

2008 Ford Mustang

2008 ELECTRICAL Battery, Mounting & Cables - Mustang

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Battery, Mounting & Cables - Mustang

SPECIFICATIONS

Material

Item	Specification	Fill Capacity
Threadlock and Sealer TA-25	WSK-M2G351-A5	-

GENERAL SPECIFICATIONS

Item	Specification
Battery	
Battery amps rating	56 amp/hr
Cold cranking amps (CCA) measured at -18°C (0°F)	590 CCA
Voltage	12 volts

TORQUE SPECIFICATIONS

Description	Nm	lb-ft	lb-in
Battery cable harness bracket bolt (4.0L)	27	20	-
Battery cable terminal bolts	5	-	44
Battery ground cable body bolt	10	-	89
Battery ground cable engine terminal bolt (4.0L)	27	20	-
Battery ground cable engine terminal nut (4.6L, 5.4L)	25	18	-
Battery ground cable terminal nut	8	-	71
Battery hold-down bolt	8	-	71
Battery tray bolts	11	8	-
Bussed electrical center (BEC) terminal bolt	10	-	89
Generator B+ terminal nut (4.0L)	8	-	71
Generator harness terminal nut (4.6L, 5.4L)	8	-	71
Starter solenoid positive cable terminal nut	12	9	-
Starter solenoid wire terminal nut (4.0L)	5	-	44

DESCRIPTION AND OPERATION

BATTERY AND CABLES

Vehicles are equipped with a 12V, maintenance-free battery.

The battery and cable system consists of the following components:

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- Battery
- Battery cable assembly
- Battery tray

Ford Motor Company strongly recommends that lead-acid batteries be returned to an authorized recycling facility for disposal.



N0026431

Fig. 1: Recycling Symbol

Courtesy of FORD MOTOR CO.

DIAGNOSTIC TESTS

BATTERY

Special Tools

Illustration	Tool Name	Tool Number
 ST2442-A	Micro 490 Digital Battery Analyzer	162-00004 or equivalent

Principles of Operation

Battery Eye Operation

The purpose of the battery eye is to indicate the state of charge of the battery in the assembly plant and while on the dealership lot. The battery eye can also indicate the state-of-charge when the vehicle is delivered to the dealership and during the pre-delivery inspection process. The battery eye is made up of a viewing plate, 2 balls and a small passage. The balls indicate the specific gravity of the electrolyte by floating higher or lower in the passageway. It is important to note that the battery eye checks the specific gravity on only a single battery cell.

The color of the battery eye indicates the approximate state of charge.

- Red usually indicates the battery state-of-charge is at 40% or less.

- Yellow indicates the battery state-of-charge is between 40% and 57%.
- Green indicates the battery state-of-charge is above 57%.
- No color/black can occur after the battery has been in service for several years and some of the plate material has coated the balls.
- A clear battery eye can occur if the battery case becomes damaged and the electrolyte has fallen below the plates.

NOTE: **The battery eye may remain red for a period of time (up to several days), even after the battery is fully charged, because the acid is not yet fully mixed.**

Do not install a new battery based solely on the indication of the battery eye. The battery eye color simply indicates the battery state-of-charge, not its condition. For example, a red or yellow battery eye usually indicates the battery is discharged, not defective. If the battery eye indicates the battery may be discharged, it is necessary to recharge the battery before testing its condition.

Charging a Battery

Batteries discharge while the vehicle is on the dealer lot or parked by the customer for an extended period of time due to normal parasitic key-off loads. Also, vehicles still in dealer inventory or in long-term storage may be driven short distances with heavy electrical loads. Over a period of time (30 days or more), this could result in vehicles having shallow or deeply discharged batteries.

- Deeply discharged - A battery that is drained over a prolonged period of time, such as an unsold vehicle or a vehicle in storage, to the point the battery is dead.
- Shallow discharge - A battery that is drained by leaving an accessory on for several hours or a few days and has a very low charge.

The vehicle's charging system is designed to supply the electrical power needed to maintain the battery near full charge during normal vehicle use. The charging system is not capable of bringing a deeply discharged battery back near full charge in a short amount of time such as allowing the vehicle to idle for 15 minutes to "recharge the battery." Discharged batteries should be charged using an external charger.

NOTE: **Battery chargers have improved greatly with the addition of the new generation pulse chargers. These chargers pulse current into the battery, breaking down the sulfation layer on the battery plates and generally reduce charging times to less than an hour.**

NOTE: **Cold batteries will not readily accept a charge. Therefore, batteries should be allowed to warm to approximately 5°C (41°F) before charging. This may require 4 to 8 hours at room temperature.**

The following chart summarizes 2 recommended methods of charging.

Type of Battery Discharge	Pulse Charger	Standard Charger

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Deeply discharged	Follow directions supplied with the pulse charger	2 to 8 hours and may take up to an hour to accept initial charge
Shallow discharge	45 minutes to an hour charge	2 hours (40A) on manual setting or medium automatic setting

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage.

VISUAL INSPECTION CHART

Mechanical	Electrical
• Battery • Battery mounting	• Battery cables • Battery posts

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. If the fault is not visually evident, go to **Pinpoint Test A**.

Pinpoint Tests

Pinpoint Test A: Battery Condition Test

Normal Operation

Battery condition is determined by measuring battery terminal voltage after a specific discharge current is applied for a specified time period.

This pinpoint test is intended to diagnose the following:

- Battery charge
- Battery

PINPOINT TEST A: BATTERY CONDITION TEST

A1 TEST THE BATTERY CONDITION

NOTE: No battery with a red test-eye should be replaced. The red eye only means the battery is discharged, not necessarily defective.

NOTE: Failure to fully charge the battery before retesting may cause false readings.

- Verify the battery condition using the battery analyzer.

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- **Is the battery OK?**

YES : If the meter reads GOOD BATTERY, RETURN the battery to service.

If the meter reads GOOD-RECHARGE, CHARGE the battery and RETURN it to service.

If the meter reads CHARGE & RETEST, fully CHARGE and RETEST the battery.

NO : If the meter reads REPLACE BATTERY, INSTALL a new battery.

If the meter reads BAD CELL-REPLACE, INSTALL a new battery.

GENERAL PROCEDURES

BATTERY DISCONNECT

WARNING: Batteries contain sulfuric acid and produce explosive gases. Work in a well-ventilated area. Do not allow the battery to come in contact with flames, sparks or burning substances. Avoid contact with skin, eyes or clothing. Shield eyes when working near the battery to protect against possible splashing of acid solution. In case of acid contact with skin or eyes, flush immediately with water for a minimum of 15 minutes, then get prompt medical attention. If acid is swallowed, call a physician immediately. Failure to follow these instructions may result in serious personal injury.

WARNING: Always deplete the backup power supply before repairing or installing any new front or side air bag supplemental restraint system (SRS) component and before servicing, removing, installing, adjusting or striking components near the front or side impact sensors or the restraints control module (RCM). Nearby components include doors, instrument panel, console, door latches, strikers, seats and hood latches.

Refer to the Description and Operation portion of SUPPLEMENTAL RESTRAINT SYSTEM article for location of the RCM and impact sensor(s).

To deplete the backup power supply energy, disconnect the battery ground cable and wait at least 1 minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).

Failure to follow these instructions may result in serious personal injury or death in the event of an accidental deployment.

WARNING: Always lift a plastic-cased battery with a battery carrier or with hands on opposite corners. Excessive pressure on the battery end walls may cause acid to flow through the vent caps, resulting in personal injury and/or

damage to the vehicle or battery.

NOTE: When the battery (or PCM) is disconnected and connected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The charging system set-point may also vary. The vehicle may need to be driven to relearn its strategy.

1. Disconnect the battery ground terminal.
 - To connect, tighten to 5 Nm (44 lb-in).
2. Disconnect the positive battery terminal.
 - To connect, tighten to 5 Nm (44 lb-in).
3. To connect, reverse the disconnect procedure.

REMOVAL AND INSTALLATION

BATTERY AND BATTERY TRAY - EXPLODED VIEW

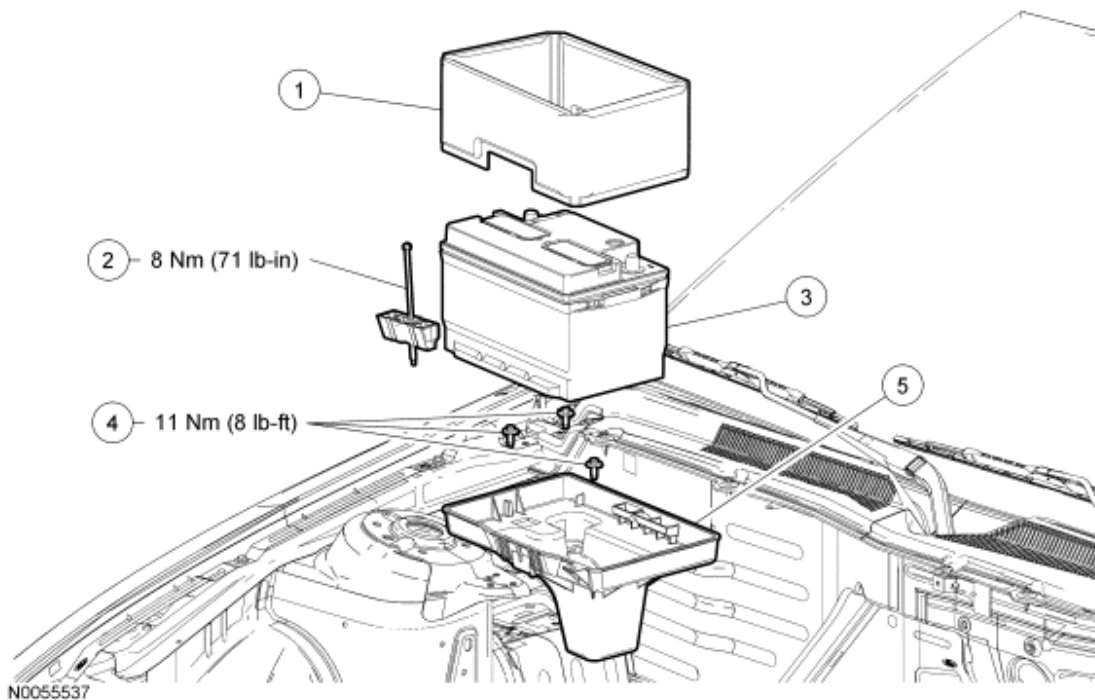


Fig. 2: Exploded View Of Battery & Battery Tray With Torque Specifications
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	10A687	Battery heat shield
2	10756	Battery hold-down bolt/clamp

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3	10655	Battery
4	W503923	Battery tray bolts (3 required)
5	10723	Battery tray

- For additional information, refer to the procedures.

BATTERY

REMOVAL AND INSTALLATION

WARNING: Batteries contain sulfuric acid and produce explosive gases. Work in a well-ventilated area. Do not allow the battery to come in contact with flames, sparks or burning substances. Avoid contact with skin, eyes or clothing. Shield eyes when working near the battery to protect against possible splashing of acid solution. In case of acid contact with skin or eyes, flush immediately with water for a minimum of 15 minutes, then get prompt medical attention. If acid is swallowed, call a physician immediately. Failure to follow these instructions may result in serious personal injury.

WARNING: Always lift a plastic-cased battery with a battery carrier or with hands on opposite corners. Excessive pressure on the battery end walls may cause acid to flow through the vent caps, resulting in personal injury and/or damage to the vehicle or battery.

- Disconnect the battery. For additional information, refer to Battery Disconnect.
- Remove the battery heat shield.
- Remove the bolt and the battery hold-down clamp.
 - To install, tighten to 8 Nm (71 lb-in).
- Remove the battery.
- To install, reverse the removal procedure.

BATTERY TRAY

Material

Item	Specification
Threadlock and Sealer TA-25	WSK-M2G351-A5

REMOVAL AND INSTALLATION

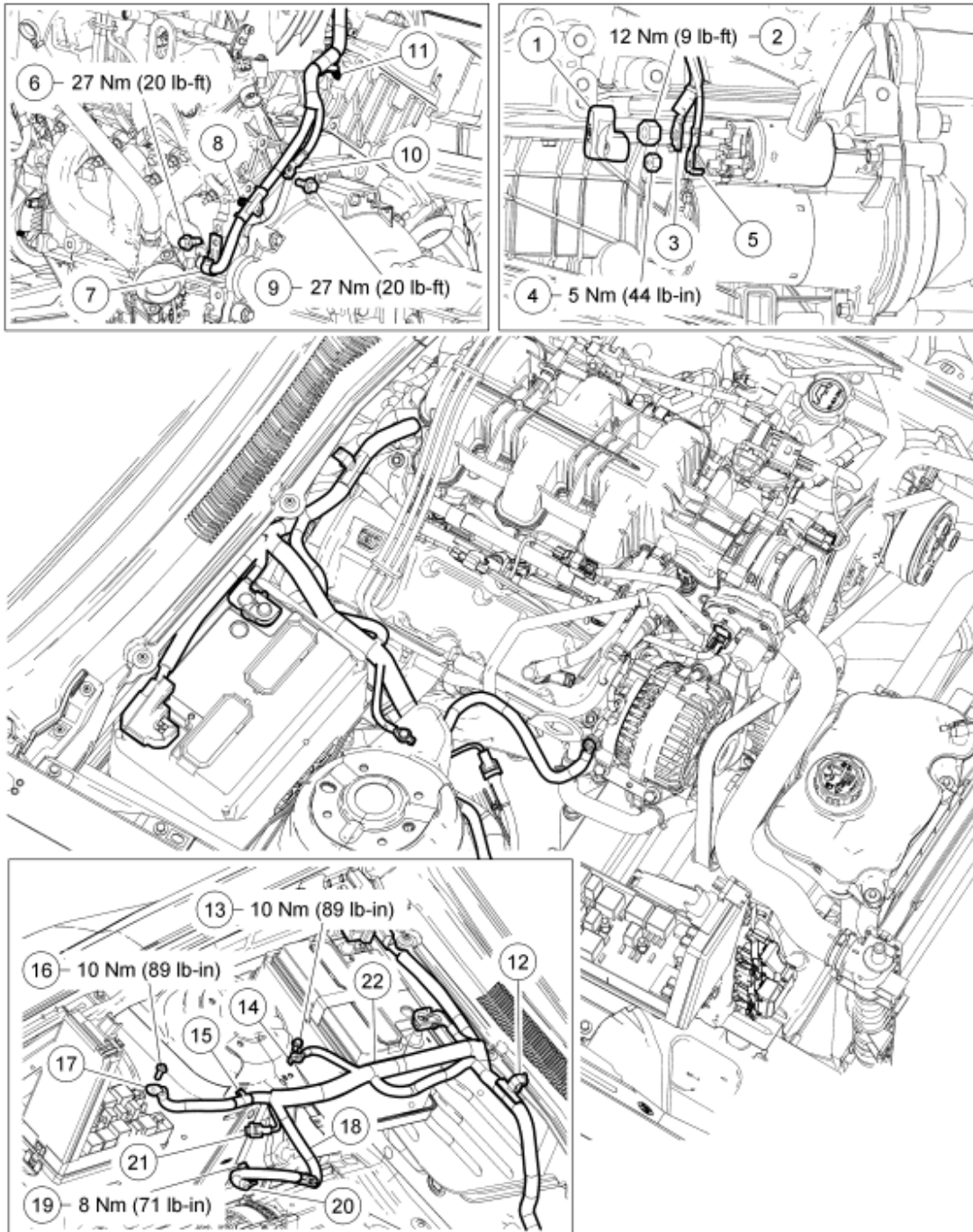
- Remove the battery. For additional information, refer to Battery.
- Remove the 3 bolts and the battery tray.

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- To install, tighten to 11 Nm (8 lb-ft).
3. To install, reverse the removal procedure.
- For GT500 models, apply threadlock and sealer to the battery tray bolt threads.

BATTERY CABLES - 4.0L SOHC



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Fig. 3: Exploded View Of Battery Cables With Torque Specifications - 4.0L SOHC
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	11N087	Starter solenoid terminal cover
2	W706414-S413	Starter solenoid positive cable terminal nut
3	-	Starter solenoid positive cable terminal (part of 14300)
4	W705790-S901	Starter solenoid wire terminal nut
5	-	Starter solenoid wire terminal (part of 14300)
6	W506031	Battery cable harness bracket bolt
7	-	Battery cable harness bracket (part of 14300)
8	-	Battery cable harness locator (LH) (part of 14300)
9	W506031	Battery ground cable engine terminal bolt
10	-	Battery ground cable engine terminal (part of 14300)
11	-	Battery cable harness locator (RH) (part of 14300)
12	-	Battery cable harness locator (part of 14300)
13	W712583	Battery ground cable body terminal bolt
14	-	Battery ground cable body terminal (part of 14300)
15	-	Battery cable harness locator (part of 14300)
16	-	Bussed electrical center (BEC) terminal bolt
17	-	BEC terminal (part of 14300)
18	-	Battery cable harness locator (part of 14300)
19	W705790-S901	Generator B+ terminal nut
20	-	Generator B+ terminal (part of 14300)
21	-	Battery cable in-line connector (part of 14300)
22	14300	Battery cable

REMOVAL AND INSTALLATION

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING AND LIFTING** article.
2. Disconnect the battery. For additional information, refer to **Battery Disconnect**.
3. Remove the starter solenoid terminal cover.
4. Remove the nut and position the starter solenoid positive cable terminal aside.
 - To install, tighten to 12 Nm (9 lb-ft).
5. Remove the nut and position the starter solenoid wire terminal aside.
 - To install, tighten to 5 Nm (44 lb-in).
6. Remove the bolt and position the battery cable harness bracket aside.
 - To install, tighten to 27 Nm (20 lb-ft).

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7. Remove the battery cable harness locator from behind the LH cylinder head.
8. Remove the bolt and position the battery ground cable engine terminal aside.
 - To install, tighten to 27 Nm (20 lb-ft).
9. Remove the battery cable harness locator from behind the RH cylinder head.
10. Remove the battery cable harness locator from the bulkhead.
11. Remove the bolt and position the battery ground cable body terminal aside.
 - To install, tighten to 10 Nm (89 lb-in).
12. Remove the battery cable harness locator from the RH strut tower.
13. Open the bussed electrical center (BEC) cover, remove the bolt and position the BEC terminal aside.
 - To install, tighten to 10 Nm (89 lb-in).
14. Remove the battery cable harness locator from the engine bracket.
15. Position aside the generator B+ boot, remove the nut and position the generator B+ terminal aside.
 - To install, tighten to 8 Nm (71 lb-in).
16. Disconnect the battery cable in-line connector.
17. Remove the battery cables.
18. To install, reverse the removal procedure.

BATTERY CABLES - 4.6L (3V)

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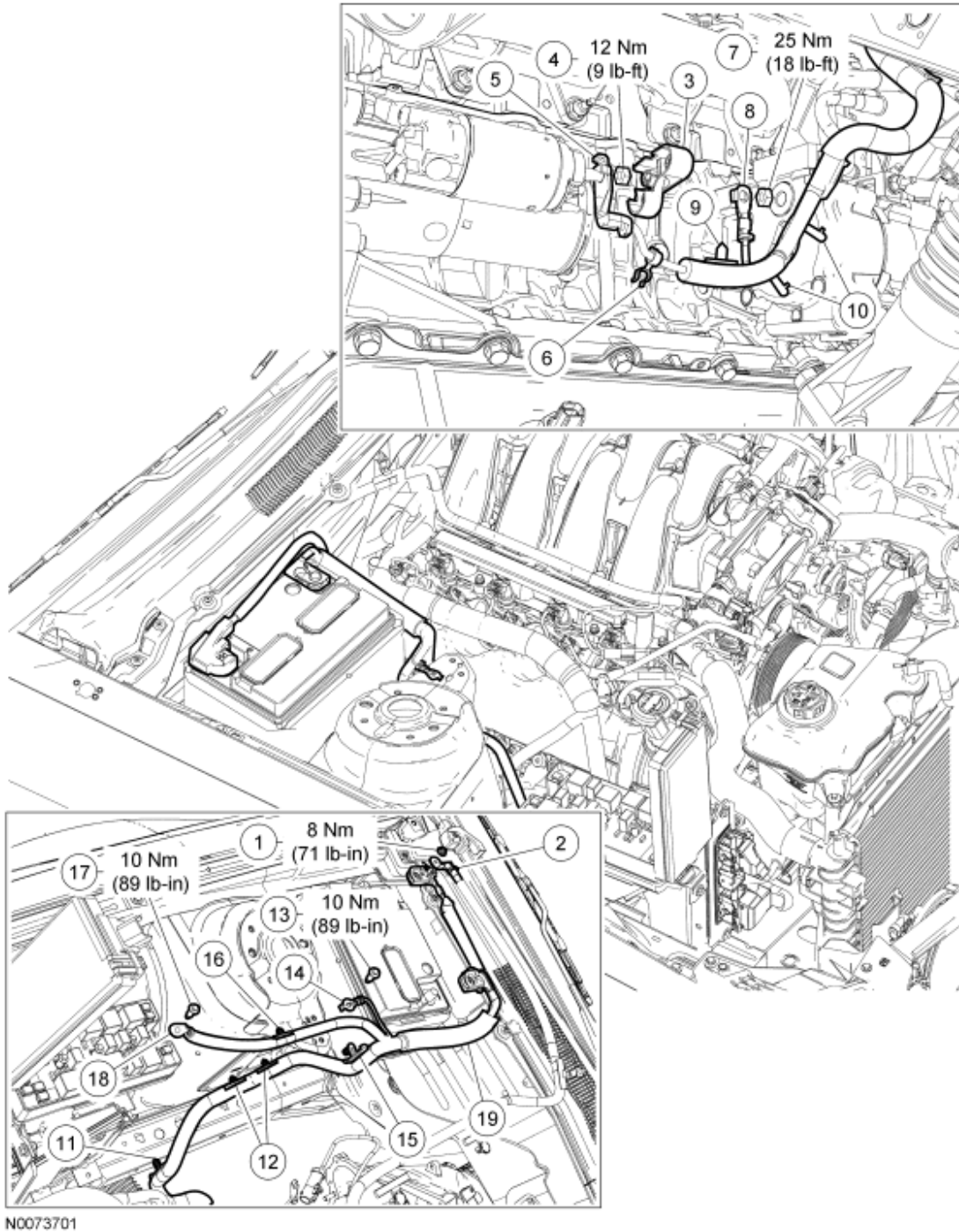


Fig. 4: Exploded View Of Battery Cables With Torque Specifications - 4.6L (3V)
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	W705790-S901	Generator harness terminal nut
2	-	Generator harness terminal (part of 14305)

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3	11N087	Starter solenoid terminal cover
4	W706414-S413	Starter solenoid positive cable terminal nut
5	-	Starter solenoid positive cable terminal (part of 14300)
6	-	Battery cable clip (part of 14300)
7	W520213	Battery ground cable engine terminal nut
8	-	Battery ground cable engine terminal (part of 14300)
9	-	Starter solenoid wire harness locator
10	-	Battery cable harness locators (2 required) (part of 14300)
11	-	Battery cable harness locator (part of 14300)
12	-	Battery cable harness locators (2 required) (RH tower) (part of 14300)
13	W712583	Battery ground cable body terminal bolt
14	-	Battery ground cable body terminal (part of 14300)
15	-	Battery cable harness locator (part of 14300)
16	-	Bussed electrical center (BEC) harness locator (part of 14300)
17	-	BEC terminal bolt
18	-	BEC terminal (part of 14300)
19	14300	Battery cable

REMOVAL AND INSTALLATION

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING AND LIFTING** article.
2. Disconnect the battery. For additional information, refer to **Battery Disconnect**.
3. Position the positive battery terminal cover aside, remove the nut and position the generator harness terminal aside.
 - To install, tighten to 8 Nm (71 lb-in).
4. Remove the starter solenoid terminal cover.
5. Remove the nut and position the starter solenoid positive cable terminal aside.
 - To install, tighten to 12 Nm (9 lb-ft).
6. Remove the battery cable clip from the transmission cooler lines.
7. Remove the nut and position the battery ground cable engine terminal aside.
 - To install, tighten to 25 Nm (18 lb-ft).
8. Remove the starter solenoid wire harness locator from the battery cable harness.
9. Remove the 2 battery cable harness locators from the subframe.
10. Remove the battery cable harness locator from the body.
11. Remove the 2 battery cable harness locators from the RH strut tower.
12. Remove the bolt and position the battery ground cable body terminal aside.

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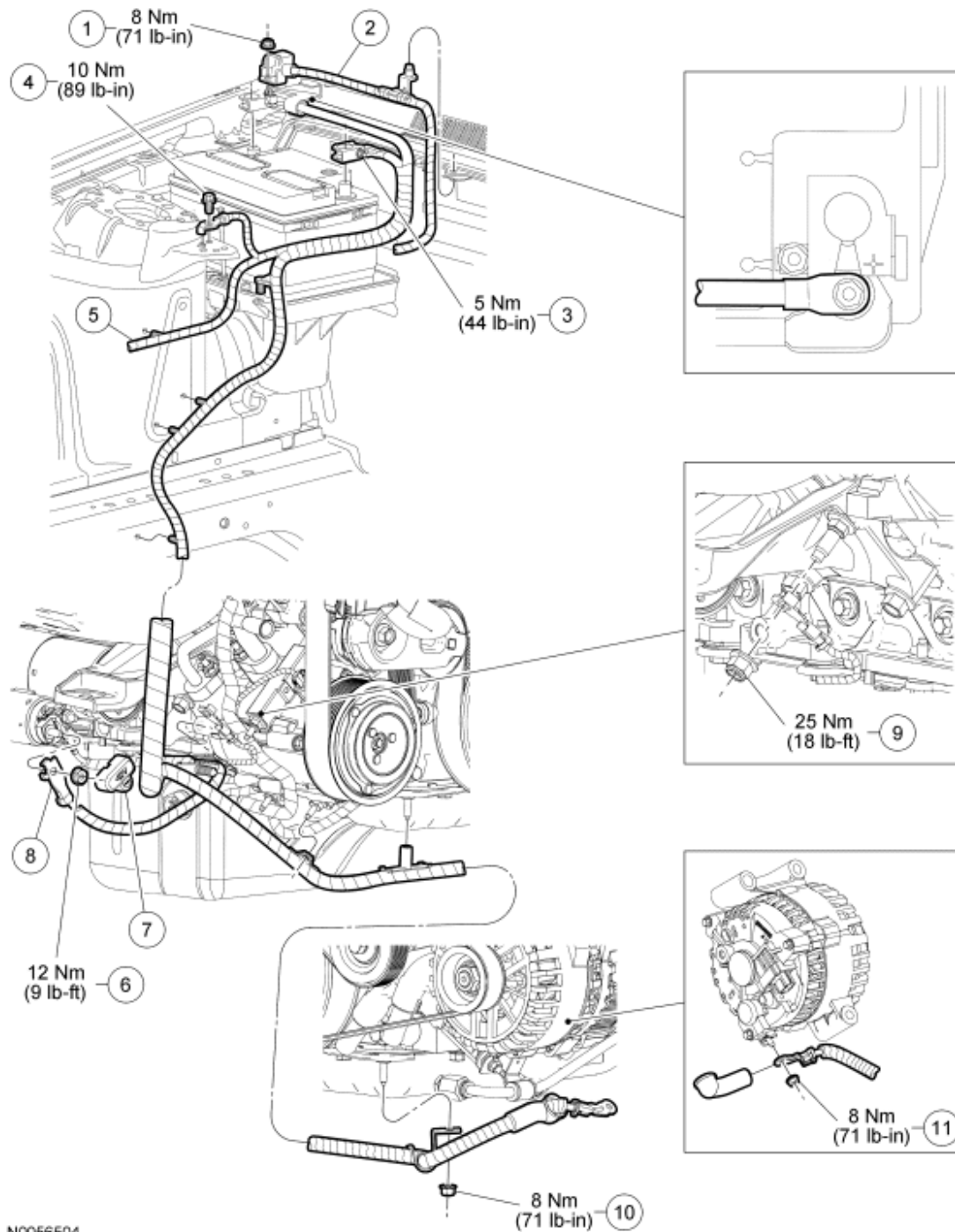
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- To install, tighten to 10 Nm (89 lb-in).
13. Remove the battery cable harness locator from the battery tray.
 14. Remove the battery cable harness locator from the RH strut tower.
 15. Open the BEC cover, remove the bolt and position the BEC terminal aside.
 - To install, tighten to 10 Nm (89 lb-in).
 16. Remove the battery cables.
 17. To install, reverse the removal procedure.

BATTERY CABLES - 5.4L (4V)

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N0056504

Fig. 5: Exploded View Of Battery Cables With Torque Specifications - 5.4L (4V)
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	W705790-S901	Generator harness terminal nut
2	-	Generator harness terminal (part of 14300)

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3	-	Battery cable terminal bolt (part of 14300)
4	W712583	Battery ground cable body bolt
5	-	Battery harness-to-distribution box
6	W706414-S413	Starter solenoid positive cable terminal nut
7	11N087	Starter solenoid terminal cover
8	-	Starter solenoid positive cable terminal (part of 14300)
9	W520213-S440	Battery ground cable engine terminal nut
10	W705790-S901	Battery cable harness locator nut
11	W705790-S901	Battery cable terminal nut

REMOVAL AND INSTALLATION

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING AND LIFTING** article.
2. Disconnect the battery. For additional information, refer to **Battery Disconnect**.
3. Position the positive battery terminal cover aside, remove the nut and position the generator harness terminal aside.
 - To install, tighten to 8 Nm (71 lb-in).
4. Remove the locator from the dash panel.
5. Remove the starter solenoid terminal cover.
6. Remove the nut and position the starter solenoid positive cable terminal aside.
 - To install, tighten to 12 Nm (9 lb-ft).
7. Remove the nut and position the battery ground cable engine terminal aside.
 - To install, tighten to 25 Nm (18 lb-ft).
8. Remove the starter solenoid wire harness locator from the A/C compressor.
9. Remove the battery cable harness locators from the body.
10. Remove the battery cable harness locators from the oil pan.
11. Remove the 2 battery cable harness locators from the RH strut tower.
12. Remove the bolt and position the battery ground cable body terminal aside.
 - To install, tighten to 10 Nm (89 lb-in).
13. Remove the battery cable harness locator from the battery tray.
14. Remove the battery cable harness locator from the RH strut tower.
15. Open the BEC cover, remove the bolt and position the BEC terminal aside.
 - To install, tighten to 10 Nm (89 lb-in).
16. Remove the battery cables.
17. To install, reverse the removal procedure.