

# DIY AND SAVE - F-150

Complete Repair Manual (2015-2020)

*By Doctor F-150*

*Powered by Manus.AI*

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**Website Access Code:**

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# Author: Doctor F-150 Ford F-150 (2015-2020) DIY Repair Manual

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**Author:** Manus AI

## Introduction

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Welcome to the definitive do-it-yourself repair manual for the 13th generation Ford F-150, covering model years 2015 through 2020. This guide is designed for the everyday owner who wants to save money and gain a deeper understanding of their vehicle by performing their own maintenance and repairs. We provide clear, step-by-step instructions, detailed images, and links to high-quality video tutorials to empower you to tackle a wide range of projects with confidence.

This manual covers the most common maintenance and repair tasks, from basic oil changes to more involved jobs like spark plug replacement and alternator swaps. Each section includes a list of necessary tools, an estimated difficulty rating, and the approximate time required for completion. Our goal is to make vehicle maintenance accessible to everyone, regardless of their mechanical experience.

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## Chapter 1: Common Maintenance

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### 1.1. Engine Oil and Filter Change

Changing your engine oil and filter is one of the most fundamental and critical maintenance tasks for your F-150. Regular oil changes ensure your engine is properly lubricated, which prevents wear and tear on internal components and extends the life of your vehicle. This section will guide you through the process for all common engines in the 2015-2020 F-150 lineup.

Engine	Difficulty	Time Estimate
2.7L EcoBoost / 3.5L EcoBoost / 5.0L V8	Easy	30-45 minutes

#### Tools and Parts

- **Tools:** 15mm wrench or socket, oil filter wrench, drain pan, funnel, jack and jack stands (optional, for easier access).
- **Parts:**
  - Engine oil (refer to your owner's manual for the correct type and capacity)
  - Oil filter (Motorcraft FL-500S for 5.0L V8, FL-2062 for 2.7L/3.5L EcoBoost)

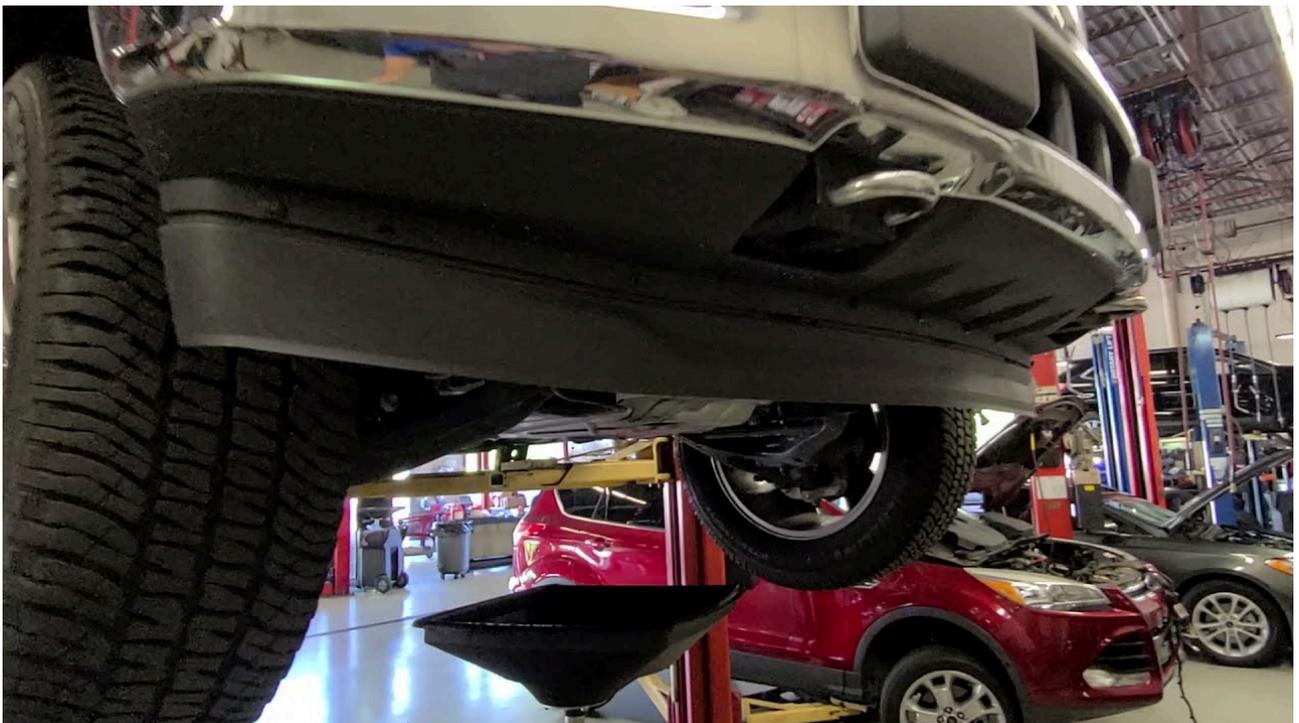
## Step-by-Step Instructions

1. **Warm up the engine:** Run the engine for a few minutes to warm up the oil, which will help it drain more easily.
2. **Prepare the truck:** Park on a level surface and engage the parking brake. If needed, use a jack to lift the front of the truck and secure it with jack stands.
3. **Drain the oil:** Place the drain pan under the oil pan and use a 15mm wrench to loosen the drain plug. Remove the plug by hand and allow the oil to drain completely.
4. **Replace the oil filter:** Locate the oil filter. For EcoBoost engines, it's a cartridge-style filter accessible from the top of the engine bay. For the 5.0L V8, it's a canister-style filter located on the underside of the engine. Use an oil filter wrench to remove the old filter. Apply a thin layer of new oil to the gasket of the new filter and screw it on by hand until it's snug, then give it another quarter turn.
5. **Refill with new oil:** Reinstall the drain plug and tighten it. Using a funnel, pour the new oil into the engine. Check the dipstick to ensure the oil level is correct.
6. **Check for leaks:** Start the engine and let it run for a minute, then turn it off and check for any leaks around the drain plug and oil filter.

## Visual Guide



*A DIY oil change can save you time and money.*



The oil filter and drain plug are easily accessible on most F-150 models.

## Video Tutorials

- [Ford F150 Oil and Filter Change DIY \(2015 - 2020\) 5.0L V8](#)
- [Ford F150 Ecoboost 3.5 Oil Change - DIY](#)
- [2015 - 2020 F150 3.5L Ecoboost Oil Change How-To](#)

## 1.2. Brake Pad and Rotor Replacement

Replacing your brake pads and rotors is a crucial safety-related maintenance task. Over time, brake pads wear down and rotors can become warped or scored, reducing braking performance. This guide provides a comprehensive overview of how to replace the front and rear brakes on your F-150.

Location	Difficulty	Time Estimate
Front Brakes	Medium	1.5 - 2 hours
Rear Brakes	Medium	1.5 - 2 hours

## Tools and Parts

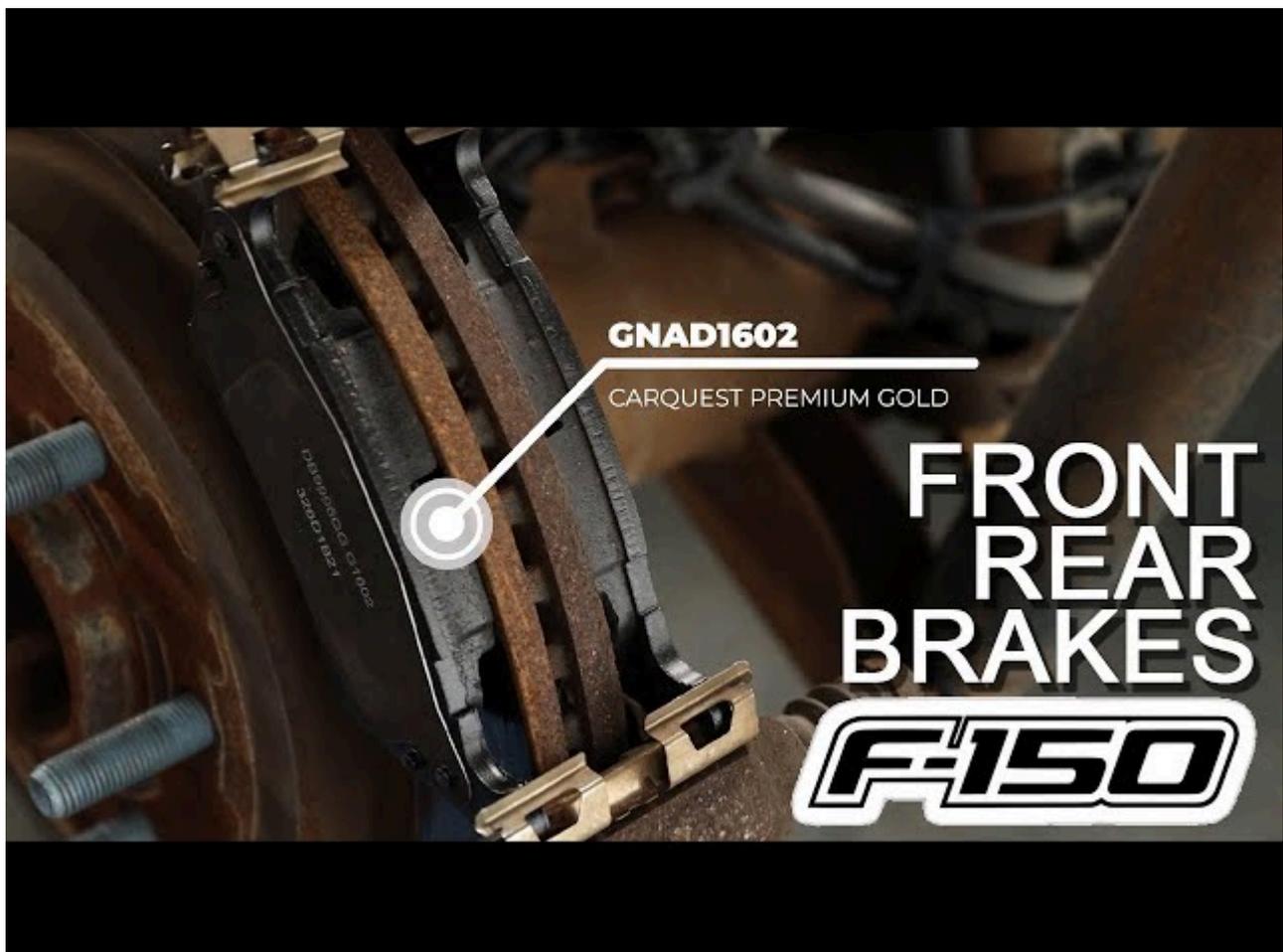
- **Tools:** 13mm and 21mm sockets, torque wrench, hammer, C-clamp or brake caliper compressor, pry bar, jack and jack stands, wire brush, brake cleaner.
- **Parts:**
  - Front/Rear brake pads
  - Front/Rear brake rotors
  - Brake grease

## Step-by-Step Instructions

1. **Prepare the truck:** Loosen the lug nuts on the wheel you'll be working on. Jack up the truck and secure it with jack stands. Remove the wheel.
2. **Remove the caliper:** Use a 13mm socket to remove the two caliper guide pins. Use a pry bar to gently slide the caliper off the rotor. Rest the caliper on a suspension component; do not let it hang by the brake line.

- 3. Remove the old pads and rotor:** The old brake pads can now be removed from the caliper bracket. Use a 21mm socket to remove the two bolts holding the caliper bracket in place. The rotor should now slide off the hub. If it's stuck, a few firm taps with a hammer on the back of the rotor will loosen it.
- 4. Install the new rotor and pads:** Clean the wheel hub surface with a wire brush. Slide the new rotor onto the hub. Reinstall the caliper bracket. Apply brake grease to the contact points of the new brake pads and slide them into the caliper bracket.
- 5. Compress the caliper piston and reinstall:** Use a C-clamp or brake caliper compressor to push the piston back into the caliper. Slide the caliper back over the new pads and reinstall the guide pins.
- 6. Repeat and test:** Repeat the process for the other side. Once complete, pump the brake pedal a few times to seat the new pads. Test the brakes at low speed before driving normally.

## Visual Guide



*Replacing both pads and rotors ensures optimal braking performance.*



*New brake pads and rotors (right) compared to worn components (left).*

### Video Tutorials

- [How to Replace Front Brakes 2015-2020 Ford F-150](#)
- [How to Replace Rear Brakes 2015-2020 Ford F-150](#)
- [Ford F-150 Front and Rear Brake Replacement \(2015-2020\)](#)

### 1.3. Engine Air Filter Replacement

A clean engine air filter is essential for maintaining your F-150's performance and fuel economy. The air filter prevents dust, dirt, and other debris from entering the engine. Over time, the filter becomes clogged and must be replaced. This is a very simple task that requires no tools.

Difficulty	Time Estimate
Very Easy	5 minutes

## Tools and Parts

- **Tools:** None
- **Parts:**
  - Engine air filter (Motorcraft FA-1883)

## Step-by-Step Instructions

1. **Locate the air filter housing:** The air filter housing is a large black plastic box located on the driver's side of the engine bay.
2. **Open the housing:** Release the two metal clips that hold the cover of the air filter housing in place.
3. **Replace the filter:** Lift the cover and remove the old air filter. Insert the new air filter, making sure it is seated correctly.
4. **Close the housing:** Close the cover and re-engage the two metal clips.

## Visual Guide



*Replacing the engine air filter is a quick and easy maintenance task.*



*The air filter housing is easily accessible in the engine bay.*

## Video Tutorials

- [F-150 Air Filter Replacement \(2015-2020\)](#)
- [2015-2025 Ford F150 Engine Air filter Change](#)

## 1.4. Cabin Air Filter Replacement

The cabin air filter cleans the air that enters the passenger compartment of your F-150, removing dust, pollen, and other airborne particles. Replacing it regularly ensures the air you breathe inside your truck is clean and fresh. This is a very simple procedure that can be done in minutes without any tools.

Difficulty	Time Estimate
Very Easy	5 minutes

## Tools and Parts

- **Tools:** None
- **Parts:**
  - Cabin air filter (Motorcraft FP-79, Part # FL3Z-19N619A)

## Step-by-Step Instructions

1. **Open the glove box:** Open the glove box and empty its contents.
2. **Release the glove box:** Squeeze the sides of the glove box inward to release the retaining tabs. Let the glove box swing down.
3. **Access the filter:** Behind the glove box, you will see a cover for the cabin air filter. Release the tabs on the side of the cover and remove it.
4. **Replace the filter:** Slide the old cabin air filter out and insert the new one, paying attention to the airflow direction indicated on the filter.
5. **Reassemble:** Replace the filter cover and swing the glove box back into place.

## Visual Guide



*The cabin air filter is located behind the glove box.*



*Replacing the cabin air filter is a simple process that improves air quality.*

### Video Tutorials

- [How to Replace Cabin Air Filter 2015-2020 Ford F-150](#)
- [How to Replace Cabin Air Filter on 2015 - 2025 Ford F150](#)

## Chapter 2: Engine Repairs

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### 2.1. Spark Plug Replacement

Replacing the spark plugs is a key part of your F-150's tune-up schedule. Fresh spark plugs ensure efficient combustion, which translates to better fuel economy and engine performance. This is a moderately difficult job that can be done with common hand tools.

Engine	Difficulty	Time Estimate
2.7L EcoBoost / 3.5L EcoBoost / 5.0L V8	Medium	1 - 1.5 hours

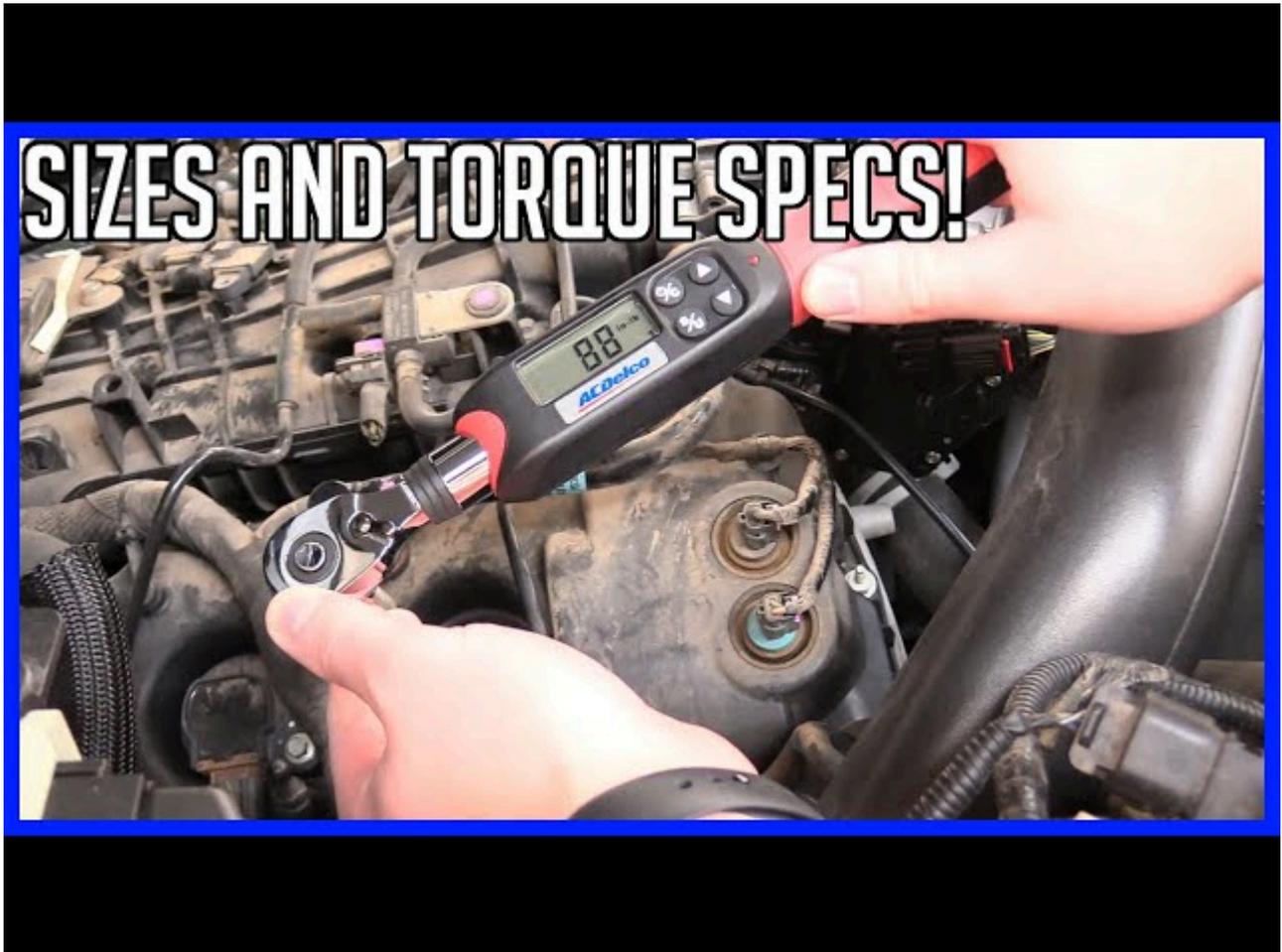
## Tools and Parts

- **Tools:**  $\frac{9}{16}$ " spark plug socket, socket wrench, extensions, torque wrench, dielectric grease.
- **Parts:**
  - Spark plugs (Motorcraft SP-542 for 5.0L V8, SP-578 for 2.7L/3.5L EcoBoost)

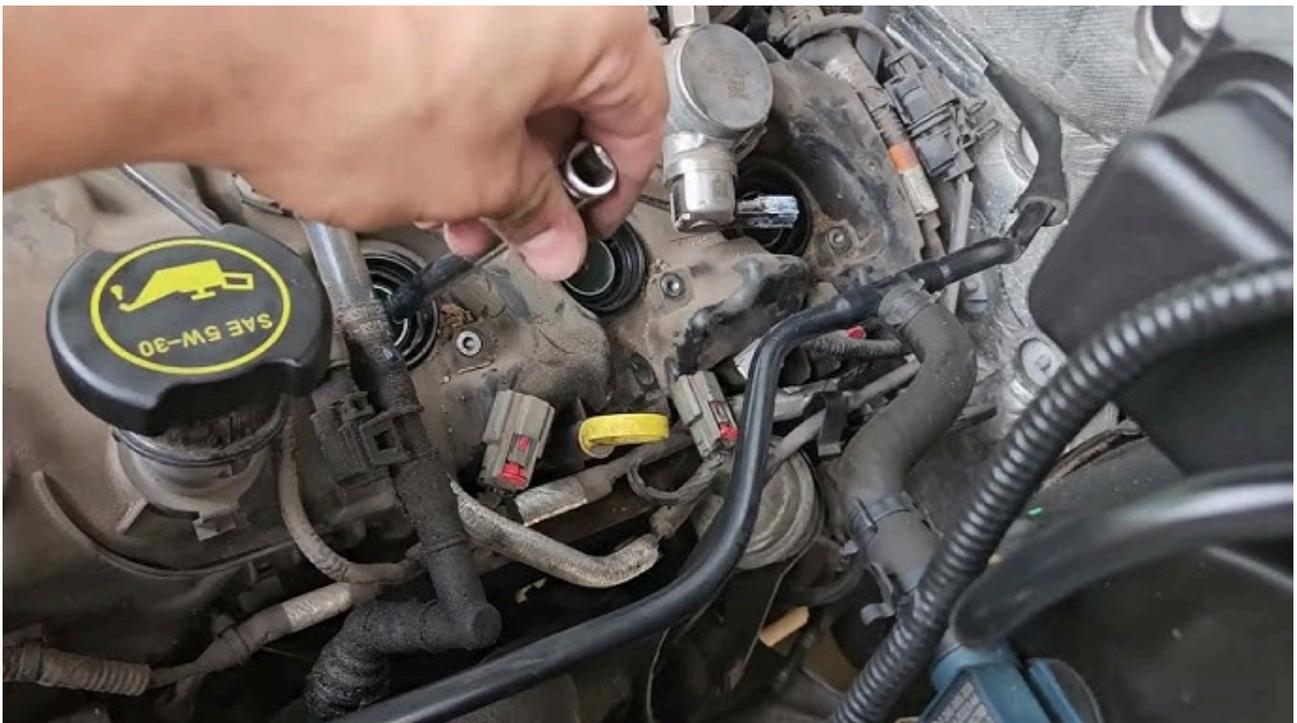
## Step-by-Step Instructions

1. **Access the spark plugs:** For each cylinder, you will see an ignition coil connected by a wire. Disconnect the electrical connector from the ignition coil.
2. **Remove the ignition coil:** Use a socket to remove the bolt holding the ignition coil in place. Gently twist and pull the ignition coil to remove it, exposing the spark plug.
3. **Remove the old spark plug:** Use a  $\frac{9}{16}$ " spark plug socket with an extension to remove the old spark plug.
4. **Install the new spark plug:** Apply a small amount of dielectric grease to the inside of the new spark plug's boot. Carefully thread the new spark plug into the cylinder by hand to avoid cross-threading. Use a torque wrench to tighten the spark plug to the manufacturer's specification (11 ft-lbs).
5. **Reinstall the ignition coil:** Reinsert the ignition coil and tighten the retaining bolt. Reconnect the electrical connector.
6. **Repeat:** Repeat the process for the remaining cylinders.

Visual Guide



*Replacing spark plugs is a vital part of a tune-up.*



*The ignition coil sits on top of the spark plug.*

## Video Tutorials

- [The Best Ford F150 EcoBoost Spark Plug Replacement Video](#)
- [How to Replace Spark Plugs 2015-2020 Ford F-150 3.5L V6](#)
- [2015 Ford F-150 Spark Plug Replacement \(5.0L V8\)](#)

## 2.2. Serpentine Belt Replacement

The serpentine belt (or drive belt) powers various accessories in your F-150's engine, including the alternator, water pump, and air conditioning compressor. Over time, the belt can crack, fray, or stretch, and it's important to replace it before it fails. On EcoBoost engines, there are two belts: the main serpentine belt and a smaller belt for the A/C compressor.

Engine	Difficulty	Time Estimate
2.7L EcoBoost / 3.5L EcoBoost / 5.0L V8	Medium	30-60 minutes

## Tools and Parts

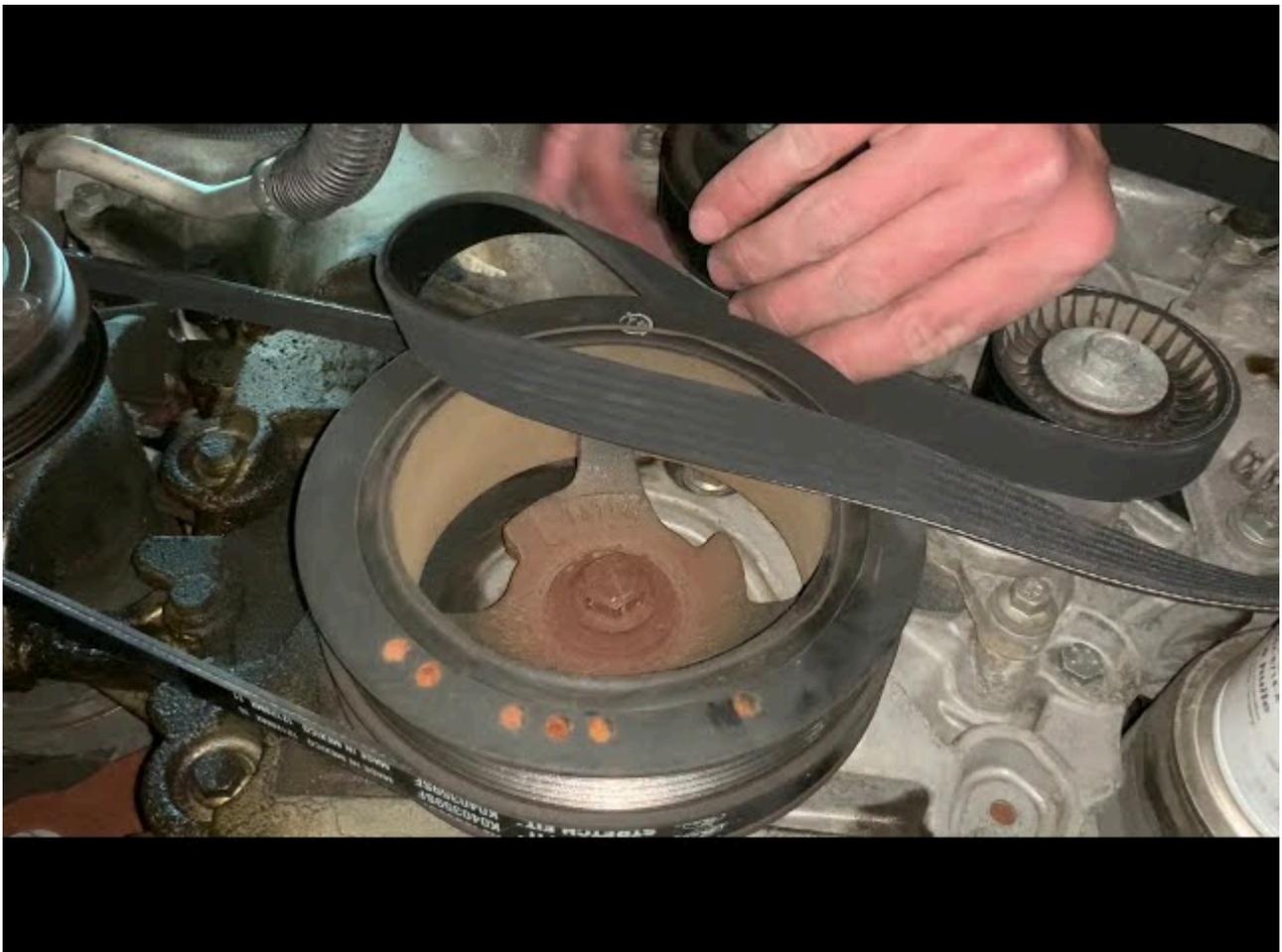
- **Tools:** Serpentine belt tool or a long-handled ratchet/breaker bar, socket set.
- **Parts:**
  - Serpentine belt (check your owner's manual or parts store for the correct part number for your engine)
  - A/C compressor belt (for EcoBoost engines)

## Step-by-Step Instructions

1. **Locate the belt and tensioner:** The serpentine belt is visible at the front of the engine. Locate the belt tensioner, which is a spring-loaded pulley that keeps the belt tight.
2. **Release the tension:** Use a serpentine belt tool or a ratchet to rotate the tensioner and release the tension on the belt. While the tension is released, slip the belt off one of the pulleys.

3. **Remove the old belt:** Carefully remove the old belt, paying attention to its routing around the various pulleys. It's a good idea to draw a diagram or take a picture of the belt routing before you remove it.
4. **Install the new belt:** Route the new belt around the pulleys according to your diagram. The last pulley to loop the belt over should be a smooth one without any grooves.
5. **Apply tension:** Rotate the tensioner again and slip the belt over the final pulley. Slowly release the tensioner, and the new belt will be tightened.
6. **Check the installation:** Double-check that the belt is correctly seated in all the pulley grooves.

## Visual Guide



*Replacing the serpentine belt is a preventative maintenance job that can save you from a breakdown.*



*A diagram of the belt routing is essential for correct installation.*

### Video Tutorials

- [How to Replace Serpentine Belt 2015-2020 Ford F-150 3.5L](#)
- [2015-2020 Ford F150 3.5L Ecoboost Serpentine and A/C Belt](#)

## Chapter 3: Electrical Systems

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### 3.1. Battery Replacement

The battery is the heart of your F-150's electrical system, providing the power to start the engine and run all the electronics. Batteries typically last 3-5 years, and it's important to replace a weak battery before it leaves you stranded. This is a straightforward job that requires minimal tools.

Difficulty	Time Estimate
Easy	15-20 minutes

## Tools and Parts

- **Tools:** Socket set with extensions, battery terminal brush, gloves.
- **Parts:**
  - New battery (Group Size 65, 650+ CCA recommended)

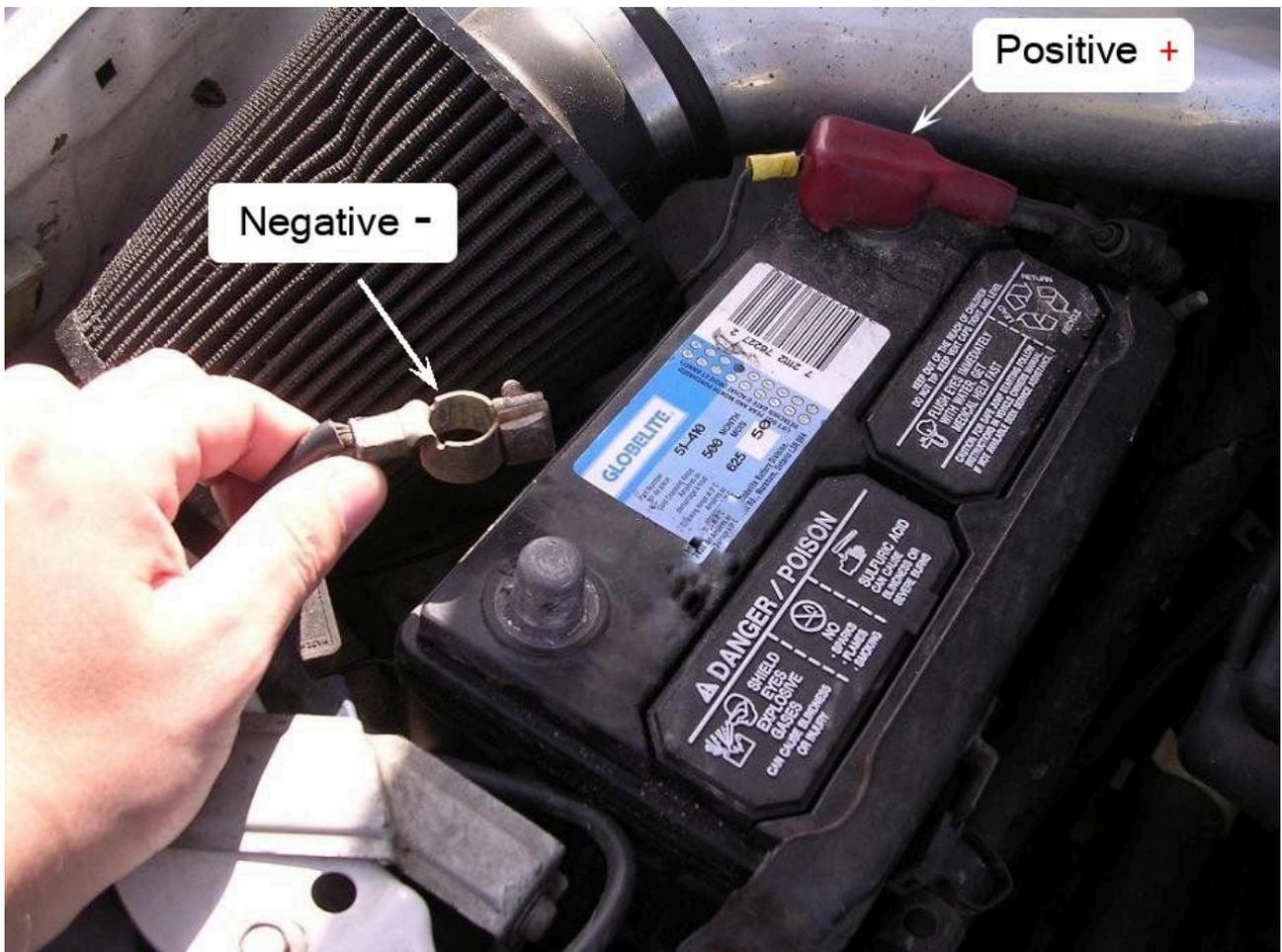
## Step-by-Step Instructions

1. **Disconnect the negative terminal:** Use a socket to loosen the nut on the negative battery terminal (black). Disconnect the cable from the battery.
2. **Disconnect the positive terminal:** Loosen the nut on the positive battery terminal (red) and disconnect the cable.
3. **Remove the battery hold-down:** Remove the bolt and bracket that hold the battery in place.
4. **Remove the old battery:** Carefully lift the old battery out of the truck.
5. **Clean the terminals:** Use a battery terminal brush to clean any corrosion from the battery cable terminals.
6. **Install the new battery:** Place the new battery in the battery tray and secure it with the hold-down bracket.
7. **Connect the positive terminal:** Connect the positive battery cable to the positive terminal and tighten the nut.
8. **Connect the negative terminal:** Connect the negative battery cable to the negative terminal and tighten the nut.
9. **Reset the Battery Management System (BMS):** For F-150s with a BMS, you need to reset it after replacing the battery. To do this: 1. Turn the ignition on (don't start the engine). 2. Pull and release the high beam lever 5 times. 3. Press and release the brake pedal 3 times. The battery light on the dash should flash, indicating the reset is complete.

## Visual Guide



*A new battery is essential for reliable starting and electrical performance.*



*Always disconnect the negative terminal first and reconnect it last.*

## Video Tutorials

- [How to Replace Battery 2015-2020 Ford F-150](#)
- [Ford F-150 Battery Replacement 2015-2022](#)

## 3.2. Alternator Replacement

The alternator is responsible for charging the battery and powering the electrical system while the engine is running. If you notice dimming headlights, a warning light on the dash, or your truck has trouble starting, you may have a failing alternator. Replacing the alternator is a moderately difficult job that can be done with a few common tools.

Difficulty	Time Estimate
Medium	1 - 1.5 hours

## Tools and Parts

- **Tools:** Socket set, ratchet or breaker bar, serpentine belt tool.
- **Parts:**
  - New alternator (check your owner's manual or parts store for the correct part number for your engine)

## Step-by-Step Instructions

1. **Disconnect the battery:** Disconnect the negative battery terminal.
2. **Remove the serpentine belt:** Use a serpentine belt tool or ratchet to release the tension on the serpentine belt and slip it off the alternator pulley.
3. **Disconnect the electrical connections:** Disconnect the electrical connectors from the back of the alternator.
4. **Remove the alternator:** Remove the bolts that mount the alternator to the engine. There are typically three bolts. Carefully lift the old alternator out of the truck.

5. **Install the new alternator:** Place the new alternator in position and install the mounting bolts. Tighten the bolts to the manufacturer's specifications.
6. **Reconnect the electrical connections:** Reconnect the electrical connectors to the back of the new alternator.
7. **Reinstall the serpentine belt:** Route the serpentine belt back over the pulleys and the new alternator pulley.
8. **Reconnect the battery:** Reconnect the negative battery terminal.

## Visual Guide



*The alternator is typically located at the top front of the engine.*



*The alternator is held in place by a few mounting bolts.*

## Video Tutorials

- [How to Replace Alternator 2015-2020 Ford F-150 3.5L V6](#)
- [How to replace Alternator on 2010 F150! DIY](#)

## 3.3. Headlight Bulb Replacement

Replacing a burnt-out headlight bulb is a simple task that is essential for safe driving. On the 2015-2020 F-150, the headlight bulbs can be accessed without any tools, making this a very easy DIY job.

Difficulty	Time Estimate
Very Easy	10-15 minutes per bulb

## Tools and Parts

- **Tools:** None
- **Parts:**
  - Headlight bulbs (9005 for high beams, H11 for low beams)

## Step-by-Step Instructions

1. **Access the bulb:** For the low beams, turn the steering wheel all the way to one side to access the wheel well. Remove the two push pins that hold the wheel well liner in place. For the high beams, access is from the top of the engine bay.
2. **Remove the dust cover:** Twist the dust cover counter-clockwise to remove it.
3. **Remove the old bulb:** Disconnect the electrical connector from the bulb. Twist the bulb counter-clockwise and pull it out.
4. **Install the new bulb:** Insert the new bulb and twist it clockwise to lock it in place. Reconnect the electrical connector.
5. **Reassemble:** Replace the dust cover and the wheel well liner.

## Visual Guide



*Accessing the headlight bulbs is easy through the wheel well.*



*No tools are required to replace the headlight bulbs.*

### Video Tutorials

- [2015-2020 F150 Headlight Bulb Replacement](#)
- [How to replace the Headlight bulbs 2015 - 2020 Ford F-150](#)

## Chapter 4: Transmission Service

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### 4.1. Transmission Fluid and Filter Change

Changing the transmission fluid and filter is an important maintenance item that is often overlooked. Fresh fluid helps to keep the transmission cool and lubricated, while a new filter ensures that harmful contaminants are removed. For the 2015-2020 F-150 with the 6R80 6-speed transmission, this job is a bit more involved as it requires dropping the transmission pan.

Difficulty	Time Estimate
Difficult	2 - 3 hours

## Tools and Parts

- **Tools:** Socket set, torque wrench, large drain pan, fluid pump, infrared thermometer.
- **Parts:**
  - Transmission fluid (Mercon LV or equivalent)
  - Transmission filter
  - Transmission pan gasket

## Step-by-Step Instructions

1. **Warm up the transmission:** Drive the truck for about 15 minutes to warm up the transmission fluid.
2. **Prepare the truck:** Park on a level surface and engage the parking brake. Jack up the truck and secure it with jack stands.
3. **Drain the fluid:** Place a large drain pan under the transmission pan. Loosen the bolts on one side of the pan, allowing the fluid to drain from the corner. Once the fluid has slowed to a drip, remove the remaining bolts and lower the pan.
4. **Replace the filter:** The transmission filter is located inside the transmission. Pull down on the old filter to remove it. Install the new filter, making sure it is seated correctly.
5. **Clean and reinstall the pan:** Clean the transmission pan and the magnet inside. Install a new gasket on the pan. Reinstall the pan and tighten the bolts to the manufacturer's specifications.
6. **Refill with new fluid:** Using a fluid pump, add about 4-5 quarts of new transmission fluid through the fill port on the side of the transmission.
7. **Check the fluid level:** With the engine running, cycle through the gears, pausing for a few seconds in each gear. With the transmission in park, remove the fill plug and check the fluid level. The fluid should be level with the bottom of the fill port. Add more fluid as needed.

## Visual Guide



*Dropping the transmission pan is required to access the filter.*



*A new filter and gasket are essential for a proper transmission service.*

## Video Tutorials

- [2015-2017 F150: Transmission Fluid and Filter \(6R80\)](#)
- [🔧 2017-2023 Ford F150 transmission fluid change only](#)