

**SERVICE REPAIR**

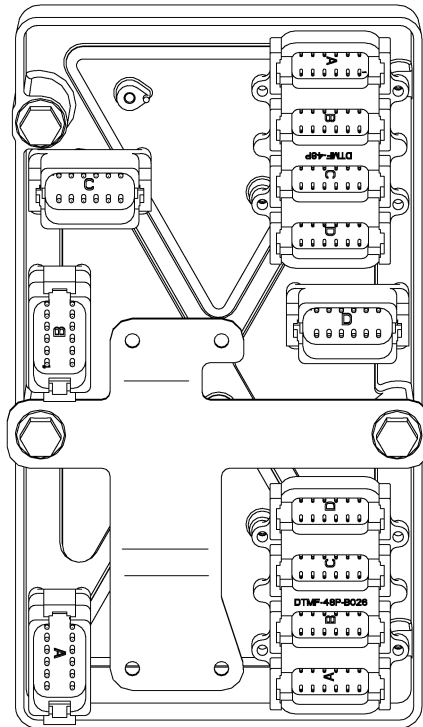
**MANUAL**

Hyster L006 (H135FT, H155FT) Forklift Service  
Repair Manual

***HYSTER***

# ELECTRICAL SYSTEM

H6.0-7.0FT (H135-155FT) [L006];  
H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36,  
H190FT) [C299]



# ***HYSTER***

# SAFETY PRECAUTIONS

## MAINTENANCE AND REPAIR

- The Service Manuals are updated on a regular basis, but may not reflect recent design changes to the product. Updated technical service information may be available from your local authorized Hyster® dealer. Service Manuals provide general guidelines for maintenance and service and are intended for use by trained and experienced technicians. Failure to properly maintain equipment or to follow instructions contained in the Service Manual could result in damage to the products, personal injury, property damage or death.
- When lifting parts or assemblies, make sure all slings, chains, or cables are correctly fastened, and that the load being lifted is balanced. Make sure the crane, cables, and chains have the capacity to support the weight of the load.
- Do not lift heavy parts by hand, use a lifting mechanism.
- Wear safety glasses.
- DISCONNECT THE BATTERY CONNECTOR before doing any maintenance or repair on electric lift trucks. Disconnect the battery ground cable on internal combustion lift trucks.
- Always use correct blocks to prevent the unit from rolling or falling. See HOW TO PUT THE LIFT TRUCK ON BLOCKS in the Operating Manual or the Periodic Maintenance section.
- Keep the unit clean and the working area clean and orderly.
- Use the correct tools for the job.
- Keep the tools clean and in good condition.
- Always use HYSTER APPROVED parts when making repairs. Replacement parts must meet or exceed the specifications of the original equipment manufacturer.
- Make sure all nuts, bolts, snap rings, and other fastening devices are removed before using force to remove parts.
- Always fasten a DO NOT OPERATE tag to the controls of the unit when making repairs, or if the unit needs repairs.
- Be sure to follow the WARNING and CAUTION notes in the instructions.
- Gasoline, Liquid Petroleum Gas (LPG), Compressed Natural Gas (CNG), and Diesel fuel are flammable. Be sure to follow the necessary safety precautions when handling these fuels and when working on these fuel systems.
- Batteries generate flammable gas when they are being charged. Keep fire and sparks away from the area. Make sure the area is well ventilated.

**NOTE:** The following symbols and words indicate safety information in this manual:



### **WARNING**

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



### **CAUTION**

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury and property damage.

On the lift truck, the **WARNING** symbol and word are on orange background. The **CAUTION** symbol and word are on yellow background.

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Want to get more information,  
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manual**

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[admin@servicemanualperfect.com](mailto:admin@servicemanualperfect.com)**

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This section is for the following models:

H6.0-7.0FT (H135-155FT) [L006];  
H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT) [C299]

"THE  
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PARTS

## General

The removal and replacement procedures for the following electrical components are covered in this manual:

- Display Switch Cluster
- Vehicle System Manager (VSM)
- Power Distribution Module (PDM)
- Mini-lever electronic-hydraulic controls
- Lights
- Sensors and switches
- Battery
- Transmission Control Unit (TCU)

Some of the components used are made of plastic. When using screws to replace and install plastic components, the screws should be rotated counterclockwise until the screw thread turns over the last thread in the plastic part. The screw can then be turned clockwise to make a connection. This prevents "cutting" new threads and damaging the existing thread in the plastic part.

If any welding must be done, obtain proper authorization from a Resident Service Engineer. If authorization is given, be sure to follow the procedures in the CAUTION below.



### CAUTION

**When welding, always disconnect the negative battery cable from battery and disconnect the ground wire from the ground stud on the frame. See Figure 1. To prevent damage to the Electronic Control Module (ECM), remove it from the lift truck.**

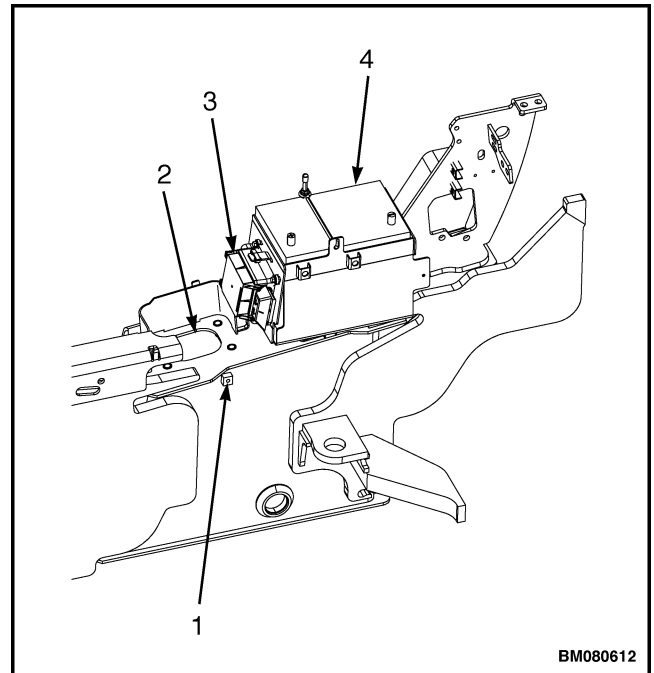
See one of the following sections for procedures to remove ECM from your lift truck

LPG Fuel System, GM 4.3L Engine With PSI 0900SRM1556 for the following lift truck models

- H6.0-7.0FT (H135-155FT) (L006)

LPG Fuel System, GM 5.7L Engine 0900SRM1433 for the following lift truck models

- H8.0FT, H8.0FT9, H9.0FT (C299)



**NOTE:** VIEW SHOWN IS FROM LEFT SIDE. MAJOR COMPONENTS AND ELECTRICAL CONNECTIONS NOT SHOWN FOR CLARITY.

1. GROUND STUD
2. TANK OPENING FOR HYDRAULIC FILTER
3. POWER DISTRIBUTION MODULE (PDM)
4. BATTERY

**Figure 1. Welding Preparation**

For more information on how to perform welding repairs to lift truck and overhead guard, refer to one of the following sections:

Periodic Maintenance 8000SRM1957 for the following lift truck models

- H6.0-7.0FT (H135-155FT) (L006)

Periodic Maintenance 8000SRM1959 for the following lift truck models

- H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299)

Additional information concerning the electrical system may be included in other sections when the information is closely related to other systems.

Sections may include:

Frame 0100SRM1948 for lift truck models

- H6.0-7.0FT (H135-155FT) (L006)
- H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299)

Wet Brakes - NMHG 1800SRM1597 for lift truck models

- H6.0-7.0FT (H135-155FT) (L006)
- H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299)

Three-Speed Powershift Transmission Repair 1300SRM1317 for lift truck models

- H6.0-7.0FT (H135-155FT) (L006)
- H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299)

Two-Speed Powershift Transmission Repair 1300SRM1343 for lift truck models

- H6.0-7.0FT (H135-155FT) (L006)

Calibration Procedures 8000SRM1134 for lift truck models

- H6.0-7.0FT (H135-155FT) (L006)
- H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299)

Cooling System 0700SRM1950 for lift truck models

- H6.0-7.0FT (H135-155FT) (L006)
- H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299)

Diagnostic Troubleshooting Manual 9000SRM1112 for lift truck models

- H6.0-7.0FT (H135-155FT) (L006)
- H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299)

User Interface - Service Technician 2200SRM1131 for lift truck models

- H6.0-7.0FT (H135-155FT) (L006)
- H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299)

Kubota Diesel 3.6L Engine 0600SRM1579 for lift truck models

- H6.0-7.0FT (H135-155FT) (L006)

Kubota Diesel 3.8L Engine (Tier 4 Final), 78/82 KW 0600SRM1962 for lift truck models

- H6.0-7.0FT (H135-155FT) (L006)
- H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299)

Kubota 3.8L Diesel Engine (Tier 4), 55kW With DOC 0600SRM1961 for lift truck models

- H6.0-7.0FT (H135-155FT) (L006)
- H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299)

LPG Fuel System, GM 4.3L Engine With PSI 0900SRM1556 for the following lift truck models equipped with a GM 4.3L LPG engine

- H6.0-7.0FT (H135-155FT) (L006)

LPG Fuel System, GM 5.7L Engine 0900SRM1433 for the following lift truck models equipped with a GM 5.7L LPG engine

- H8.0FT, H8.0FT9, H9.0FT (C299)

High Voltage Switch (HVS) Ignition; GM4.3L EPA Compliant Engines and GM5.7L LPG EPA Compliant Engine 2200SRM1097 for the following lift truck models equipped with a GM 4.3L and 5.7L LPG engine

- H6.0-7.0FT (H135-155FT) (L006)
- H8.0FT, H8.0FT9, H9.0FT (C299)

Operator's Cab 0100SRM1892 for lift truck models

- H6.0-7.0FT (H135-155FT) (L006)
- H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299)

If your lift truck is equipped with a Cummins QSB 3.3L diesel engine, contact your local Hyster dealer, or see Hyster Hypass® Online for any repair or service procedures.

## Display Switch Cluster

### REMOVE

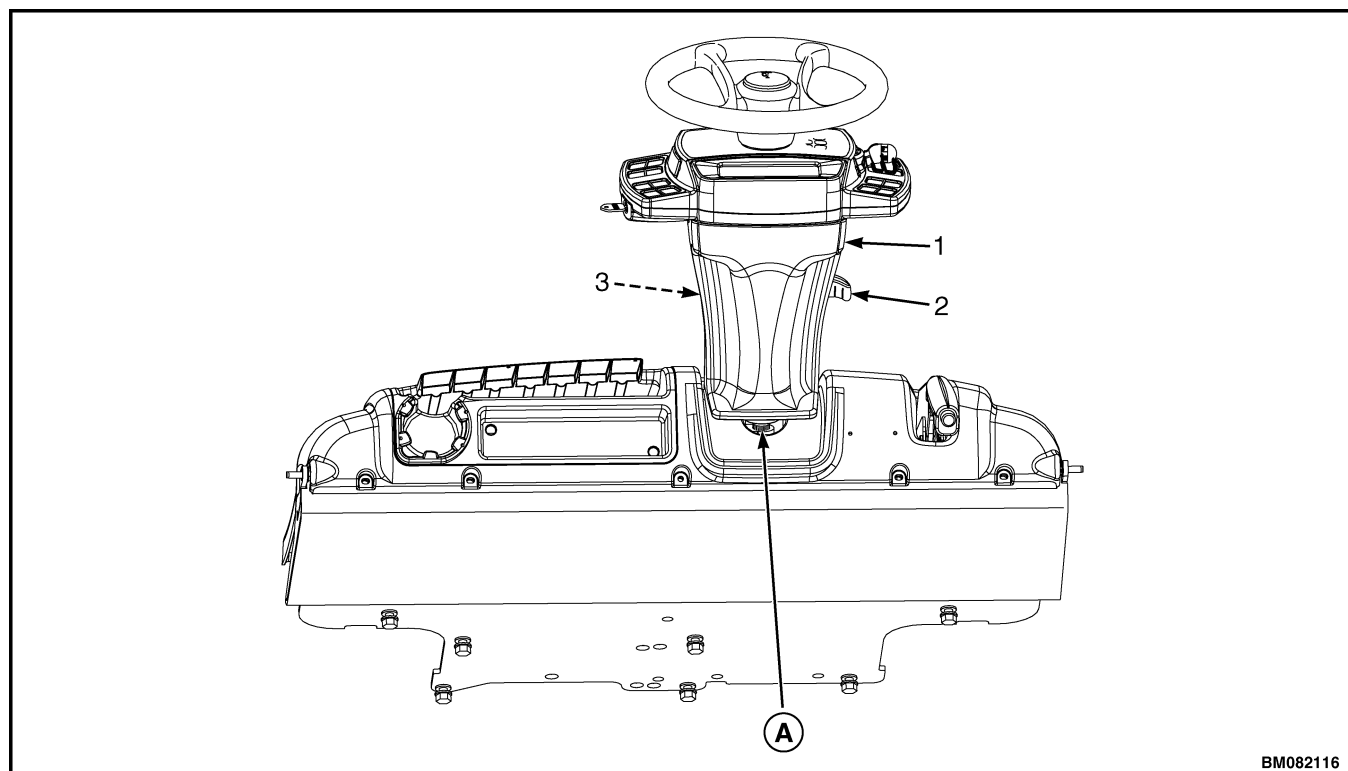
**NOTE:** The Display Switch Cluster (DSC) is a non-repairable part. See Parts Manual for replacement parts.

1. Disconnect ground wire.
2. Lift up on steering wheel slightly and pull up on tilt lever. Fully lower steering column.
3. Remove upper steering column cover by pulling up on upper steering column cover to release latches (one on either side), and pulling cover away from steering column. See Figure 2.

4. Remove horn button and disconnect horn wires.

**NOTE:** A puller tool may be required to remove steering wheel.

5. Remove lock nut securing steering wheel and remove steering wheel from steering column. Take care to not damage horn wires. See Figure 3.
6. Disconnect Display Switch Cluster harness from Display Switch Cluster. Remove four bolts securing Display Switch Cluster. Slide display panel off of steering column. See Figure 4.



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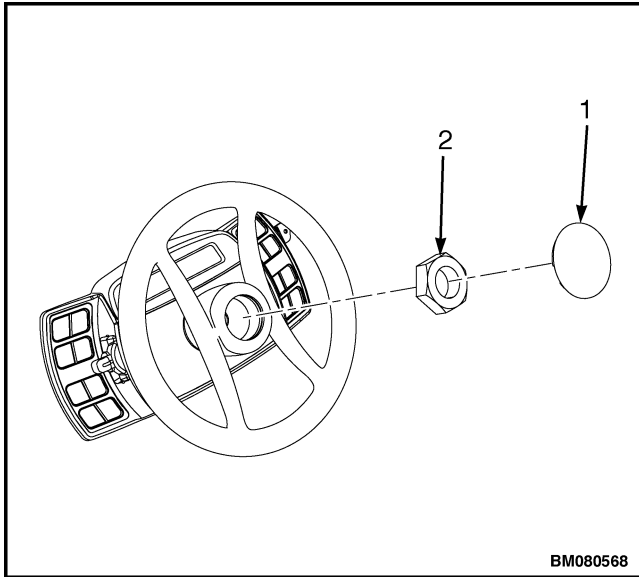
**NOTE:** TOP VIEW OF DASH SHOWN.

**A.** INDICATES TO PULL UP TO UNLATCH

1. UPPER STEERING COLUMN COVER
2. STEERING COLUMN TILT LEVER

3. LOWER STEERING COLUMN COVER

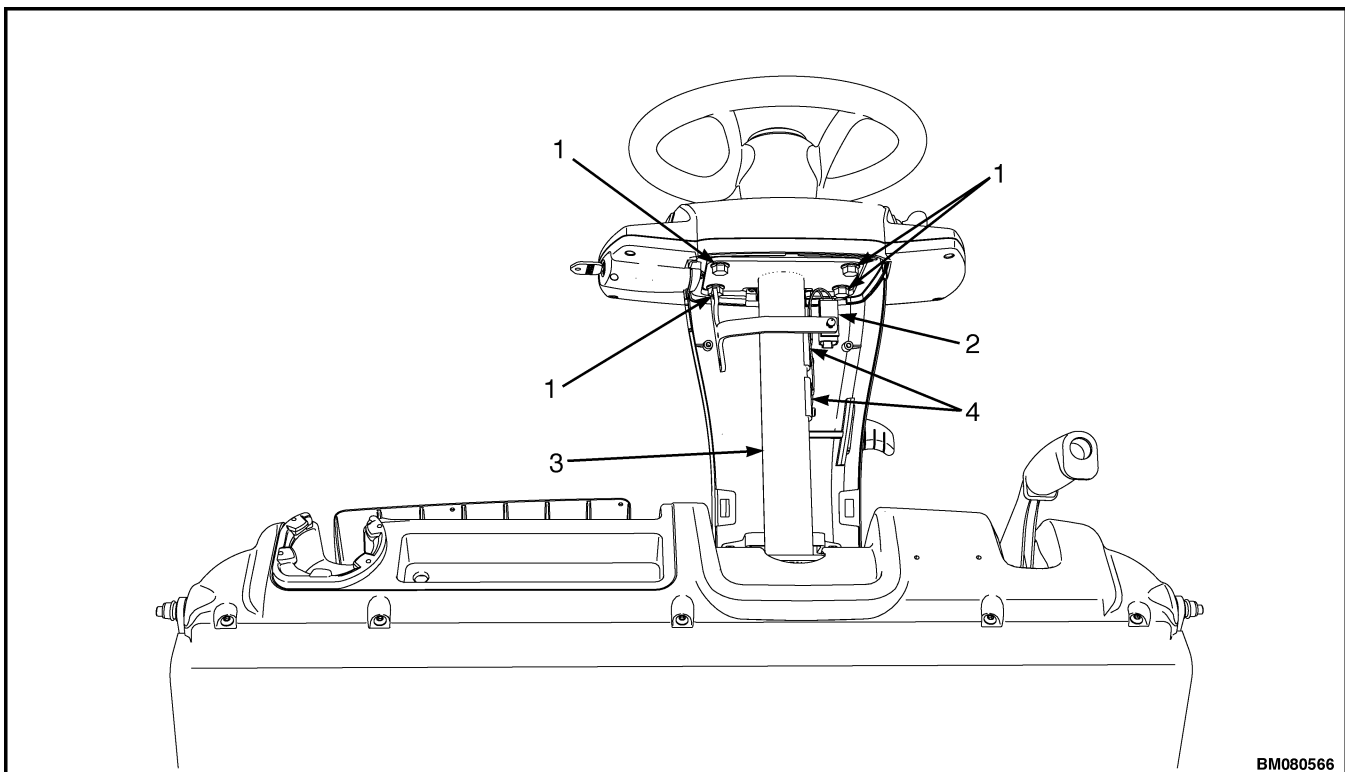
**Figure 2. Upper Steering Column Cover Removal**



**Legend for Figure 3**

- 1. HORN BUTTON
- 2. LOCK NUT

**Figure 3. Steering Wheel Removal**



**NOTE:** TOP DOWN VIEW SHOWN.

- 1. BOLTS
- 2. DISPLAY SWITCH CLUSTER HARNESS
- 3. STEERING COLUMN
- 4. HORN WIRES (CONTACT PADS)

**Figure 4. Display Switch Cluster Removal**

## INSTALL

**NOTE:** When a new Display Switch Cluster is installed on a lift truck, the data that controls all functions and features unique to that lift truck, needs to be transferred to new Display Switch Cluster. See section Vehicle System Manager (VSM), located in the back of this manual, for procedures to transfer data to a new Display Switch Cluster.

1. Install Display Switch Cluster onto steering column. Install four bolts to secure panel to steering column and tighten bolts to 19 N•m (168 lbf in). See Figure 4.
2. Connect Display Switch Cluster to display harness.
3. Install steering wheel onto steering shaft and tighten lock nut until steering wheel is fully seated. Final torque for lock nut is 40 to 54 N•m (30 to 40 lbf ft). See Figure 3.
4. Connect horn wires to horn button. Install horn lock nut and horn button into steering wheel.
5. Install upper steering column cover by aligning two latches and pushing down until latched. See Figure 2.

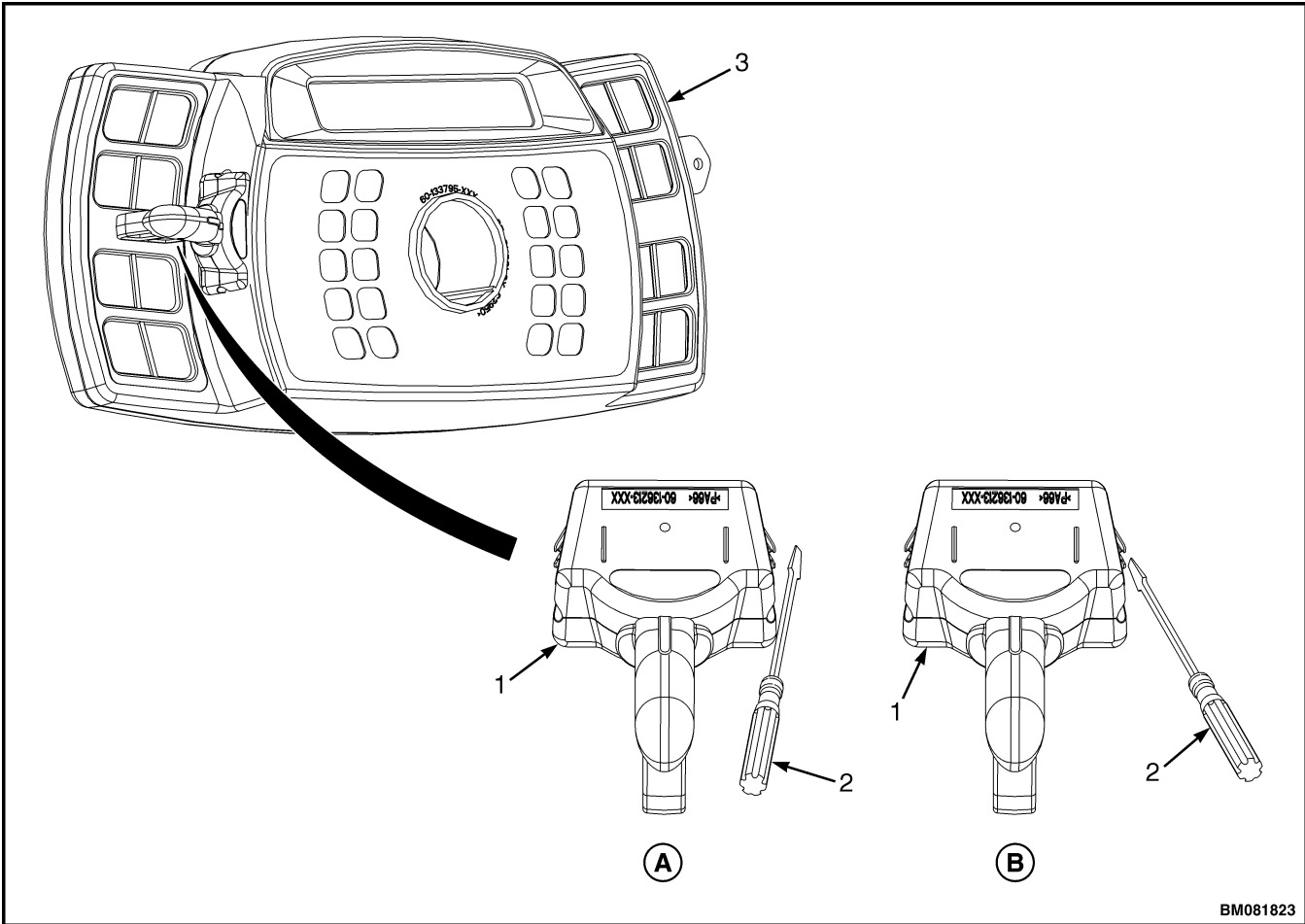
## DIRECTION CONTROL AND TURN SIGNAL LEVERS

Direction control lever and turn signal lever are similar in design, but perform different functions. The turn signal lever is located on right side of the Display Switch Cluster. The direction control lever is located on left side of Display Switch Cluster.

## Remove

**NOTE:** The direction control lever and turn signal lever are not repairable. If one of these levers malfunctions, replace with new lever. See Parts Manual for replacement part numbers.

1. Insert two small flat-blade or Phillips screwdrivers, with a 3.175 mm (0.125 in.) or less, wide blade or die end, into opening on Display Switch Cluster on an outward angle enough to compress spring tab on direction control lever or turn signal lever. See A, Figure 5.
2. Pry spring tab toward body of direction control lever or turn signal lever and, at the same time, pull on handle of lever enough to free the tab of interior lock of Display Switch Cluster. See B, Figure 5.
3. Repeat previous steps on opposite side of direction control lever or turn signal lever. Remove direction control lever or turn signal lever from Display Switch Cluster.



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**NOTE:** DISPLAY SWITCH CLUSTER SHOWN OUTSIDE OF LIFT TRUCK FOR CLARITY. FLAT-BLADE SCREWDRIVERS SHOWN.

**A. STEP 1**

- 1. DIRECTION CONTROL AND TURN SIGNAL LEVERS
- 2. FLAT-BLADE SCREWDRIVER

**B. STEP 2**

- 3. DISPLAY SWITCH CLUSTER

**Figure 5. Direction Control and Turn Signal Levers, Remove**



## Install

Install direction control lever or turn signal lever into opening of Display Switch Cluster until locking tabs are engaged in Display Switch Cluster.

## KEY SWITCH

### Remove

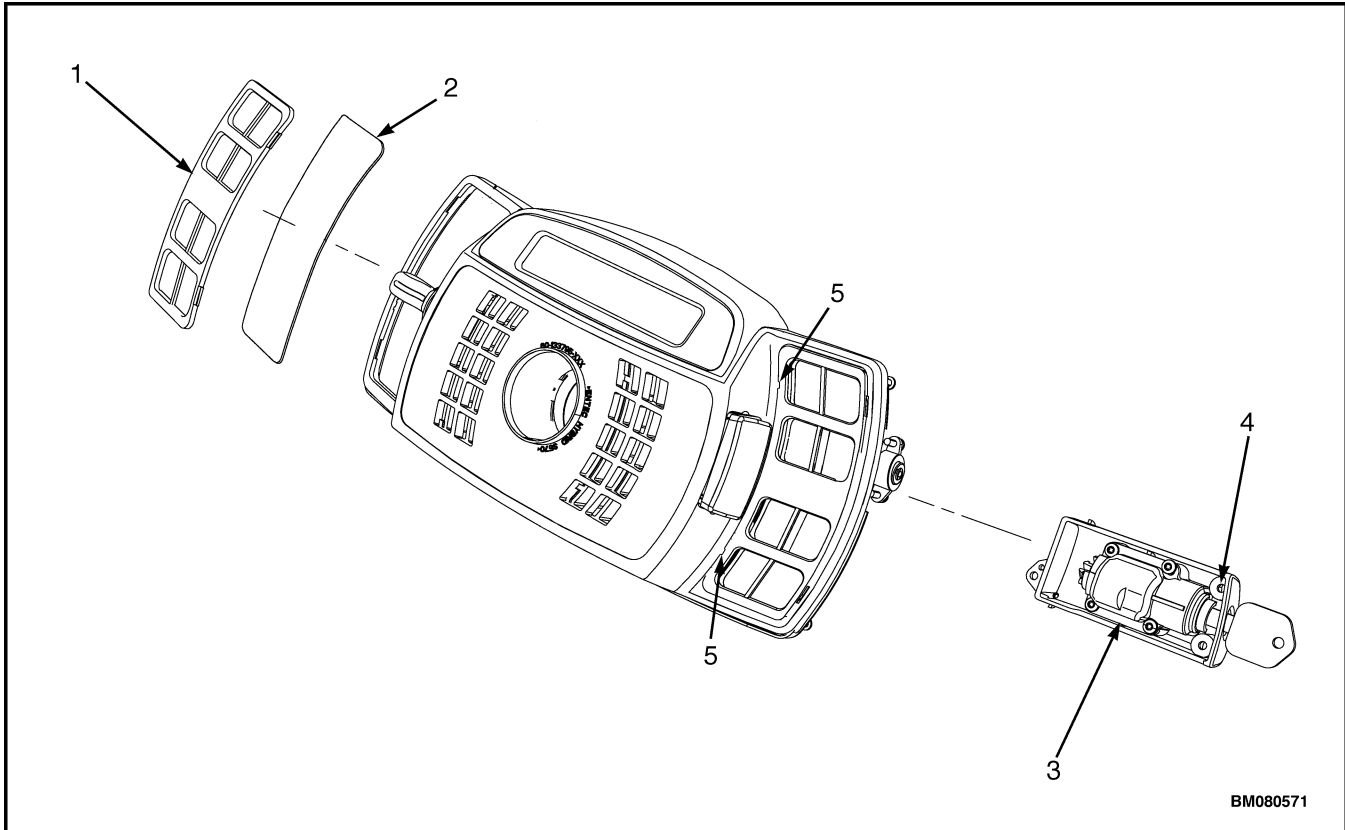
**NOTE:** The lift truck models covered in this manual may be equipped with an optional remote key switch in the engine compartment. See Sensors and Switches section in this service manual for replacement procedures.

**NOTE:** Lift truck models covered in this manual can be equipped with an optional key switch or Power ON/OFF button. The Power ON/OFF button is a nonrepairable part. See Parts Manual for replacement parts. If truck is equipped with a key switch, follow steps below to remove and replace key switch.

1. Fully lower steering column and remove upper steering column cover by pushing in on both sides of cover to release latches (one on either side), and pulling cover away from steering column. See Figure 2.
2. Remove torx head capscrews. Slide key switch assembly out of Display Switch Cluster. See Figure 6.

### Install

1. Install new key switch assembly into Display Switch Cluster. Install torx head capscrews (T-15) to secure key switch to Display Switch Cluster. Tighten torx head capscrews to 1.1 N•m (9.7 lbf in). See Figure 6.
2. Install upper steering cover on steering column. Align latches on upper steering cover to holes on steering column and push upper steering cover into place on steering column. See Figure 2.



- |               |  |
|---------------|--|
| 1. BEZEL      | 4. TORX HEAD SCREW                             |
| 2. OVERLAY    | 5. INSERT SCREWDRIVER IN SLOT AT THIS LOCATION |
| 3. KEY SWITCH |  |

**Figure 6. Display Switch Cluster Panel Bezel, Grid, and Key Switch Removal**

**DISPLAY SWITCH CLUSTER PANEL BEZEL AND OVERLAY**

**Remove**

1. Insert a small, flat-bladed screwdriver into top slot on inner edge of bezel and pry outward. Repeat procedure at the lower slot on the bezel.

Be careful to not damage bezel and overlay when removing bezel. Lift bezel off of Display Switch Cluster. See Figure 6.

2. Remove overlay from Display Switch Cluster.

**Install**

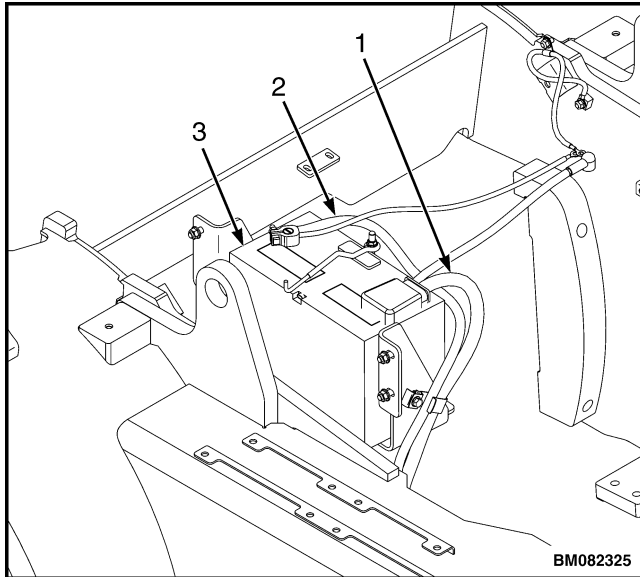
Place new overlay on display panel and install a new bezel by inserting outer edge in display and then pressing down inner edge.

**Steering Column Repair**

**Remove**

1. Remove floor mat and floor plate for access to battery.

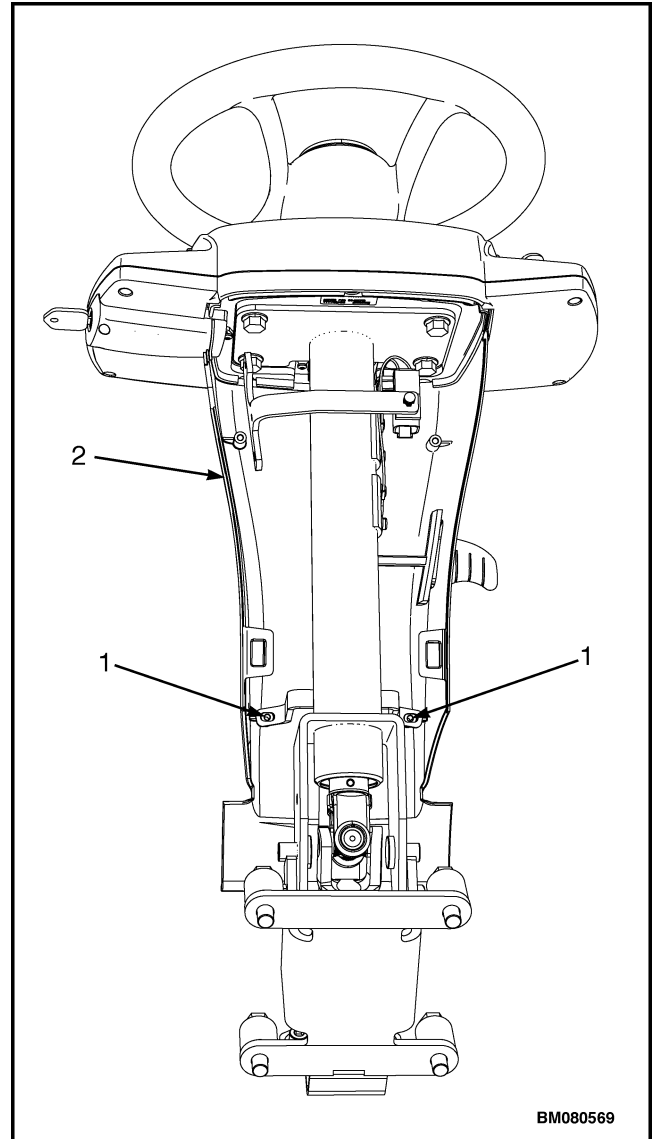
2. Disconnect the battery. See Figure 7.



1. BATTERY POSITIVE CABLE
2. BATTERY NEGATIVE CABLE
3. BATTERY

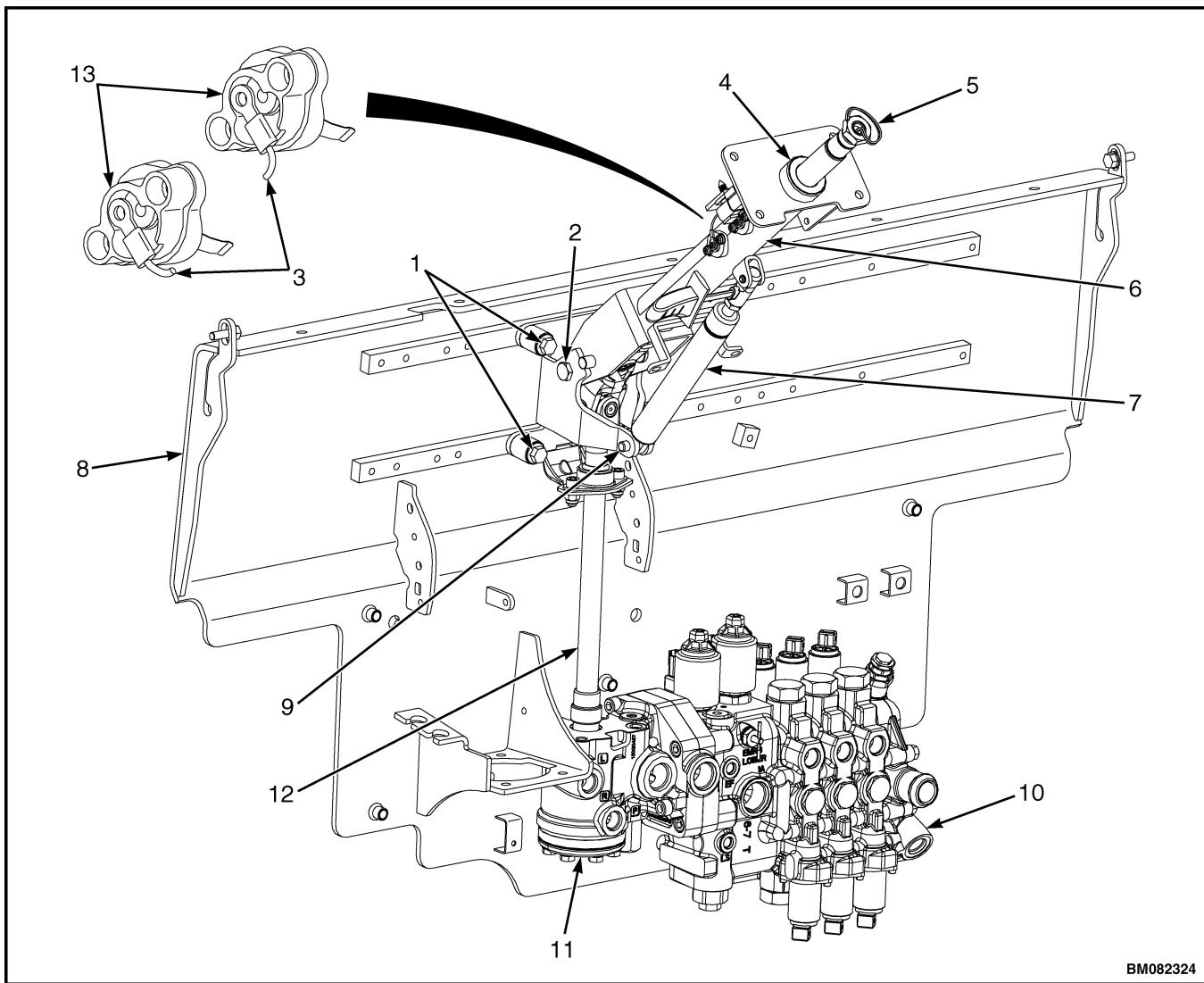
**Figure 7. Disconnect The Battery**

3. Remove upper steering column cover by pulling up on upper steering column cover to release latches (one on either side), and pulling cover away from steering column. See Figure 2.
4. Remove steering wheel and instrument display panel. See Display Switch Cluster section for procedures.
5. Remove two screws and remove lower steering column cover. See Figure 8.
6. Disconnect Display Switch Cluster harness from display panel. Remove harness from steering column.
7. Remove four bolts (1, Figure 9) holding steering column to cowl.
8. Raise steering column to disengage steering shaft from the steering control unit.



1. SCREWS
2. LOWER STEERING COLUMN COVER

**Figure 8. Lower Steering Column Cover Removal**



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**NOTE:** STEERING COLUMN ASSEMBLY FOR LIFT TRUCK MODELS H6.0-7.0FT (H135-155FT) (L006) SHOWN. STEERING COLUMN ASSEMBLY FOR LIFT TRUCK MODELS H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299) IS SIMILAR.

**NOTE:** ELECTRONIC HYDRAULIC CONTROL VALVE SHOWN. STEERING COLUMN ARRANGEMENT IS THE SAME WITH MANUAL HYDRAULIC CONTROL VALVE.

- |                                  |                                 |
|----------------------------------|---------------------------------|
| 1. BOLTS                         | 8. COWL                         |
| 2. PIVOT BOLTS                   | 9. LOWER STRUT PIVOT PIN        |
| 3. HORN WIRES                    | 10. HYDRAULIC CONTROL VALVE     |
| 4. STEERING SHAFT RETENTION CLIP | 11. STEERING CONTROL UNIT (SCU) |
| 5. HORN HARNESS                  | 12. STEERING SHAFT              |
| 6. STEERING COLUMN               | 13. HORN CONTACT PADS           |
| 7. GAS CYLINDER                  |                                 |

**Figure 9. Steering Column Disassembly**

**Disassemble**

1. Remove steering shaft retention clip (4, Figure 9)
2. Remove horn contact pads.
3. Remove lower strut pivot pin from the gas cylinder. See Figure 9.
4. Remove steering column pivot bolts and steering shaft.

**Assemble**

1. Install steering column pivot bolts and install steering shaft.
2. Install lower strut pivot pin in the gas cylinder. See Figure 9.
3. Install horn contact pads. See Figure 9.
4. Install steering shaft retention clip.

**Install**

1. Lubricate end of steering shaft with multipurpose grease. Install end of steering shaft into steering control unit.

2. Install steering column to cowl using four bolts. Tighten bolts to 38 N•m (28 lbf ft). See Figure 9.
3. Connect Display Switch Cluster harness to Display Switch Cluster panel. Install Display Switch Cluster harness on steering column. See Display Switch Cluster section for procedures.
4. Install upper steering column cover by aligning the two latches and pushing down until latched. See Figure 8.
5. Install steering wheel and instrument display panel. See Display Switch Cluster section for procedures.
6. Move steering column to its lowest position and install upper steering column cover. See Figure 2.
7. Connect the battery. See Figure 7.

## Sensors and Switches

**GENERAL****CAUTION**

Before removing and replacing any sensors or switches, **ALWAYS** disconnect the battery (see Figure 7). Failure to disconnect the battery can cause damage to the sensor or switch and other electrical components. Always cover or protect the sensor or switch connector from contamination after disconnecting the harness mating part.

**DO NOT** use solvent-based cleaners to clean area around sensors or switches.

All sensors and switches used on these trucks are non-repairable parts. Replace with new sensors or switches whenever a sensor or switch malfunctions and is not operating correctly. See Parts Manual for replacement part numbers. Before installing

new sensors or switches, use a clean cloth and make sure the area around the sensor or switch is clean and free of oils and contaminants.

When removing and replacing sensors or switches, be sure to tag connectors to aid in correct reconnecting.

**Dash and Kick Panel, Remove and Install**

Before removing and replacing the following sensors and switches:

- Accelerator pedal position sensor
- Brake fluid level switch
- Service brake pedal position sensor
- Park brake sensor

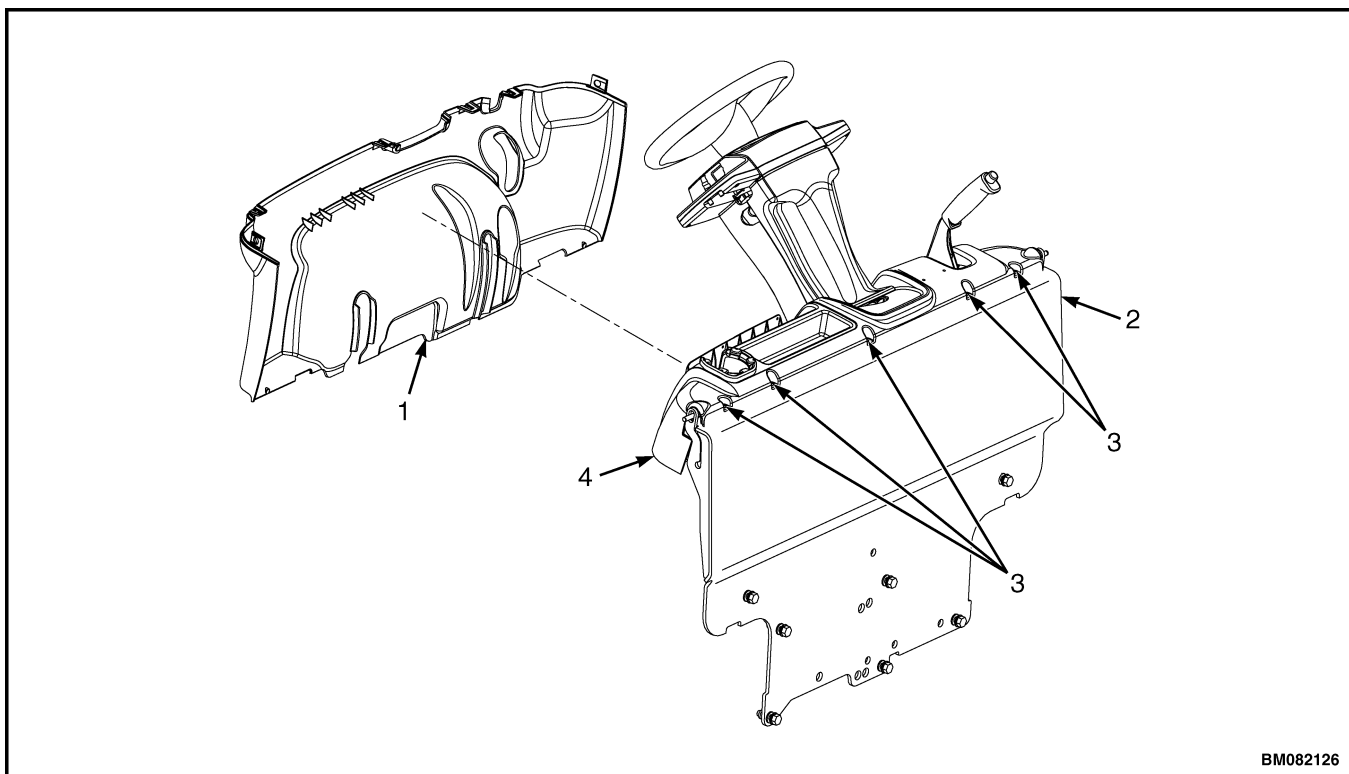
The dash and kick panel need to be removed and installed on lift truck after a sensor or switch has been replaced.

**Remove**

1. Lower steering column to its lowest position and remove upper steering column cover by pulling up on upper steering column cover to release latches (one on either side), and pulling cover away from steering column. See Figure 2.
2. Remove Allen screws from dash and top of cowl. Remove dash from clips, located underneath dash, that attach dash to kick panel. Lift to remove the dash. See Figure 10.
3. Lift kick panel from seal plate and remove from lift truck. See Figure 10.

**Install**

1. Install kick panel onto seal plate.
2. Install dash into clips, located underneath dash, that attach dash to kick panel. Install Allen screws into dash and top of cowl.
3. Install upper steering column cover by aligning two latches and pushing down until latched. See Figure 2.



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1. KICK PANEL
2. COWL

3. ALLEN SCREW
4. DASH

**Figure 10. Dash and Kick Panel Removal**

## ACCELERATOR PEDAL POSITION SENSOR

### Remove

1. Remove floor mat and floor plate and disconnect battery. See Figure 7.
2. Remove upper steering column cover and dash and kick panel. See Dash and Kick Panel, Remove and Install for procedures.

**NOTE:** Lift truck models H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299) are only equipped with an electronic hydraulic control valve.

3. If lift truck is equipped with:

Manual hydraulic control valve (with or without Operator Presence System [OPS]).

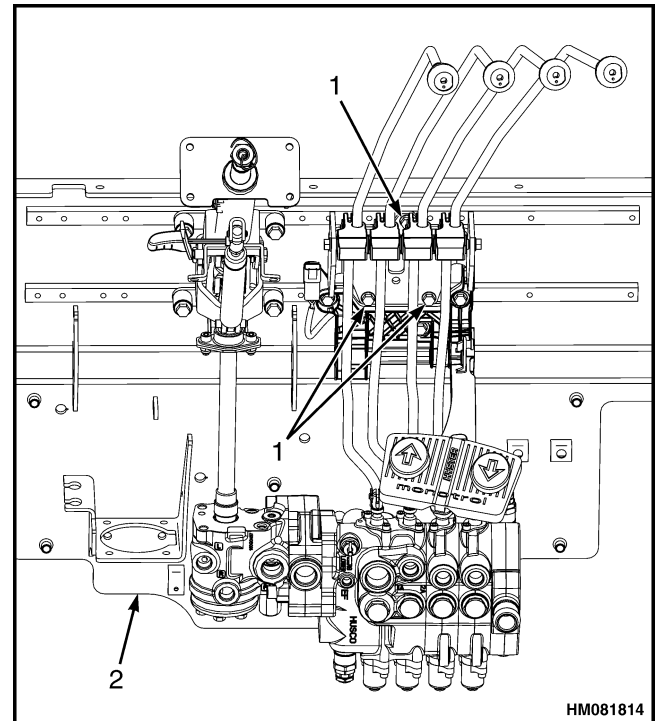
- Remove lever bracket cap screws and move hydraulic lever assembly toward operator's seat. See Figure 11.

Electronic hydraulic control valve.

- Disconnect valve harness from Vehicle System Manager (VSM). Remove two bolts and remove valve harness bracket. See Figure 12.

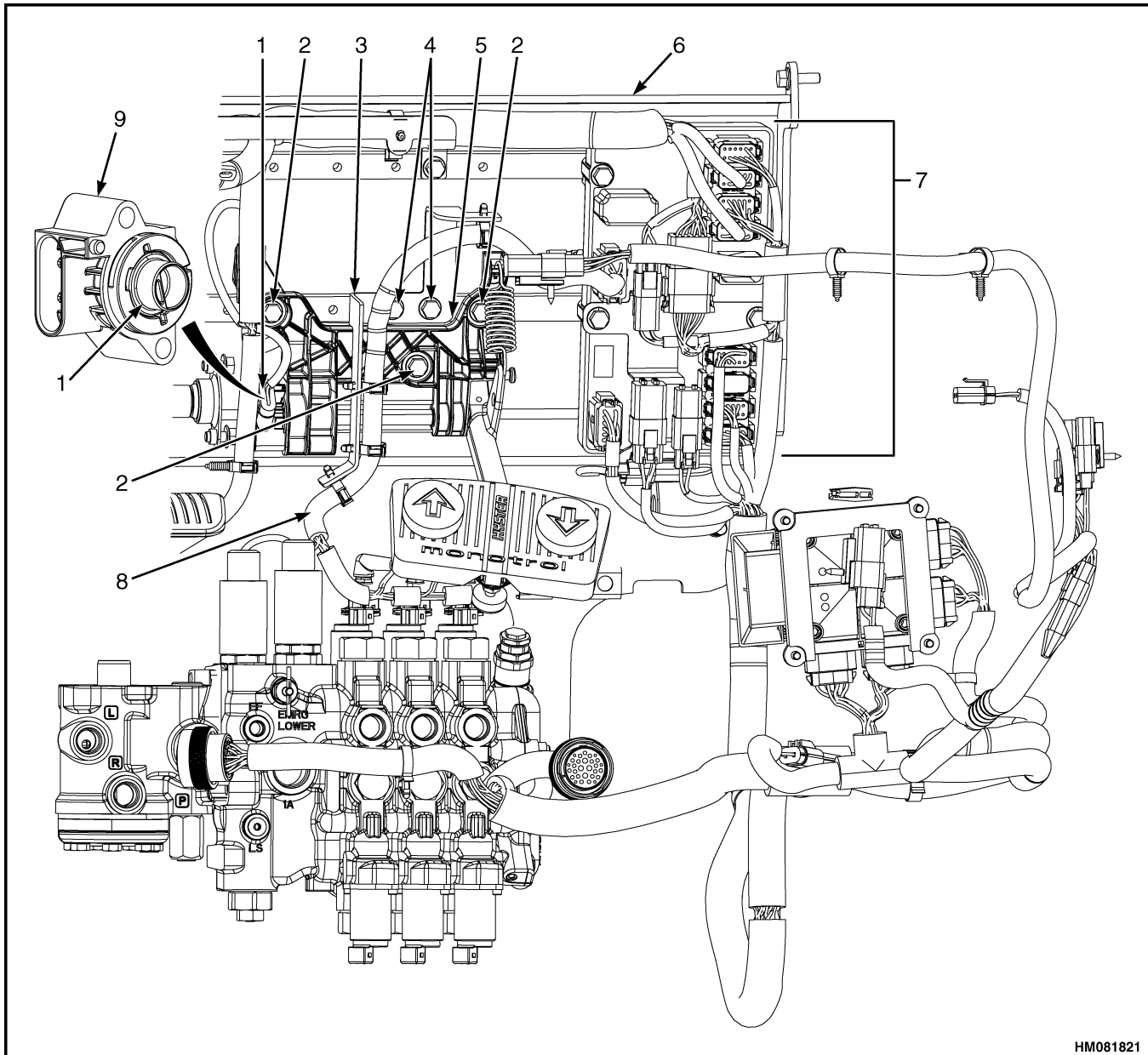
4. Disconnect accelerator pedal position sensor.
5. Remove three bolts, throttle base plate, and pedal assembly from cowl. See Figure 13.

6. Remove two pan head screws, lockwashers, and accelerator pedal position sensor from throttle base plate. See Figure 12.



1. LEVER BRACKET CAPSCREWS
2. COWL

**Figure 11. Manual Hydraulic Control Valve Removal**



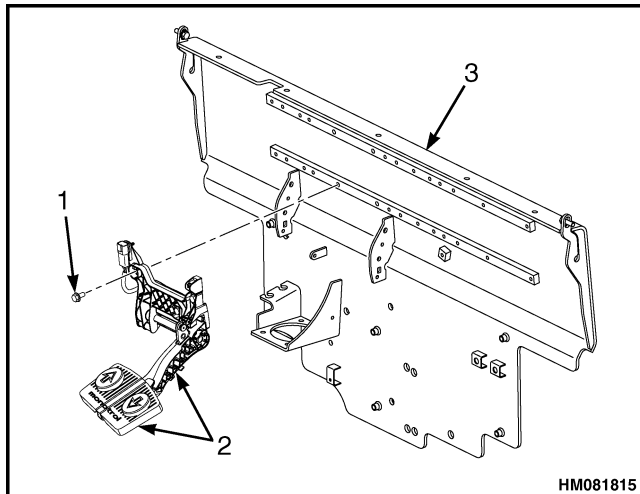
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**NOTE:** ELECTRONIC HYDRAULIC CONTROL VALVE SHOWN.

- |  |                                  |
|--|----------------------------------|
| 1. ACCELERATOR PEDAL POSITION SENSOR                 | 5. THROTTLE BASE PLATE           |
| 2. BOLTS (THROTTLE BASE PLATE)                       | 6. COWL                          |
| 3. VALVE HARNESS MOUNTING BRACKET (ELECTRONIC VALVE) | 7. VEHICLE SYSTEMS MANAGER (VSM) |
| 4. BOLTS (VALVE HARNESS MOUNTING BRACKET)            | 8. CONTROL VALVE HARNESS         |
|  | 9. SENSOR COVER                  |

**Figure 12. Accelerator Pedal Position Sensor**





1. BOLTS  
2. PEDAL ASSEMBLY  
3. COWL

**Figure 13. Accelerator Pedal and Throttle Base Plate Removal**

### Install

1. Insert new accelerator pedal position sensor into opening on throttle base plate. See Figure 13.
2. Rotate sensor so that the D shaped throttle shaft end slides into accelerator pedal position sensor. Rotate sensor counterclockwise until locating pin on sensor lines up with hole in throttle base plate.
3. Insert two pan head screws and lockwasher and install accelerator pedal position sensor to throttle base plate. Tighten screws to 2.25 N•m (20 lbf in).
4. Install throttle base plate and pedal assembly to cowl using three bolts. Tighten capscrews to 19 to 25 N•m (168 to 221 lbf in).
5. Connect accelerator pedal position sensor.

**NOTE:** Lift truck models H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT) (C299) are only equipped with an electronic hydraulic control valve.

6. Manual hydraulic control valve (with or without Operator Presence System [OPS]).

- Install lever bracket to cowl. Install clevis and retention pins and connect manual levers to control valve. See Figure 11.

Electronic hydraulic control valve.

- Insert two bolts into valve harness bracket and install valve harness bracket. Connect valve harness to VSM. See Figure 12.

7. Install kick panel and dash. Install upper steering column cover. See Dash and Kick Panel, Remove and Install for procedures.
8. Connect the battery and install the floor plate and floor mat.
9. If throttle pedal needs to be adjusted, see the Frame manual listed in the General section of this manual for procedures.

## BRAKE FLUID LEVEL SWITCH

### Remove

**NOTE:** Lift truck models H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT) (C299) DO NOT have a brake fluid level switch.

**NOTE:** Brake fluid level switch is a component of master brake cylinder reservoir and is located inside reservoir. When switch is replaced, reservoir must be replaced as well.

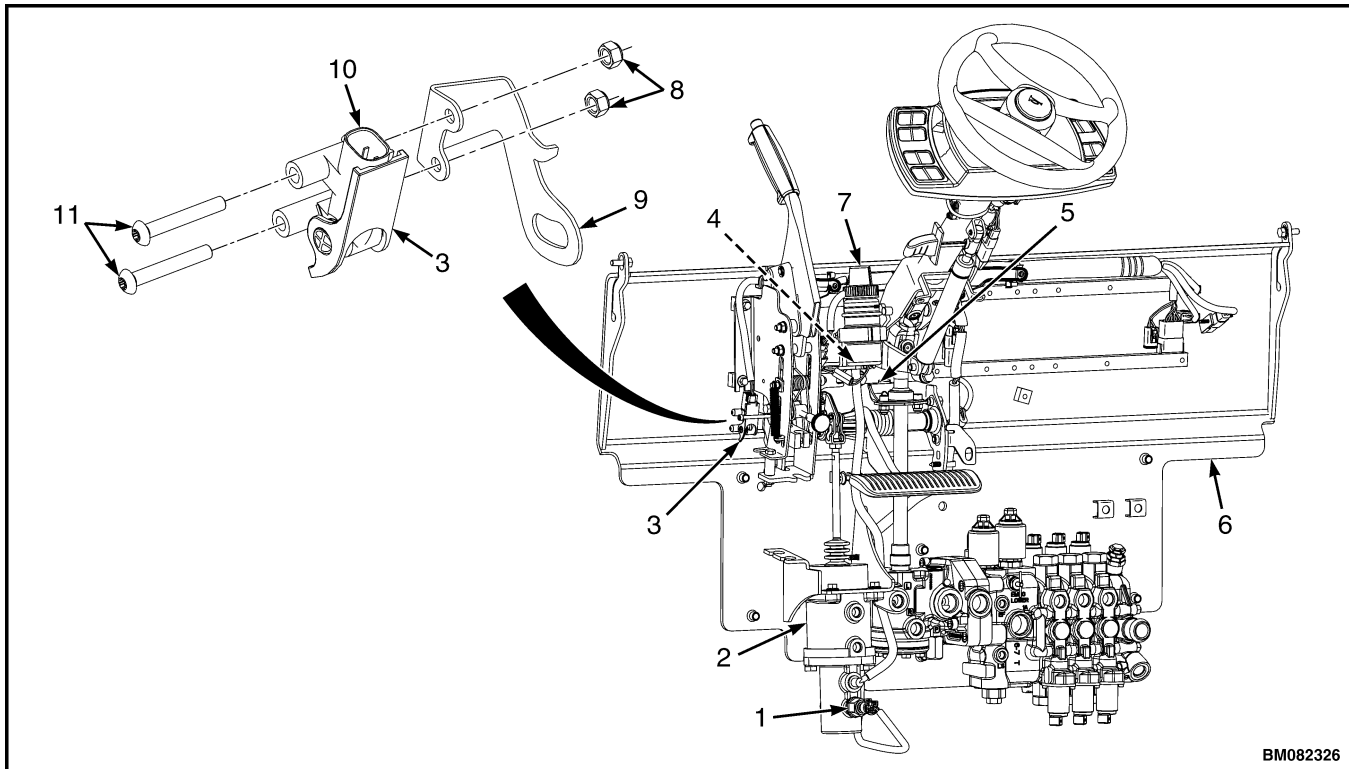
1. Remove floor mat and floor plate. Disconnect the battery. See Figure 7.
2. Remove upper steering column cover and dash and kick panel. See Dash and Kick Panel, Remove and Install for procedures.
3. Disconnect brake fluid level switch from cowl harness.



### CAUTION

**Disposal of lubricants and fluids must meet local environmental regulations.**

4. Remove reservoir from bracket and drain fluid from reservoir. Disconnect master cylinder supply hose from reservoir. Make sure air does not get into hose. See Figure 14.



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- |   |   |
|---|---|
| 1. SERVICE BRAKE PRESSURE SENSOR                | 7. BRAKE FLUID RESERVOIR                                |
| 2. MASTER CYLINDER (BOOSTED)                    | 8. NUTS   |
| 3. SERVICE BRAKE PEDAL POSITION SENSOR          | 9. SERVICE BRAKE PEDAL POSITION SENSOR MOUNTING BRACKET |
| 4. BRAKE FLUID LEVEL SWITCH (INSIDE RESERVOIR)* | 10. SERVICE BRAKE PEDAL POSITION SENSOR CONNECTOR       |
| 5. BRAKE FLUID RESERVOIR MOUNTING BRACKET       | 11. CAPSCREWS   |
| 6. COWL   |   |

\*BRAKE FLUID LEVEL SWITCH NOT USED ON LIFT TRUCK MODELS H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT ) (C299)

**Figure 14. Brake Fluid Level Switch, Service Brake Pedal Position Sensor, and Service Brake Pressure Sensor**

### Install

1. Connect the master cylinder supply hose to a new reservoir. See Figure 14
2. Install new reservoir onto bracket and fill with new brake fluid. See the Periodic Maintenance manual listed in the General section of this manual for brake fluid specifications.
3. Connect brake fluid level switch to cowl harness.
4. Install kick panel and dash. Install upper steering column cover. See Dash and Kick Panel, Remove and Install for procedures.

5. Connect the battery. Install floor plate and floor mat.

## SERVICE BRAKE PEDAL POSITION SENSOR

### Remove

1. Remove floor mat and floor plate. Disconnect the battery. See Figure 7.
2. Remove upper steering column cover and dash and kick panel. See Dash and Kick Panel, Remove and Install for procedures.
3. Disconnect brake pedal position sensor from cowl harness. See Figure 14.
4. Remove mounting bracket capscrew, mounting bracket, and brake pedal position sensor from lift truck. See Figure 14.
5. Remove two capscrews, two nuts, and brake pedal position sensor from mounting bracket. See Figure 14.

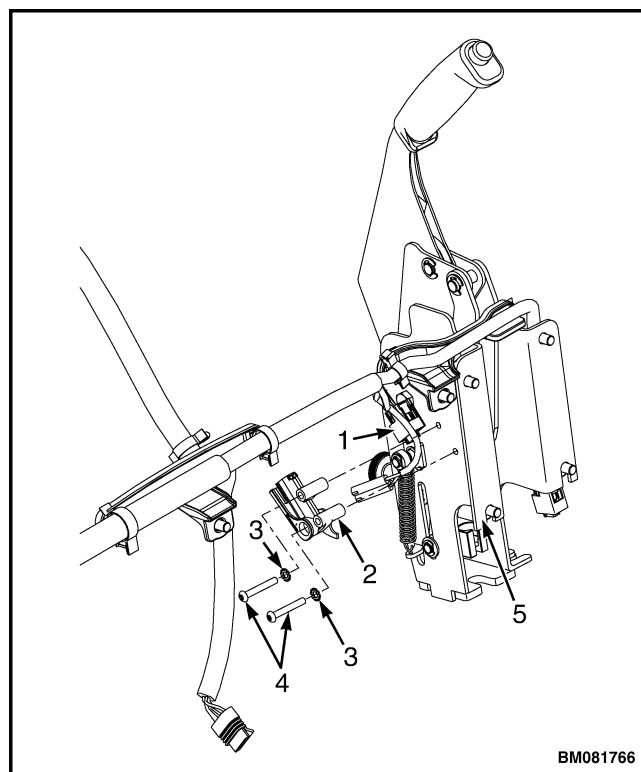
### Install

1. Install new service brake pedal position sensor to mounting bracket using two capscrews and two nuts. See Figure 14.
2. Install mounting bracket and service brake pedal position sensor to lift truck using mounting bracket capscrew. Connect service brake pedal position sensor to cowl harness. See Figure 14.
3. After new service brake pedal position sensor has been installed, check the gap between the sensor arm and tab. See the Brake System manual listed in the General of this manual for procedures.
4. Install kick panel and dash. Install upper steering column cover. See Dash and Kick Panel, Remove and Install for procedures.
5. Connect the battery. Install floor plate and floor mat.

## PARKING BRAKE POSITION SENSOR

### Remove

1. Remove floor mat and floor plate. Disconnect the battery. See Figure 7.
2. Remove upper steering column cover and dash and kick panel. See Dash and Kick Panel, Remove and Install for procedures.
3. Disconnect parking brake sensor from cowl harness. Remove torx capscrews from sensor and remove sensor from parking brake handle assembly. See Figure 15.



1. PARKING BRAKE SENSOR CONNECTOR
2. PARKING BRAKE POSITION SENSOR
3. LOCKWASHER
4. TORX CAPSCREWS
5. PARKING BRAKE ASSEMBLY

**Figure 15. Parking Brake Sensor**

**Install**

1. Install new sensor by using torx capscrews to secure sensor to parking brake handle assembly. See Figure 15.
2. Visually inspect sensor to ensure sensor arm and parking brake lever maintain continuous contact throughout full range of lever operation.
3. Connect sensor to cowl harness. See Figure 15.
4. Install kick panel and dash. Install upper steering column cover. See Dash and Kick Panel, Remove and Install for procedures.
5. Connect the battery. Install floor plate and floor mat.

**SERVICE BRAKE PRESSURE SENSOR****Remove**

1. Disconnect the battery.
2. Remove floor mat and floor plate for access to service brake pressure sensor.
3. Disconnect the sensor from the cowl harness and remove it from the master cylinder.

See Figure 14 for lift truck models

- H6.0-7.0FT (H135-155FT) (L006)

See Figure 16 for lift truck models

- H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT) (C299)

**NOTE:** Perform Step 4 for lift truck models H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT) (C299).

4. Disconnect the sensor from the cowl harness and remove it from the modulating brake valve. See Figure 16.

**Install**

**NOTE:** Perform Step 1 for lift truck models H6.0-7.0FT (H135-155FT) (L006).

1. Install a new sensor on master cylinder. Tighten sensor to 23 to 28 N•m (204 to 248 lbf in). See Figure 14.

**NOTE:** Perform Step 2 for lift truck models H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT) (C299).

2. Install a new sensor on modulating brake valve. Tighten sensor to 23 to 28 N•m (204 to 248 lbf in). See Figure 16.
3. Connect new sensor to cowl harness.
4. Bleed the brake system as described in the Brake System manual listed in the General section of this manual.
5. Connect the battery. Install floor plate and floor mat.

**ACCUMULATOR PRESSURE SWITCH FOR LIFT TRUCK MODELS H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT) (C299)**

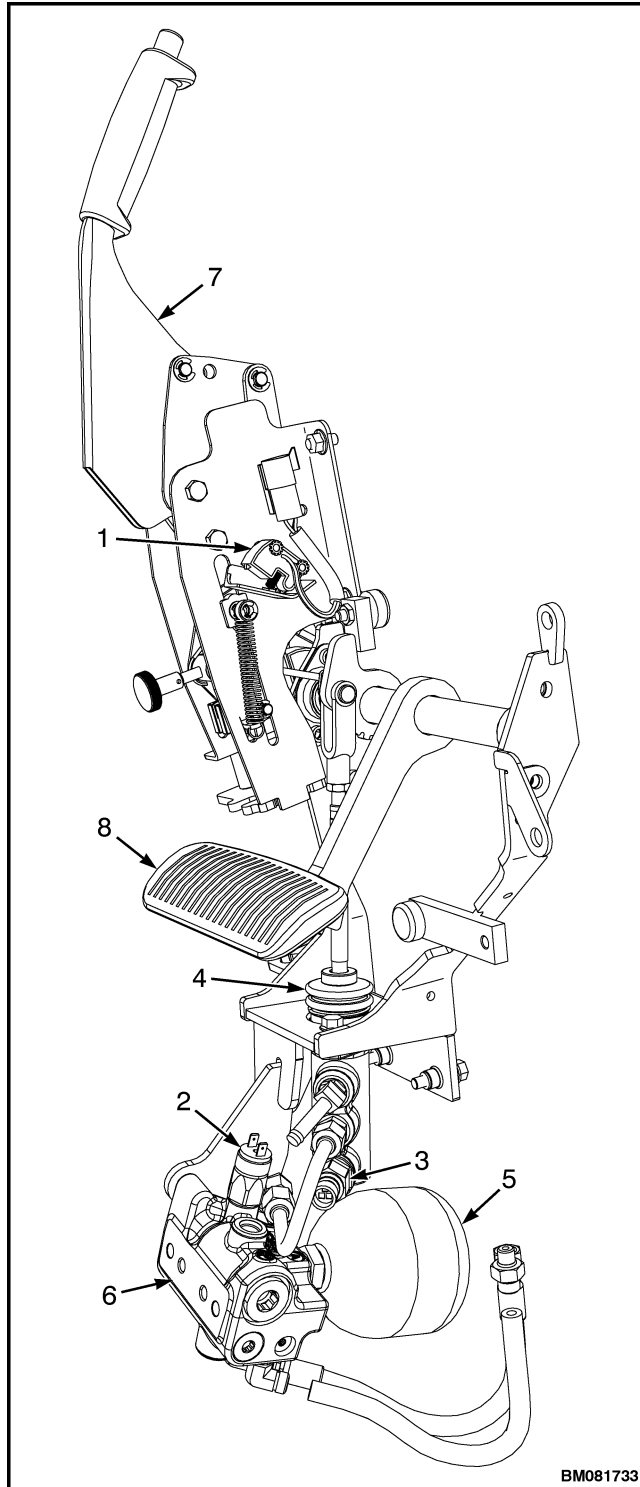
**WARNING**

**DO NOT continue to operate the lift truck if the light and audible alarm are on during operation. Low accumulator pressure will prevent the service brakes from stopping the lift truck. Serious injury to personnel can result.**

During operation of lift truck, if the red, low accumulator pressure light illuminates and an audible alarm sounds (see Operating Manual), accumulator pressure switch has detected that hydraulic pressure is below 7240 kPa (1050 psi). Move lift truck to level ground and/or apply the parking brake. Turn lift truck power OFF immediately and DO NOT restart engine until low pressure condition has been corrected.

**Remove**

1. Remove floor mat and floor plate and disconnect battery.



**Figure 16. Service Brake Pressure Sensor and Accumulator Pressure Switch, Lift Truck Models H8.0FT, H8.0FT9, H9.0FT (H170FT, H175FT36, H190FT) (C299)**

### Legend for Figure 16

1. PARKING BRAKE SENSOR
2. ACCUMULATOR PRESSURE SWITCH
3. SERVICE BRAKE PRESSURE SENSOR
4. MODULATING BRAKE VALVE
5. ACCUMULATOR
6. ACCUMULATOR CHARGE VALVE
7. PARKING BRAKE
8. BRAKE PEDAL

2. Disconnect accumulator pressure switch from the cowl harness and remove it from the accumulator charge valve. See Figure 16.

### Install

1. Install new accumulator pressure switch into accumulator charge valve. Connect cowl harness to accumulator pressure switch. See Figure 16.
2. Connect battery and install floor plate and floor mat.
3. Bleed brake system as described in the Brake System manual listed in the General section of this manual.

### MONOTROL® SENSOR MICROSWITCH

#### Remove

1. Remove floor mat and floor plate and disconnect battery.
2. Remove Monotrol® pedal assembly from throttle base plate and cowl. See Accelerator Pedal Position Sensor, Remove for procedures.
3. Remove u-clip, foam lock seal, and wiring harness from the pedal frame. Remove four pan head screws, lockwashers, washers, pedal pad, and springs from pedal frame. If any metal inserts in pedal pad are damaged, replace as necessary. See Figure 17.
4. Remove two hex head screws, lockwashers, nuts, and microswitch from pedal pad. Repeat for remaining microswitch and remove wiring harness from pedal frame.