-down towing status at any time by opening the driver's door or turning the ignition to the accessory or on position and verifying the **NEUTRAL TOW ENABLED** message displays in the cluster.

To exit four-wheel-down towing and return the transfer case to its **2H** position:

- With your vehicle still properly secured to the tow vehicle, press and hold the brake pedal.
- 2. Turn the ignition to the on position. Do not start the engine.
- 3. Shift the transmission out of **N** and into any gear.
- 4. Release the brake pedal.

Note: If completed successfully, the instrument cluster displays 4X2, and

NEUTRAL TOW DISABLED.

Note: If the indicator light and message do not display, you must perform the procedure again from the beginning.

Note: You may hear an audible noise as the transfer case shifts out of its neutral position. This is normal.

- 5. Apply the parking brake, and then disconnect the vehicle from the tow vehicle.
- 6. Release the parking brake, start the engine, and shift the transmission to position **D** to make sure the transfer case is out of position **N**.
- 7. If the transfer case does not successfully shift out of position N. set the parking brake until you can have your vehicle serviced.

OFF-ROAD DRIVING

WARNING

Off-roading can be extremely dangerous and carries inherent risks that may not be preventable even with the best precautions. Ford strongly recommends driving within your ability and taking every safety precaution, including those found here and at other off-road driving organizations such as the Best in the Desert Racing (www.bitd.com) and SCORE International Off-Road Racing.

In addition to providing an excellent on-road driving experience, your vehicle excels at all types of off-road driving. The truck has been designed and equipped to allow you to explore those places where the road doesn't take you whether it's a forest trail or the open desert. Before going off-roading, consult with your local governmental agencies to determine designated off-road trails and recreation areas. Also, be sure to understand any off-road vehicle registration requirements for the area in which you plan on driving.

Tread Lightly is an educational program designed to increase public awareness of land-use regulations and responsibilities in our nation's wilderness areas. Ford joins the U.S. Forest Service and Bureau of Land Management in encouraging you to help preserve our national forest and other public and private lands by treading lightly.

Before taking your vehicle off-roading, a basic vehicle inspection should be done to make sure that the vehicle is in top working condition.

It is always recommended that at least two vehicles are used while off-roading. The buddy system helps make sure that help is close at hand should a vehicle become stuck or damaged. It is also wise to take supplies such as a first aid kit, supply of water, tow strap, cell or satellite phone with you any time an off-road excursion is planned.

Off-Road Mode

Off road mode changes the calibrations of four systems on the vehicle to enhance off road performance:

- Electronic locking differential (ELD)— Any speed thresholds for the ELD are lifted. The ELD will remain locked up to the maximum vehicle speed when engaged.
- AdvanceTrac— When off-road mode is engaged, the AdvanceTrac settings are altered for optimized off-road performance.
- Transmission shifting and response— The transmission shift schedule is altered for improved off road performance. Upshifts are delayed and occur less frequently. This will provide the best possible vehicle response and acceleration.
- Engine throttle calibration— The engine throttle calibration is altered for improved off-road performance.

Note: Operating the vehicle in this mode does not guarantee that the vehicle will not become stuck in sand, snow or mud or other debris. It is the driver's responsibility to assess off-road situations and determine if the terrain is passable.

Note: Tow/haul mode will be disabled when off-road mode is active. If tow/haul mode is active, it will be disabled when off-road mode is active.

Enabling off-road mode

WARNING

Off-road mode is specifically calibrated for off-road driving conditions and should never be used on pavement.

To enter off-road mode the following conditions must be met:

- The vehicle must be traveling less than 5 mph (8 km/h).
- Your foot must be off of the accelerator pedal.

Note: If any of the conditions are not met. the information display screen will display the appropriate messages to guide the driver through the proper operating procedures.



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To activate off-road mode press the button located on the center console. A chime will sound and a message will appear indicating that it is activated.

Disabling off-road mode

To disable off-road mode once it is active press the off-road mode button a second time. A chime will sound and a message will appear indicating that it is deactivated.

AdvanceTrac Modes

During off-road mode the AdvanceTrac system provides the vehicle with alternative AdvanceTrac calibrations. which improve off-road performance.

Off-road AdvanceTrac calibrations are enabled for 2H and 4H. When the AdvanceTrac button is pressed once AdvanceTrac Sport will engage. In this mode the vehicle will have ABS, traction control and vaw control settings specifically calibrated for off-road condition. When the AdvanceTrac button is pressed and held AdvanceTrac will become disabled. In this mode only off-road calibrated ABS remains active. Also, when off-road mode is not engaged. the AdvanceTrac disabled mode will not revert to AdvanceTrac Sport mode above the speed threshold in place.



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To switch between AdvanceTrac modes. with off-road mode active, press the AdvanceTrac button located on the instrument panel.

- AdvanceTrac Sport— Pressing the stability control off button once places the vehicle in the off-road sport mode. In this mode Electronic Stability Control (ESC), Traction Control Stability (TCS) and Anti-lock Brake System (ABS) are altered for a unique off-road mode calibration. TCS and ESC allow for more tire spin and vehicle slip. Roll Stability Control (RCS) is disabled in this mode.
- AdvanceTrac Disabled— Pressing and holding the stability control off button will disable AdvanceTrac. In this mode only off-road calibrated ABS remains active. Also, when off-road mode is not engaged, the AdvanceTrac disabled mode will not revert to AdvanceTrac Sport mode above the speed threshold in place. While in 4H and 4L steering efforts will seem slightly higher.

AdvanceTrac with RSC features when using off-road mode

Off - Road Mode	Button Func- tions	Sliding Car Icon	Advan- ceTrac Informa- tion Display	Off- Road Mode Informa- tion Display	RSC	ESC	TCS	ABS
_	Default at start- up	Off	Enabled	Off	On	On	On	Street
Off	Button pressed moment- arily	On	Sport	Off	On	Sport	Sport	Street
Off	Button pressed and held for more than 5 seconds while trav- eling under 35 mph (56 km/ h)	Flashes, then stays on	Disabled	Off	Off	Off	Off	Street

Off - Road Mode	Button Func- tions	Sliding Car Icon	Advan- ceTrac Informa- tion Display	Off- Road Mode Informa- tion Display	RSC	ESC	TCS	ABS
Off	Vehicle speed exceeds 35 mph (56 km/ h) while/ after button is pressed and held for more than 5 seconds	On	Disabled	Off	On	Sport	On	Street
On	Button pressed moment- arily	On	Sport	On	Off	Sport	Sport	Off- road
On	Button pressed and held for more than 5 seconds	Flashes, then stays on	Disabled	On	Off	Off	Off	Off- road

Note: When off-road mode is on, pressing the stability control off button will change the ABS to an off-road specific calibration. The ABS off-road mode desensitizes the ABS. The ABS calibration in off-road mode is optimized for performance on off-road surfaces. This helps on very rough terrain/adverse driving conditions where the standard ABS calibration may become too active and hinder the type of driving required in off-road conditions.

For more information on the AdvanceTrac and its operation, refer to the **Stability Control** chapter of your **Owner's Manual.**

Off-road Screen

The real-time status of your vehicles off-road systems can be continuously monitored using the first off-road screen found under the Truck Apps menu in the information Displays screen. See the **Information Displays** chapter of your **Owner's Manual** for more information.

Basic Off-road Driving Techniques

- .
- Grip the steering wheel with thumbs on the outside of the rim. This will reduce the risk of injury due to abrupt steering wheel motions that occur when negotiating rough terrain. Do not grip the steering wheel with thumbs inside the rim.
- Throttle, brake and steering inputs should be made in a smooth and controlled manner. Sudden inputs to the controls can cause loss of traction or upset the vehicle, especially while on sloped terrain or while crossing obstacles such as rocks or logs.
- Look ahead on your route noting upcoming obstacles, surface texture or color changes or any other factors which may indicate a change in available traction, and adjust the vehicle speed and route accordingly. During pre-run, mark obstacles with GPS markers to make sure appropriate speeds are used to avoid potential vehicle damage.
- When driving off-road, if the front or rear suspension is bottoming-out and/or excessive contact with the skid-plates is encountered, reduce vehicle speed to avoid potential damage to the vehicle.

- When running with other vehicles, it is recommended that communication is used, and the lead vehicle notify other vehicles of obstacles that could cause potential vehicle damage.
- Always keep available ground clearance in mind and pick a route that minimizes the risk of catching the underside of the vehicle on an obstacle.
- When negotiating low speed obstacles, applying light brake pressure in conjunction with the throttle will help prevent the vehicle from jerking and will allow you to negotiate the obstacle in a more controlled manner. Using 4L will also help with this.
- Use and equip supplemental safety equipment as discussed later in this chapter.
- Please consult your local off-road group for other helpful tips.
- Off-roading requires a high degree of concentration. Even if your local law does not prohibit alcohol use while driving off-road. Ford strongly recommends against drinking if you plan to off-road.

Operating a Performance Vehicle at Higher than Normal Speeds

Your vehicle is capable of operating at higher than normal off-road speeds and is equipped with tires rated for the vehicles' maximum speed. However, it is important to remember to always drive safely, obey all traffic laws and only operate your vehicle at higher than normal speeds at locations and under conditions where such can be done safely.

Before operating your vehicle at higher than normal speeds:

- Make sure your tires are at the correct tire pressure. See **Tire Care** (page 26).
- Inspect wheels and tires for wear and damage. Replace any damaged wheels or tires.
- Never operate the vehicle at higher than normal speeds when loaded with passengers/cargo.

Driving in Mud

- Deep mud should be approached with caution especially if you are driving in an unfamiliar area.
- If possible, test the depth of a mud hole before entering with the vehicle.
- Keep in mind that obstacles and deep ruts may be hidden beneath the surface of the mud.
- Proceed in a steady, controlled manner through deep mud while maintaining momentum.
- If momentum is lost and you feel the vehicle becoming stuck, turning the steering wheel back and forth (sawing the wheel) quarter turn in each direction may give the traction you need to clear the muddy area.
- In higher speed areas with shallow mud, directional control will be reduced in the muddy area much like on snow or ice. When approaching such an area, be sure to slow to a speed which allows you to maneuver as required by the conditions.

Driving in Sand

WARNING



Tires must be returned to normal recommended tire pressures before driving on payement or hard

surfaces. Failure to properly maintain your tire pressure could increase the risk of tire failure, loss of control, vehicle rollover and personal injury.

Soft sand and dunes present a very unique driving challenge. Before going on such a drive, some research is advised regarding proven techniques and pitfalls inherent in driving in deep sand.

Some general points to consider:

- It is very difficult and in many cases impossible to navigate deep sand with tire pressures which are appropriate for on-road driving. If you decide to air down your tires, be advised that the tire pressure monitoring light will illuminate. The tires must be returned to normal recommended tire pressures before driving on pavement or hard surfaces.
- Lower tire pressures are more likely to cause a debeading of the tire during cornering. Avoid sharp or abrupt turns when you have extremely low tire pressures.
- To help prevent becoming stuck in deep sand, avoid spinning the tires or making abrupt maneuvers. Proceed in a controlled manner while maintaining vehicle momentum.
- Avoid stopping or parking on inclines as this makes it more difficult to resume driving.

Driving in Deep Snow

- Maintain vehicle momentum.
- Apply the throttle very gently to avoid spinning the tires. Spinning the tires will potentially dig the vehicle deeper into the snow
- Drive in a controlled manner, avoiding aggressive steering wheel movements, and keep braking to a minimum.
- Extremely deep snow may cause the vehicle to high center causing the vehicle to become stuck. Test the depth of the snow before trying to drive through it.

Crossing Obstacles

- Review the path ahead before attempting to cross any obstacle. It is best if the obstacle is reviewed from outside the vehicle so that there is a good understanding of terrain condition both in, front of, and behind the obstacle.
- Approach obstacles slowly and slowly inch the vehicle over.
- If a large obstacle such as a rock cannot be avoided, choose a path that places the rock directly under the tire rather than the undercarriage of the vehicle. This will help prevent damage to the vehicle.
- Ditches and washouts should be crossed at a 45 degree angle, allowing each wheel to independently cross the obstacle.

Hill Climbing

WARNING

Extreme care should be used when steering the vehicle in reverse down a slope so as not to cause the vehicle to swerve out of control.

- Always attempt to climb a steep hill along the fall line of the slope and not diagonally.
- If the vehicle is unable to make it up the hill, DO NOT attempt to turn back down the slope. Place the vehicle in low range and slowly back down in reverse.
- When descending a steep slope, select low gear and engage hill descent control. Use the throttle and brake pedals to control your descent speed as described earlier in this section using hill descent control. Note that hill descent control is functional in reverse and should be used in this situation.

Water Wading

Your vehicle is designed to operate in water depths up to 30 inches (760 millimeters). However, as the water depth increases, vehicle speed must be reduced to avoid potential vehicle damage.

- Always determine the depth before attempting a water crossing.
- Proceed slowly and avoid splashing water any more than is necessary.
- Be aware that obstacles and debris may be beneath the water's surface.
- Keep the doors fully closed during the water crossing.
- Upon completion of the water crossing, slowly drive a short distance and check the brakes for full effectiveness.

Refer to chart below for the maximum allowable speeds when driving through water.

Note: Failure to follow the recommended speeds may result in vehicle damage.

Water Depth	Maximum Allow- able Vehicle Speed
6 in (150 mm)	40 mph (65 km/h)
8 in (200 mm)	31 mph (50 km/h)
10 in (250 mm)	19 mph (30 km/h)
12 in (300 mm)	8 mph (12 km/h)
18 to 30 in (450 mm to 760 mm)	4 mph (7 km/h)
Reverse – up to 30 in (760 mm)	Less than 6 mph (10 km/h)

High Speed Off-Roading

The off-road driving discussed thus far has focused on the type of events typically encountered during slow speed off-road driving conditions. Your vehicle provides excellent performance in a full size pick-up truck during these slower speed conditions, but truly excels at higher speed baja style off-road driving. High speed off-roading presents a unique challenge, but extra care and caution should be taken before engaging in this type of driving.

If you plan on using the truck for severe, high speed off-road use, the following is recommended:

- Equip your truck with the safety equipment used for the Stock-Full Class as defined in the rule books for the Best in the Desert Racing (www.bitd.com) and SCORE International Off-Road Racing (www.score-international.com).
- Use personal safety equipment including a SNELL SA certified helmet and approved neck restraint device.
- Before venturing off-road in unfamiliar areas at high speeds, do a low speed reconnaissance run (prerun) to become aware of any obstacles that you will encounter.

Ford SVT has engineered your vehicle for off-road use beyond what is normal for a F-150. However, it can incur damage if driven beyond its capabilities. Skid plates, shock guards and running boards were designed to help limit damage to vital components and exterior finishes, but cannot prevent all damage if driven in extreme off-road conditions. Damage to skid plates, shock guards, running boards and exterior finishes as well as bent, cracked or broken body, frame and chassis components may not be covered by warranty.

It is important that you take the time to become familiar with the controls and dynamics of your vehicle before attempting higher speed off-roading.

Some points to consider:

- Build up speed slowly. Initially, drive at a pace which allows ample time to fully assess the terrain around you and to understand how the vehicle is responding to both the terrain and driver inputs. Increase pace as comfort increases while always being mindful of how the vehicle is responding to various events at different speeds.
- Find a wide open place to experiment with different functions on the truck. Try a given maneuver with different vehicle settings (4H vs. 4L), (differential locked vs. unlocked), (AdvanceTrac in key-on vs. single press vs. press and hold modes) and see how the truck responds. Start slowly and build pace as comfort increases.
- Similarly, in a wide open space, experiment with different driving techniques. For example, if the vehicle is tending to push straight ahead when trying to negotiate a turn (understeering or plowing), a light application of the brake while turning may help rotate the truck. A wider entry to the corner or entering the corner more slowly may help the truck turn and allow you to apply the throttle sooner after negotiating the turn.
- Remember the phrase smooth is fast.
 This refers to your steering, throttle, and brake movements. Smooth decisive movements will yield improved results while helping to increase safety.

- As speed increases, it is wise to look farther ahead of the vehicle so that there is time to react to oncoming obstacles. Remember that in many off-road environments, obstacles will be hard to see until they are relatively near. A good strategy is to alternate between looking far ahead and up closer to the front of the vehicle as you're driving.
- Also remember to drive what you can see. This refers to not driving faster than you are able to negotiate unforeseen upcoming obstacles. This could refer to obstacles over a brow, in a ravine, in brush, in dusty conditions, and in the darkness among others.
- If you are driving in a dusty area. Be sure to leave ample distance between you and any other vehicles to make sure adequate vision.
- Always remember that you may not be the only one in a particular recreational area, always be cognizant of others in your area. This is especially true of motorcycles and ATV's which may be more difficult to spot than a full-sized vehicle.
- If driving in desert conditions, it is advised that you always drive with your headlights on to help other drivers more easily see you.
- While driving in desert conditions, the midpoint of the day is the most difficult time to see many of the small ridges and dips due to flat shadows from the sun being at its highest point. Extreme care should be taken at these times to not inadvertently run into these obstacles.

- _
- It is highly encouraged that you switch to off-road mode and perform an AdvanceTrac single press to make sure improved off-road braking performance under these conditions. Be sure to disengage the off-road mode and switch back to AdvanceTrac key-on mode before performing any street driving. Please see the Off-Road Mode section of this supplement for more details.

After Off-Road Driving

It is important to complete a full vehicle inspection after off-road driving. Some items to check include:

- Make sure that tires are inflated to proper tire pressure as indicated on the tire placard.
- Check the wheels and undercarriage for built up mud or debris which can cause vehicle vibration.
- Make sure that the grille and radiator are clear of any obstructions that may affect cooling.
- Make sure that the brakes are in proper working order and free of any mud, stones and debris, which can become trapped around the brake rotor, backing plate and caliper.
- Check that the air filter is clean and dry.
- Inspect for torn or punctured boots on ball joints, half shafts, steering gears.
- Inspect exhaust system for damage or looseness.
- Inspect undercarriage fasteners. If any are loose or damaged, tighten or replace ensuring that the proper torque specification is used.

- Inspect the tires for any cuts in the tread or sidewall area. Also inspect the sidewall for any bulge indicating damage to the tire.
- Inspect the wheels for dents, cracks, or other damage.

Vehicle Care

CLEANING THE EXTERIOR

Do not drive your vehicle through an automated, commercial car wash due to the vehicle's tire width and track. Wash your vehicle by hand, or by using a touchless commercial wash with no mechanical tracks on the floor. Do not use a commercial or high-pressure wand on the bed-side graphic surface or graphics edges.

Wheels and Tires

GENERAL INFORMATION

Your vehicle is equipped with unique wheels and tires designed to enhance performance and appearance. To continue providing this performance, you must take extra care when operating and maintaining vour vehicle.

Tires	LT315/70R17 BSW tires
Wheels	SVT-Signature style, 17 in x 8.5 in aluminum 6-spoke wheels
Spare tire	LT315/70R17 BSW tire

TIRE CARE

WARNINGS

Always re-inflate tires to recommended tire pressures before the vehicle is operated on-road. The recommended pressure is located on the tire placard label or safety certification label, located on the B-pillar, inside the driver's door.



tire failure.

Always check tires and wheels for damage before returning to the road. Off-road use may cause damage to your tires and wheels that could result in

Note: If you have reduced your tire pressure for off-road use, the tire pressure monitoring system (TPMS) warning light will then activate in the instrument panel as a reminder to re-inflate the tires before returning to the road.

Your vehicle is equipped with high performance, all-terrain tires designed to optimize handling, steering and braking to provide the performance you expect in an SVT vehicle. These tires are optimized for both on and off-road performance, and their ride, noise and wear characteristics are different from other tires. Also, because of their aggressive tread profile, it is important that you maintain your tires properly.

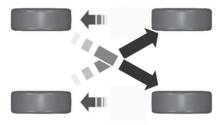
- Always maintain your tire pressures according to the tire information placard located on the driver's door B-pillar, using an accurate gauge. Remember to be prepared to re-inflate your tires before returning to the road. If a tire filling station is not available. remember to prepare a supplemental means to inflate the tires, such as a portable compressor.
- In cold temperature, check the tire pressure after the vehicle has been parked for more than three hours. Do not reduce pressure of warm tires.
- Check your tire pressure often to maintain it properly. Tire pressure can diminish over time and fluctuate with temperature.
- Do not overload your vehicle. Maximum vehicle and axle weights are listed on the tire information placard.
- Extra caution should be taken when operating the vehicle near its maximum load, including assuring proper tire pressure and reducing speeds.
- In the event that you encounter an abnormally harsh impact, inspect your tires for damage.
- Inspect your tires for damage on a regular basis. Replace a damaged tire immediately.

Wheels and Tires

- Proper suspension alignment is critical for maximum performance and optimal tire wear. If you notice uneven tire wear, have your alignment checked.
- When replacing tires, the only way to assure original performance is to use the original equipment tire. If a different tire is used, it should be the same size, speed rating and load rating.

Tire Rotation

Because your vehicle's tires perform different jobs, they often wear differently. To make sure your tires wear evenly and last longer, have them rotated.



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The front tires are shown at the left of the illustration.

Note: Your vehicle requires tire rotations every 5000 miles (8000 kilometers). If you notice that the tires wear unevenly, have them checked.

Spare Tire and Wheel

Your vehicle is equipped with an LT315/70R17 spare tire. The spare tire/wheel assembly has the same capability as the road tire/wheel assembly, but is not equipped with a tire pressure monitoring sensor.

USING SNOW CHAINS

The original equipment tires on your vehicle are not designed to be used with snow chains. If you will be operating your vehicle with snow chains, use a smaller tire and wheel combination as recommended in your **Owner's Manual**.

WHEELS

Your vehicle is equipped with unique wheels matched to the tires. To avoid damage to your wheels:

- Maintain proper tire pressure. See Tire Care (page 26).
- Due to extreme tire/wheel width, this vehicle cannot be taken through an automatic car wash that uses mechanical tracks, as wheel damage may result.
- When installing wheels, always torque lug nuts to specification with a torque wrench.
- Inspect your wheels for damage on a regular basis. If you have a damaged wheel, replace it immediately.
- In the event that you encounter an abnormally harsh impact, inspect the outer diameter of your wheels, both inside and out, for damage.

Optional Bead-Lock Compatible Wheel

Note: SVT only recommends using bead-lock rings from Ford Racing, in conjunction with the OEM tire. Any other combination using this wheel could result in air loss or tire failure.

Note: Converting the bead-lock compatible wheel to true bead-locks is for off-road use only. On road driving is not permitted.

Wheels and Tires

If your vehicle is equipped with the optional bead lock compatible wheel, you have the ability to convert this wheel to use a true bead-lock ring, which allows operation at low tire pressures when off-road to minimize risk of de-beading the tire. See your local Ford Racing Parts Dealer for more information.

ENGINE SPECIFICATIONS

Engine	6.2L V8 engine
Bore x Stroke	102 x 95 mm (4.01 x 3.74 in)
Displacement	6.2L (6207 cc)
Compression ratio	9.8:1
Horsepower (SAE net)	401 hp at 5500 rpm on 87 octane, 411 hp at 5500 rpm on 91 octane
Torque	434 lb-ft at 4500 rpm on 87 octane, 434 lb-ft at 4500 rpm on 91 octane
Redline	6000 rpm
Specific output	64.6 hp/l on 87 octane, 66.2 hp/l on 91 octane
Valvetrain	Single overhead cam, roller rocker shaft with hydraulic lash adjustment, inverted-tooth chain drive, ovate-wire valve springs, two valves per cylinder
Fuel system	Sequential electronic fuel injection, returnless fuel system
Ignition system	Coil-on-plug electronic ignition with secondary wire and dual-plug
Throttle body	Single 80 mm (3.15 in)
Exhaust manifolds	Cast-iron high silicon, molybdenum (HiSiMo)

Drivetrain

Rear axle	Modified rear axle for track width, 4.10 ratio		
Driveshaft	Aluminum with hardened yoke		
Gear ratios	Gear Ratio		
	1st 4.17		
	2nd 2.34		
	3rd	1.52	
	4th	1.14	

5th	0.87
6th	0.69
Reverse	3.40

MOTORCRAFT PARTS

Component	6.2L V8 engine	
Air filter element	FA-1883	
Battery	BTX-59 or BTX-65-650 ¹	
Oil filter	FL-820S	
Spark plugs	2	

Heavy-duty battery, if equipped.

Replace the spark plugs with ones that meet Ford material and design specifications for your vehicle, such as Motorcraft or equivalent replacement parts. The customer warranty may be void for any damage to the engine if such spark plugs are not used.

²For spark plug replacement, see your authorized dealer. Refer your scheduled maintenance information for the appropriate intervals for changing the spark plugs.

TECHNICAL SPECIFICATIONS

Item	Capacity	Ford part name or equivalent	Ford part number / Ford specification
Engine oil ^{1,2}	6.6L (7.0 qt) (includes filter change)	Motorcraft SAE 5W- 20 Motor Oil	XO-5W20-QSP or XO-5W20-QFS (U.S.); CXO-5W20- LSP12 or CXO- 5W20-LFS12 (Canada) / WSS- M2C945-A
Engine coolant ³	16.0L (16.9 qt)	Motorcraft Orange Antifreeze/Coolant Prediluted	VC-3DIL-B (US); CVC-3DIL-B (Canada) / WSS- M97B44-D2
Front axle lubricant ⁴	1.7L (3.6 pt)	Motorcraft SAE 80W- 90 Premium Rear Axle Lubricant (US); Motorcraft SAE 80W- 90 Premium Axle Lubricant (Canada)	XY-80W90-QL (US);CXY-80W90- 1L (Canada) / WSP- M2C197-A
Rear axle lubricant⁵	2.6L (5.5 pt)	75W-85 Premium Synthetic Hypoid Gear Lubricant	XY-75W85-QL / WSS-M2C942-A
SuperCab fuel tank	98.4L (26 gal)	_	_
CrewCab fuel tank	136.3L (36 gal)	_	_

Item	Capacity	Ford part name or equivalent	Ford part number / Ford specification
Transmission fluid ⁶	12.4L (13.1 qt) ⁷	Motorcraft MERCON LV ATF	XT-10-QLV / MERCON LVXT-10- QLVC (US); CXT- 10-LV12 (Canada)
Transfer case lubricant	1.4-1.5L (2.9-3.1 pt)	Motorcraft Transfer Case Fluid	XL-12 (US); CXL-12 (Canada) / ESP- M2C166-H

Your engine has been designed to use Motorcraft motor oils or equivalent oil brands that meet Ford's specifications. It is also acceptable to use motor oils of the recommended viscosity grade that meet API SN requirements and displays the API Certification Mark for gasoline engines.

Note: Your vehicle's rear axle is filled with a synthetic rear axle lubricant and is considered lubricated for life. These lubricants do not need to be checked or changed unless a leak is suspected, service is required or the axle assembly has been submerged in water. The axle lubricant should be changed any time the rear axle has been submerged in water.

Note: Do not add Additive Friction Modifier to the rear axle.

²Do not use oils labeled with API SN service category unless the label also display the API certification mark. These oils do not meet the requirements of your vehicles engine and emissions system. Do not use supplemental engine oil additives. They are unnecessary and could lead to engine damage that is not covered by Ford's warranty.

³Add the coolant type originally equipped in your vehicle.

⁴ Add 118 ml (4 fluid oz.) of Additive Friction Modifier XL-3 (US) / CXL-3 (Canada) or equivalent meeting Ford specification EST-M2C118-A for a complete refill of Torsen™ limited slip differential front axles.

⁵Fill 6 millimeter to 14 millimeter (1/4 inch to 9/16 inch) below bottom of fill hole.

⁶Make sure the correct automatic transmission fluid is used. Transmission fluid requirements are indicated on the dipstick or on the dipstick handle. Check the container to verify the fluid being added is of the correct type. Refer to your scheduled maintenance information to determine the correct service interval.

⁷Approximate dry fill capacity including transmission fluid cooling system, actual refill capacities will vary based on vehicle application and transmission fluid cooling system (for example: coolers size, cooling lines, auxiliary cooler capacities). The amount of transmission fluid and fluid level should be set by the indication on the dipstick's normal operating range.

Accessories

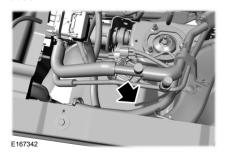
AUXILIARY SWITCHES

The auxiliary switchboard on the center console makes aftermarket customization easier, with four prewired switches attached to the power distribution box for electrical accessories.

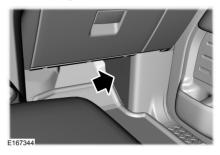


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These switches are labeled **AUX 1, AUX 2, AUX 3** and **AUX 4**. They will only operate while the ignition is in the on position, whether the engine is running or not. It is, however, recommended that the engine remain running to maintain a battery charge when using the switches for an extended duration or higher current draws. When switched on by the operator they provide 10 amps, 15 amps or 30 amps of electrical battery power for a variety of USES.



The switches control relays and fuses that are located under the hood in the auxiliary switch pass through circuits. See **At a Glance** (page 4).



There will also be one power lead for each switch found as a blunt-cut and sealed wire located to the right of the glove box door and just above the passenger-side kick panel.



You may need to pull down the auxiliary cords to access them.

Refer to the **Fuses** chapter of your **Owner's Manual** for information on fuse and relay locations. See your authorized dealer for service.

Additional pass through circuits that run through the dash panel and under the hood, are located in the same location.

Accessories

The relays are coded as follows:

Switch	Circuit number	Wire color	Fuse
AUX 1	CAC05	Yellow	30A
AUX 2	CAC06	Green with brown trace	30A
AUX 3	CAC07	Violet with green trace	15A
AUX 4	CAC08	Brown	10A

Warranty Terms and Conditions

BASE WARRANTY

The F-150 Raptor carries the same New Vehicle Limited Warranty as other Ford F-150 models. This information is covered in its entirety in your warranty information.

Warranty service for the F-150 Raptor or any SVT vehicle can be obtained at any Ford dealer nationwide.

SVT does not recommend modifying or racing SVT vehicles, as they are designed and built to be driven as delivered from the factory. The warranty information discusses vehicle usage and the installation of aftermarket parts and their effect on warranty coverage.

Ford SVT has engineered your F-150 Raptor for off-road use beyond what is normal for a F-150. However, it can incur damage if driven beyond its capabilities. Skid plates, shock guards and running boards were designed to help limit damage to vital components and exterior finishes, but cannot prevent all damage if driven in extreme off-road conditions. Damage to skid plates, shock guards, running boards and exterior finishes as well as bent, cracked or broken body, frame and chassis components may not be covered by warranty.

Vehicle damage caused by driving through deep water at excessive speeds may not be covered under warranty. See **Off-Road Driving** (page 15).

Please see the warranty information for complete information.

Perform Multi-Point Inspection and the inspections outlined in Scheduled Maintenance information. Refer to the vehicle's Workshop Manual for removal and installation procedures. Replace with genuine Ford and Motorcraft service parts as needed.

These modifications may not necessarily protect your engine from damage in competition conditions. Subjecting your vehicle to competition conditions even with these proposed modifications may render repairs non-reimbursable under the New Vehicle Limited Warranty.

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