

## 2013 F-150 Raptor Supplement



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**SVT**  
20<sup>th</sup> ANNIVERSARY



<b>Table of Contents</b>	
<b>Introduction</b>	<b>2</b>
<b>F-150 SVT Raptor-specific features</b>	<b>4</b>
<b>Engine/Transmission</b>	<b>7</b>
<b>Driving</b>	<b>10</b>
Off-road mode	10
Hill descent mode	14
Upfitter controls	15
Driving your F-150 SVT Raptor off-road	20
<b>Roadside Emergencies</b>	<b>28</b>
Wrecker towing	28
<b>Cleaning</b>	<b>29</b>
Washing your vehicle	29
<b>Maintenance</b>	<b>30</b>
<b>Tire Information</b>	<b>34</b>
<b>Warranty Coverage</b>	<b>37</b>
<b>Index</b>	<b>38</b>

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## Introduction

### WELCOME

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 shall supersede the information found in the Owner's Manual.

## Introduction

### SVT HISTORY

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 150,000 SVT vehicles produced since the 1993 model year has been designed and developed with the four SVT Hallmarks in mind: Performance, Substance, Exclusivity and 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.

## F-150 SVT Raptor-specific features

### 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

4

## **F-150 SVT Raptor-specific features**

- 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
- 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

## F-150 SVT Raptor-specific features

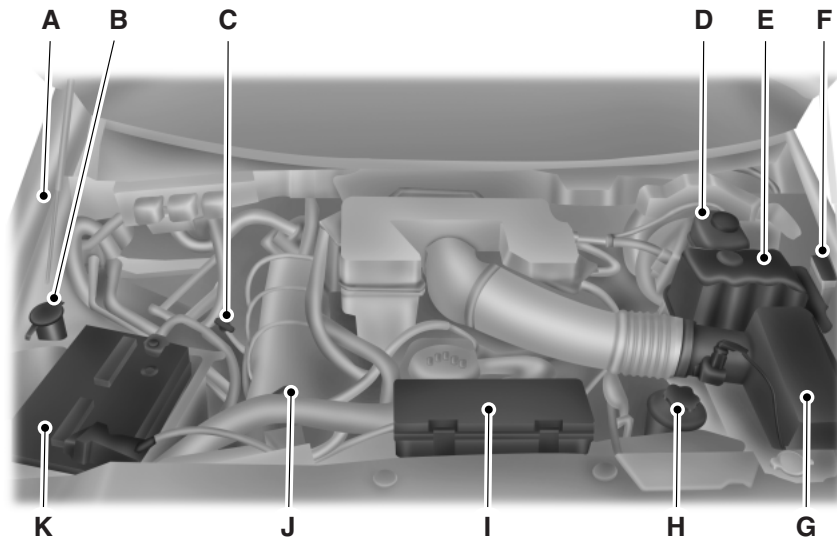


- Instrument panel cluster graphics
- High line LCD cluster with unique SVT off-road screen
- Steering wheel - unique wrap with on-center marker, thumb pads, and improved grip contour
- Door trim inserts and center stack trim
- Off-road style floor mats with SVT logo

**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, some noise during on-road driving including boom, chirp, or clunk noises can be expected over small, sharp bumps such as frost heaves, potholes, or expansion joints. This is a normal characteristic of the shock absorbers and repairs should not be attempted.

## Engine/Transmission

### 6.2L V8 ENGINE



- A. Auxiliary switch pass through circuits
- B. Windshield washer fluid reservoir
- C. Engine oil dipstick
- D. Brake fluid reservoir
- E. Engine coolant reservoir
- F. Auxiliary power distribution box
- G. Air filter assembly
- H. Power steering fluid reservoir
- I. Power distribution box
- J. Engine oil filler cap
- K. Battery



## Engine/Transmission

### ENGINE INFORMATION

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

## Engine/Transmission

### TOWING CAPACITY

The maximum weight the SuperCab vehicle can tow is limited to 6000 pounds. (2721 kilograms). The Gross Combination Weight Rating (GCWR) is 12500 pounds. (5670 kilograms).

The maximum weight the SuperCrew vehicle can tow is limited to 8000 pounds. (3629 kilograms). The Gross Combination Weight Rating (GCWR) is 14700 pounds. (6668 kilograms).

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

### DRIVETRAIN

<b>Rear axle</b>	Modified rear axle for track width, 4.10 ratio	
<b>Driveshaft</b>	Aluminum with hardened yoke	
<b>Gear ratios</b>	<i>Gear</i>	<i>Ratio</i>
	1st	4.17
	2nd	2.34
	3rd	1.52
	4th	1.14
	5th	0.87
	6th	0.69
	Reverse	3.40

## Driving

### 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, etc. 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.

## Driving

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 yaw 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.

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.

## Driving

- **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 functions	"Sliding car" icon	Information display		RSC	ESC	TCS	ABS
			AdvanceTrac	Off-road mode				
–	Default at start-up	Off	Enabled	Off	On	On	On	Street
Off	Button pressed momentarily	On	Sport	Off	On	Sport	Sport	Street
Off	Button pressed and held for more than 5 seconds while traveling under 35 mph (56 km/h)	Flashes, then stays on	Disabled	Off	Off	Off	Off*	Street
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 momentarily	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 *AdvanceTrac®* section in the *Stability Control* chapter of your *Owner's Manual*.

## Driving

## Driving

### HILL DECENT CONTROL



**WARNING:** Hill descent control does not provide hill hold at zero mph (0 km/h). When stopped, the parking brake must be applied and/or the vehicle must be placed in **P** (Park) or it may roll away.

Hill descent allows the driver to set and maintain vehicle speed while descending steep grades regardless of surface conditions.

Hill descent control can maintain vehicle speeds on downhill grades between 2 and 20 mph (3 and 32 km/h). Between 20 and 40 mph (32 and 64 km/h), the system remains enabled, but descent speed cannot be set or maintained. If vehicle speed is above 40 mph (64 km/h), the system is disabled. After this point, vehicle speed must drop below 40 mph (64 km/h), and the hill descent control button must be pressed again to engage the feature.

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 information display screen 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.

#### ***Enabling Hill Descent Control and Setting the Descent Speed***

1. Press and release the hill descent button located on the center console. A light on the button will illuminate and a one second chime will sound when this feature is activated.



2. To increase descent speed, press the accelerator pedal until the desired speed is reached.
3. To decrease descent speed, press the brake pedal until the desired speed is reached.

## Driving

Whether accelerating or decelerating, once the desired descent speed is reached, remove your feet from the pedals and the chosen vehicle speed will be maintained.

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

### **Disabling hill decent control**

To disable hill decent control press the button located on the center console a second time. A light on the button will turn off and a message will appear indicating this feature has been disabled.

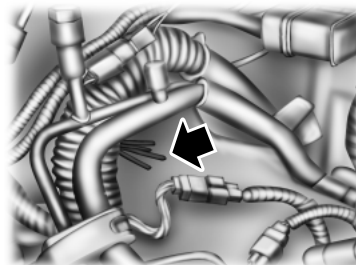
### **UPFITTER CONTROLS**

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



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 the *Engine/Transmission* chapter of this supplement for the underhood overview location of this component.





## Driving

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.

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	10 A

## Driving

### FRONT OFF-ROAD CAMERA SYSTEM (IF EQUIPPED)



**WARNING:** 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.



**WARNING:** Objects that are close to either corner of the bumper might not be seen on the screen due to the limited coverage of the camera system.



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



**WARNING:** 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.



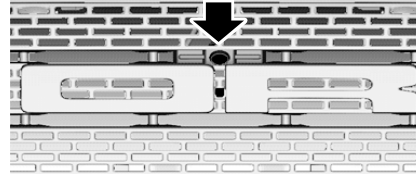
**WARNING:** Use caution when turning ON or OFF the front camera features while in **D** (Drive). Make sure the vehicle is not moving.

**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 touch screen. It is designed to be used as an aid in off-road conditions, such as rock-climbing, slow-speed maneuvering, and cresting hills when the front view may otherwise be obstructed through the windshield.

## Driving

The front camera system is located on the front grille.



If the front grille of the vehicle is hit or damaged, 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 night time 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 km/h).

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

**Note:** If the front off-road mode camera system image is not clear or seems distorted, it may be covered with 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.

### Turning on the Front Off-Road Camera System

The following conditions must be met to turn on the system on:

- You must be in off-road mode with electronic locking differential (ELD) activated or
- You must be in **4L**

## Driving

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

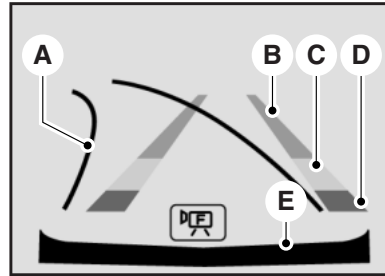
1. Select the **Truck Apps** menu in your information display screen.
2. Select the sub-menu **Off-Road Camera**
3. Press **OK** to enable and disable the camera.

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

### **Active and fixed guidelines**

The front off-road video camera includes the following features that will assist the driver:

- 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



### **Fixed Guidelines**

As objects are getting closer to your vehicle as they move from the green zone (B) to the yellow (C) or red zones (D). Use your forward vision to get better coverage of 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.

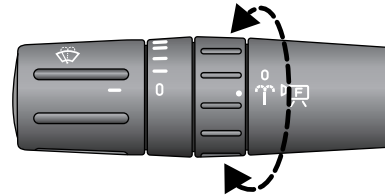
**Note:** The active guidelines will fade in and out depending on the steering wheel position. When the steering wheel position is straight, the active guidelines will be covered by the static guidelines and will not be shown.

## Driving

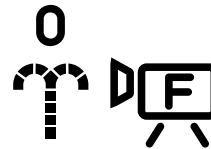
### **Front camera washer control**

The front off-road camera washer control is located on the wiper stalk. The washer will clean for as long as desired.

To use the front camera washer rotate the control so dot marking lines up with the **F** front camera marking.



Return the dial to **0** (off) to complete the washing cycle.



## **DRIVING YOUR F-150 SVT RAPTOR OFF-ROAD**



**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](http://www.bitd.com)) and SCORE International Off-Road Racing.

In addition to providing an excellent on-road driving experience, the F-150 SVT Raptor 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.

20

## Driving

Before taking your F-150 SVT Raptor off-roading, a basic vehicle inspection should be done to ensure 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 ensure 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 SCREEN

The real-time status of the Raptor's 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 ensure 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.

## Driving

- 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.

### 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 pavement 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 debanding 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.



## Driving

### 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. Note that hill descent control is functional in reverse and should be used in this situation.
- 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.

### 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.

## Driving

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 Allowable Vehicle Speed
6 inches (150 millimeters)	40 mph (65 km/h)
8 inches (200 millimeters)	31 mph (50 km/h)
10 inches (250 millimeters)	19 mph (30 km/h)
12 inches (300 millimeters)	8 mph (12 km/h)
18 to 30 inches (450 millimeters to 760 millimeters)	4 mph (7 km/h)
Reverse – up to 30 inches (760 millimeters)	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. The F-150 SVT Raptor 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](http://www.bitd.com)) and SCORE International Off-Road Racing ([www.score-international.com](http://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 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

## Driving

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 ensure 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.

## Driving

- 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 ensure 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.

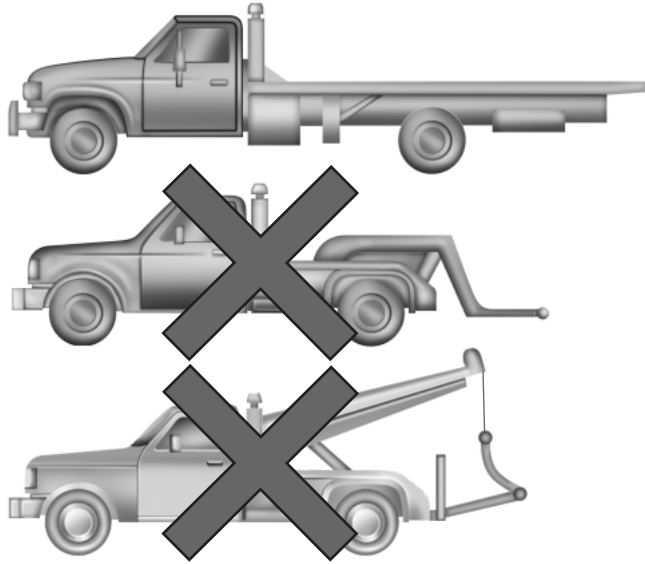
### AFTER OFF-ROAD DRIVING

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

- Ensure 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.
- Ensure that the grille and radiator are clear of any obstructions that may affect cooling.
- Ensure that the brakes are in proper working order and free of any mud, stones etc., 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.

## Roadside Emergencies

### WRECKER TOWING



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

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.

## Cleaning

### **WASHING YOUR F-150 SVT RAPTOR**

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.

## Maintenance

### MOTORCRAFT PART NUMBERS

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

<sup>1</sup> Heavy-duty battery, if equipped

<sup>2</sup> For spark plug replacement, see your authorized dealer. Refer to the Scheduled Maintenance information for the appropriate intervals for changing the spark plugs.

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.

# MAINTENANCE PRODUCT SPECIFICATIONS AND CAPACITIES

Item	Capacity	Ford part name or equivalent	Ford part number / Ford Specification
Engine oil (includes filter change) <sup>5</sup>	7.0 quarts (6.6L)	<ul style="list-style-type: none"> <li>Motorcraft SAE 5W-20 Premium Synthetic Blend Motor Oil (US)</li> <li>Motorcraft SAE 5W-20 Full Synthetic Motor Oil (US)</li> <li>Motorcraft SAE 5W-20 Super Premium Motor Oil (Canada)</li> <li>Motorcraft SAE 5W-20 Synthetic Motor Oil (Canada)</li> </ul>	<ul style="list-style-type: none"> <li>XO-5W20-QSP (US)</li> <li>XO-5W20-QFS (US)</li> <li>CXO-5W20-LSP12 (Canada)</li> <li>CXO-5W-20-LFS12 (Canada) / WSS-M2C945-A and API Certification Mark</li> </ul>
Engine coolant <sup>1</sup>	16.0L (16.9 quarts)	Motorcraft® Orange Antifreeze/Coolant Prediluted (US) / Motorcraft® Orange Antifreeze/Coolant Prediluted (Canada)	VC-3DIL-B (US) CVC-3DIL-B (Canada) / WSS-M97B44-D2
Front axle lubricant	1.7L (3.6 pints)	Motorcraft SAE 80W-90 Premium Rear Axle Lubricant	XY-80W-90-QL / WSP-M2C197-A
Rear axle lubricant	2.6L (5.5 pints) <sup>2</sup>	Motorcraft SAE 75W-140 High Performance Synthetic Rear Axle Lubricant	XY-75W140-QL / WSL-M2C192-A

## Maintenance



## Maintenance

Item	Capacity	Ford part name or equivalent	Ford part number / Ford Specification
Rear axle fluid friction modifier	4 oz. (118 ml)	Additive Friction Modifier	XL-3 EST-M2C118-A
SuperCab fuel tank	26 gallons (98.4L)	—	—
CrewCab fuel tank	36 gallons (136.3L)	—	—
Transmission fluid <sup>3</sup>	12.4L (13.1 quarts) <sup>4</sup>	Motorcraft MERCON® LV ATF	XT-10-QLV / MERCON® LV
Transfer case lubricant	1.4-1.5L (2.9-3.1 pints)	Motorcraft Transfer Case Fluid	XL-12 / —

<sup>1</sup>Add the coolant type originally equipped in your vehicle.

<sup>2</sup>Fill 6 millimeter to 14 millimeter (1/4 inch to 9/16 inch) below bottom of fill hole.

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.

<sup>3</sup>Ensure 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.

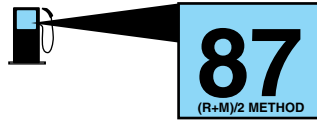
<sup>4</sup>Approximate dry fill capacity including transmission fluid cooling system, actual refill capacities will vary based on vehicle application and transmission fluid cooling system (i.e. coolers size, cooling lines, auxiliary cooler capacities). The amount of transmission fluid and fluid level should be set by the indication on the dipstick's normal operating range.

<sup>5</sup>Use of synthetic or synthetic blend motor oil is not mandatory. Engine oil need only meet the requirements of Ford specification WSS-M2C945-A and the API Certification mark.

## Maintenance

### OCTANE RECOMMENDATIONS

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. Premium fuel will provide improved performance and is recommended for severe duty usage such as trailer tow.



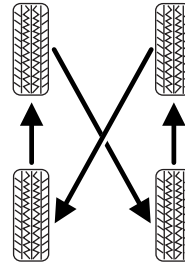
Do not be concerned if your engine sometimes knocks lightly. However, if it knocks heavily under most driving conditions while you are using fuel with the recommended octane rating, see your authorized dealer to prevent any engine damage.

### WHEELS AND TIRES

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

### 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. **Note:** The F-150 Raptor requires tire rotations every 5,000 miles (8,000 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.

## Tire Information

### IMPORTANT TIRE INFORMATION

Your SVT vehicle is equipped with unique wheels and tires designed to enhance performance and appearance. To continue providing this performance, extra care must be taken when operating and maintaining your vehicle.

### TIRES



**WARNING:** 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.



**WARNING:** 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 tire failure.

**Note:** If tire pressure has been reduced for off-road use, the tire pressure monitoring system (TPMS) warning light will then activate in the instrument panel as a reminder to reinflate the tires before returning to the road.

Your SVT vehicle is equipped with high performance, all-terrain tires that are 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 than 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.
- Tire pressures are specified cold and should be checked after the vehicle has been parked for at least 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.

## Tire Information

- 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. If a tire is damaged, replace it immediately.
- 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.

## WHEELS



**WARNING:** 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.

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

- Maintain proper tire pressure (see the *Tires* section of this supplement for more information).
- 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 a wheel is damaged, 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.

## Tire Information

### Optional bead-lock compatible wheel

If your SVT 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.

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

**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.

### OPERATING A PERFORMANCE VEHICLE AT HIGHER THAN NORMAL SPEEDS

Your SVT 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 SVT vehicle at higher than normal speeds at locations and under conditions where such can be done safely. Also, before operating your vehicle at higher than normal speeds:

- Make sure your tires are at the correct tire pressure. (see the *Tires* section of this supplement for more information).
- 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.

### WINTER DRIVING

The original equipment tires on your SVT vehicle are designed for maximum performance in all driving conditions. However, they 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 the *Owner's Manual*

## Warranty Coverage

### WARRANTY COVERAGE

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 *Driving your F-150 SVT Raptor off-road* in the *Driving* chapter of this supplement for maximum allowable vehicle speeds when driving in deep water conditions).

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.

## Index

### A

Air cleaner filter .....30  
Automatic transmission  
  fluid, refill capacities .....31  
Axle  
  refill capacities .....31

### B

Battery  
  replacement, specifications .....30

### C

Capacities for refilling fluids .....31  
Coolant  
  refill capacities .....31

### E

Engine .....8  
  refill capacities .....31  
  service points .....7  
Engine oil  
  filter, specifications .....30  
  refill capacities .....31

### F

Fluid capacities .....31  
Fuel  
  capacity .....31  
  filter, specifications .....30  
  octane rating .....8, 33

### I

Ignition .....8

### M

Motorcraft® parts .....30

### O

Octane rating .....33

### P

Parts (see Motorcraft® parts) ...30

### S

Spark plugs, specifications .....8, 30

### T

Tires  
  changing .....33  
  rotating .....33

Towing  
  wrecker .....28

Transmission  
  fluid, refill capacities .....31

### U

Upfitter controls .....15

### W

Wrecker towing .....28