Yale

Maintenance

CALIBRATION PROCEDURES

**GC/GLC030VX, GC/GLC035VX, GC/GLC040SVX [C809];
GLP/GDP16VX, GLP/GDP18VX, GLP/GDP20SVX (GP/GLP/GDP030VX, GP/GLP/GDP035VX, GP/GLP/GDP040SVX) [C810];
GLC20-35VX (GC/GLC040-070VX, GC/GLC055SVX) [A910, B910];
GLP/GDP20-35VX (GP/GLP/GDP040-070VX) [B875, C875];
GLC40, 45, 55VX; GLC55SVX (GC/GLC080, 100, 120VX; GC/GLC080, 100VXBCS; GC/GLC120SVX; GC/GLC120VXPRS) [E818, F818];
GLP/GDP40VX5/VX6; GLP/GDP45SVX5, GLP/ GDP45VX6; GLP/GDP50-55VX (GP/GLP/GDP080, 090, 100, 110, 120VX) [F813, G813, H813, J813];
GLP/GDP60VX, GLP/GDP70VX; (GP/GLP/GDP135VX, GP/GLP/GDP155VX) [C878, D878, E878];
GLC/GDC60VX, GLC/GDC70VX; (GC/GLC/GDC135VX, GC/GLC/GDC155VX) [C879, D879, E879, F879];
GLP/GDP80VX, GLP/GDP80VX9, GLP/GDP90VX (GLP/GDP170VX, GLP/GDP175VX36, GLP/GDP190VX) [A909, B909];
GLC030-035VX, GLC040SVX [D809];
GLP/GDP16-18VX, GLP/GDP20SVX (GLP/GDP030-035VX, GLP/GDP040SVX) [D810];
GLC20-35VX (GC/GLC040-070VX, GC/GLC055SVX) [C910];
GLP/GDP20VX, GLP/GDP25VX, GLP/GDP30VX, GLP/GDP35VX (GP/GLP/GDP040VX, GP/GLP/GDP050VX, GP/GLP/GDP060VX, GP/GLP/GDP070VX) [D875]**

PART NO. 524223780 **8000 YRM 1134**

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 Yale® 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 **YALE 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.

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

This section is for the following models:

(GC/GLC030VX, GC/GLC035VX, GC/GLC040SVX) [C809];
GLP/GDP16VX, GLP/GDP18VX, GLP/GDP20SVX (GP/GLP/GDP030VX, GP/GLP/GDP035VX, GP/GLP/GDP040SVX) [C810];
GLC20-35VX (GC/GLC040-070VX, GC/GLC055SVX) [A910, B910];
GLP/GDP20-35VX (GP/GLP/GDP040-070VX) [B875, C875];
GLC40, 45, 55VX; GLC55SVX (GC/GLC080, 100, 120VX; GC/GLC080, 100VXBCS; GC/GLC120SVX; GC/GLC120VXPRS) [E818, F818];
GLP/GDP40VX5/VX6; GLP/GDP45SVX5, GLP/ GDP45VX6; GLP/GDP50-55VX (GP/GLP/GDP080, 090, 100, 110, 120VX) [F813, G813, H813, J813];
GLP/GDP60VX, GLP/GDP70VX; (GP/GLP/GDP135VX, GP/GLP/GDP155VX) [C878, D878, E878];
GLC/GDC60VX, GLC/GDC70VX; (GC/GLC/GDC135VX, GC/GLC/GDC155VX) [C879, D879, E879, F879];
GLP/GDP80VX, GLP/GDP80VX9, GLP/GDP90VX (GLP/GDP170VX, GLP/GDP175VX36, GLP/GDP190VX) [A909, B909];
(GLC030-035VX, GLC040SVX) [D809];
GLP/GDP16-18VX, GLP/GDP20SVX (GLP/GDP030-035VX, GLP/GDP040SVX) [D810];
GLC20-35VX (GC/GLC040-070VX, GC/GLC055SVX) [C910];
GLP/GDP20VX, GLP/GDP25VX, GLP/GDP30VX, GLP/GDP35VX (GP/GLP/GDP040VX, GP/GLP/GDP050VX, GP/GLP/GDP060VX, GP/GLP/GDP070VX) [D875]


Yale

Description

This section is written assuming no experience with electronic controllers. The menu progressions indicate how many key presses it will take to get to a given screen, versus detailing out every screen you would see. Refer to Table 1 for calibration procedures. Refer to Table 2 for an example of how to read calibration procedures.

NOTE: The calibration procedures described in this YRM may have to be repeated when any on-board controllers, sensors, or related components are replaced.

Table 1. Calibration Procedures

	When Procedure is Used:							
Proc_Cal/Procedure	**All Units**	**3 Functions Electronic-Hydraulic Valves**	**4 Functions Electronic-Hydraulic Valves**	**5 Functions Electronic-Hydraulic Valves**	**Mazda Engine w/Electronic 1-Speed Transmission**	**Units w/ Load Weight Display**	**Electronic Transmission (Basic & L1)**	**Electronic Extended Function (L2)**
001 Service Password Entry	X							
002 Hydraulic Valve Calibration Warm Up and Air Bleed		X	X	X				
003 Save and Exit	X							
004 Lift Valve Output Threshold		X	X	X				
005 Lower Valve Output Threshold		X	X	X				
006 Tilt Back Valve Output Threshold		X	X	X				
007 Tilt Forward Valve Output Threshold		X	X	X				
008 Aux 1 Dir A Valve Output Threshold		X	X	X				
009 Aux 1 Dir B Valve Output Threshold		X	X	X				
010 Aux 2 Dir A Valve Output Threshold			X	X				
011 Aux 2 Dir B Valve Output Threshold			X	X				
012 Aux 3 Dir A Valve Output Threshold				X				

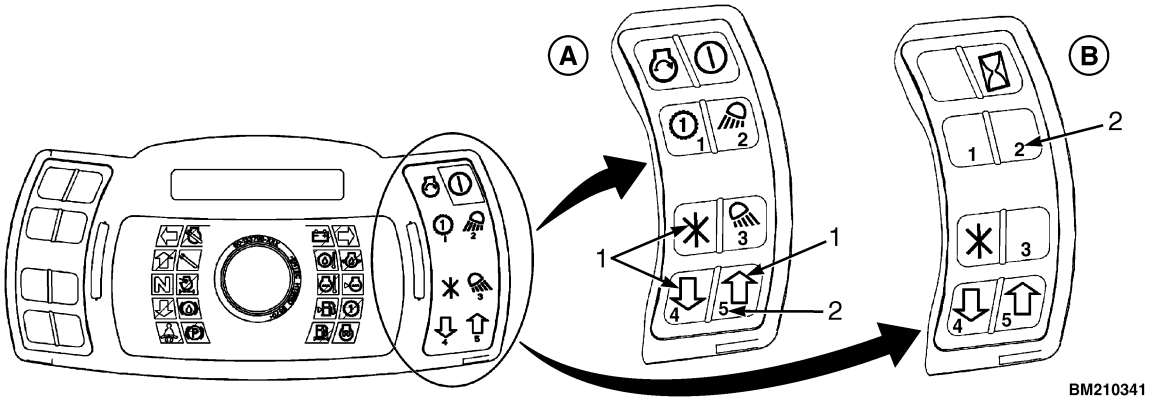
Table 1. Calibration Procedures (Continued)

	When Procedure is Used:							
Proc_Cal/Procedure	**All Units**	**3 Functions Electronic-Hydraulic Valves**	**4 Functions Electronic-Hydraulic Valves**	**5 Functions Electronic-Hydraulic Valves**	**Mazda Engine w/Electronic 1-Speed Transmission**	**Units w/ Load Weight Display**	**Electronic Transmission (Basic & L1)**	**Electronic Extended Function (L2)**
013 Aux 3 Dir B Valve Output Threshold				X				
014 Load Weight Zero Point						X		
015 Loaded Weight Calibration						X		
016 Transmission Valve Calibration (Basic & L1)							X	
016A Transmission Valve Calibration (L2)								X
016B Transmission Valve Calibration (L1 & L2)							X	X
019 Mazda LP and Gas Acceleration Pedal Adjustment					X			
025 Hydraulic Valve Pressure Gage Installation		X	X	X				
026 Travel Speed Calibration							X	X

Table 2. How to Read Calibration Procedure

Proc_Cal_XXX	Number and title of calibration procedure.
Calibration Order	Calibration procedures that must be completed before this procedure, if any.
When to Perform	Performed either during initial manufacture or after component changes.
Why Perform	Description of why the procedure is performed.
Proc_Cal_001: Service Password Entry Proc_Cal_002: Hydraulic Valve Calibration Warm Up	Calibration procedures that must be completed before this procedure, if any.
Action	Actions to perform other than calibration steps. Numbered when needed for clarification.
NOTE: Perform all actions and calibration steps in the order shown.	

Table 2. How to Read Calibration Procedure (Continued)



A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS	1. SYMBOLS USED IN CALIBRATION PROCEDURES
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS	2. NUMBERS FOR SERVICE PASSWORD ENTRY - SEE PROC_CAL_001

Step 1: Press * One Time You will see: Passwords Enter Password Step 2: Press * One Time You will see: Enter Password	Calibration steps.
Information	Information to assist in completion of calibration procedure.

NOTE: Perform all actions and calibration steps in the order shown.

Proc_Cal_001: Service Password Entry

WHEN TO PERFORM

Performed when any service menu-related items must be performed.

WHY PERFORM

Service-related items are protected from inadvertent access. This procedure allows the service menus to be accessed.

HOW TO PERFORM

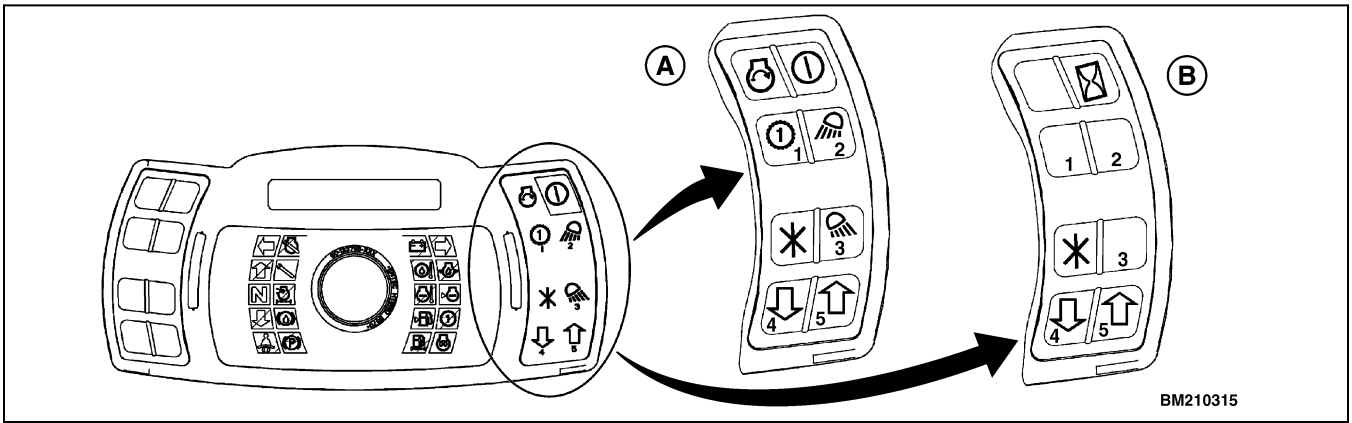
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 3 for the procedures on how to perform Pro_Cal_001: Service Password Entry.

Table 3. Proc_Cal_001: Service Password Entry



A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

NOTE: The password entry can only be done with the ignition **ON** and the engine **OFF**. If the engine is started, and then turned **OFF**, the password will have to be re-entered.

Action: Ignition **ON**/Engine**OFF**

Step 1: Press * One Time.	**You Will See:**	Main Menu Passwords
Step 2: Press * One Time.	**You Will See:**	Passwords Enter Password
Step 3: Press * One Time.	**You Will See:**	Enter Password
Information: Refer to Number Location on Keypad and Enter Service Password (Default Service Password is 55555).		
Step 4: Press * One Time.	**You Will See:**	Passwords or Main Menu Enter Password

Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed

WHEN TO PERFORM

Performed when any hydraulic calibration items are performed.

CALIBRATION ORDER

1. Proc_Cal_025
2. Proc_Cal_001
3. Proc_Cal_002

WHY PERFORM

Hydraulic calibrations are the process of setting the hydraulic current levels that result in initial function movement. Pressure and flow are directly related to the hydraulic fluid viscosity which is a function of the fluid temperature. Air, trapped within the lift valve assembly, **may** produce **slight mast movement** at engine start. This process ensures that the hydraulic fluid achieves an optimum temperature, and that the air is bled out of the lift valve and cylinders prior to performing calibrations.

HOW TO PERFORM

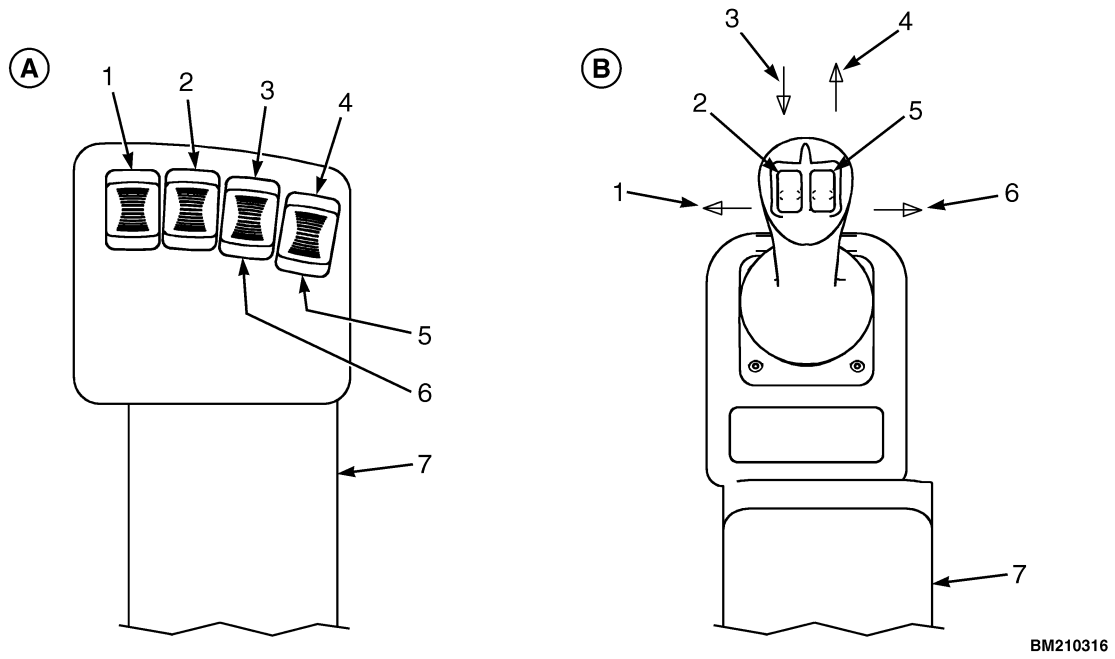
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 4 for the procedures on how to perform Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed.

Table 4. Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed



A. E-HYD CONTROL LEVERS

1.	LIFT/LOWER DIRECTION LIFT ↓ DIRECTION LOWER ↑	2.	TILT DIRECTION BACK ↓ DIRECTION FWD ↑	3.	*AUX 1 OR AUX 2 DIRECTION A ↑ DIRECTION B ↓
4.	*AUX 2 OR AUX 3 DIRECTION A ↑ DIRECTION B ↓	5.	*FOURTH LEVER *THIRD LEVER	6.	SEAT ARMREST

*AUX 2 IS IN THE FOURTH LEVER LOCATION EXCEPT AS FOLLOWS: WITH 5 FUNCTION VALVE WITH CLAMPING ATTACHMENT, AUX 2 IS IN THE THIRD LEVER LOCATION.

2. JOYSTICK

1.	TILT BACK	2.	AUX 1 DIRECTION A ↑ DIRECTION B ↓	3.	LIFT ↓	4.	↑ LOWER
5.	AUX 2 DIRECTION A ↑ DIRECTION B ↓	6.	TILT FORWARD	7.	SEAT ARMREST		

Perform Proc_Cal_025: Hydraulic Valve Pressure Gage Installation and Proc_Cal_001: Service Password Entry before proceeding.

Information: First determine if it is necessary to bleed the air out of the lift valve and cylinders. The hoist valve air bleed procedure is necessary if the carriage moves slightly **(approximately 1/4 inch)** when the engine is started, without activation of the lift control. The cylinder air bleed procedure is necessary if the cylinders have not been previously cycled, or if the left function is not operating smoothly.

Table 4. Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed (Continued)

NOTE: Optional for initial manufacture. **Information:** To ensure that the oil temperature is optimal, warm up the hydraulic fluid until it is within a range of 50 to 65°C (122 to 149°F).
Action: • **Ignition:** ON • **Engine:** High Idle • **Transmission:** Neutral • **Park Brake:** ON
Step 1: (Optional hoist valve air bleed): Activate Lift Control from neutral to full lift and back to neutral at a rate of one or two times per second. Repeat until the lift function is operating smoothly and there is no mast movement upon engine start.
Step 2: (Optional cylinder air bleed): Cycle function completely two or three times; repeat if necessary.
NOTE: Optional for initial manufacture. Step 3: (Required warm up for service): Activate tilt at relief pressure until the hydraulic fluid temperature is within the optimum range 50 to 65°C (12 to 149°F).
Step 4: Proceed to calibrate desired electro-hydraulic functions.
Information: You do not need to **START** or turn **OFF** the vehicle if you are performing other procedures.

Proc_Cal_003: Save and Exit

WHEN TO PERFORM

Must be performed after any calibration except Procedure 016, Transmission Valve Calibration.

WHY PERFORM

Calibration processes do not automatically save their results until this routine is run.

HOW TO PERFORM

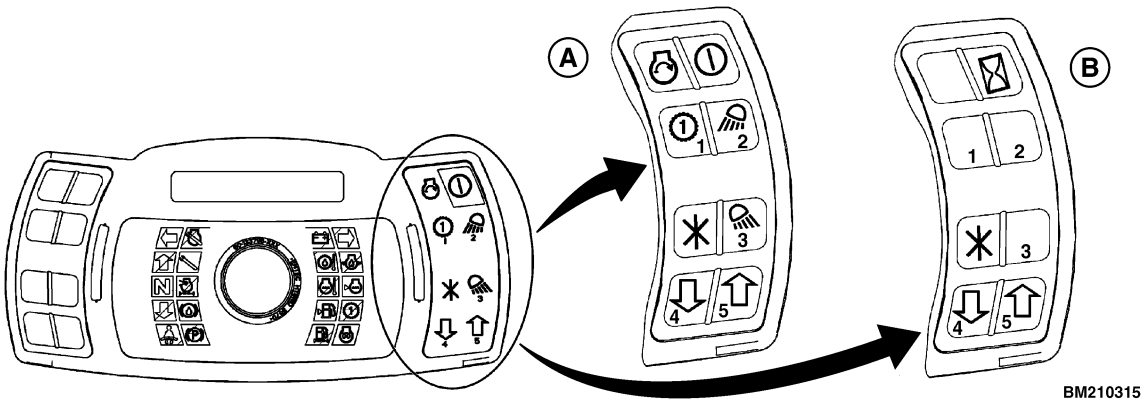
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 5 for the procedures on how to perform Proc_Cal_003: Save and Exit.

Table 5. Proc_Cal_003: Save and Exit



A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Information: You can enter this process from any of the sub menu levels. As such, you will be asked to press the up ⇧ or down ⇩ arrow until you get to the Save and Exit Screen for the item you are working on.

Step: Press ⇧ or ⇩	**Until You See:**	Save and Exit
If you want to Save...		
Step 1: Press * One Time	**You Will See:**	Save all changes and exit Menu - Yes
Step 2: Press * One Time		
If you DO NOT want to Save...		
Step 1: Press * One Time	**You Will See:**	Save all changes and exit Menu - Yes
Step 2: Press ⇩ One Time	**You Will See:**	Cancel Save Return to Menu
Step 3: Press * One Time		
You will return to the menu level where you last were.		

Proc_Cal_004: Lift Valve Output Threshold

WHEN TO PERFORM

Performed when troubleshooting procedures indicate, when lift valve components have been serviced, or when the lift valve is replaced.

CALIBRATION ORDER

1. Proc_Cal_025
2. Proc_Cal_001
3. Proc_Cal_002
4. Proc_Cal_004

WHY PERFORM

All electro-hydraulic valves have different operating characteristics. One of the key characteristics is the point at which hydraulic flow begins for a given command current. This cracking' current is determined by this process.

HOW TO PERFORM

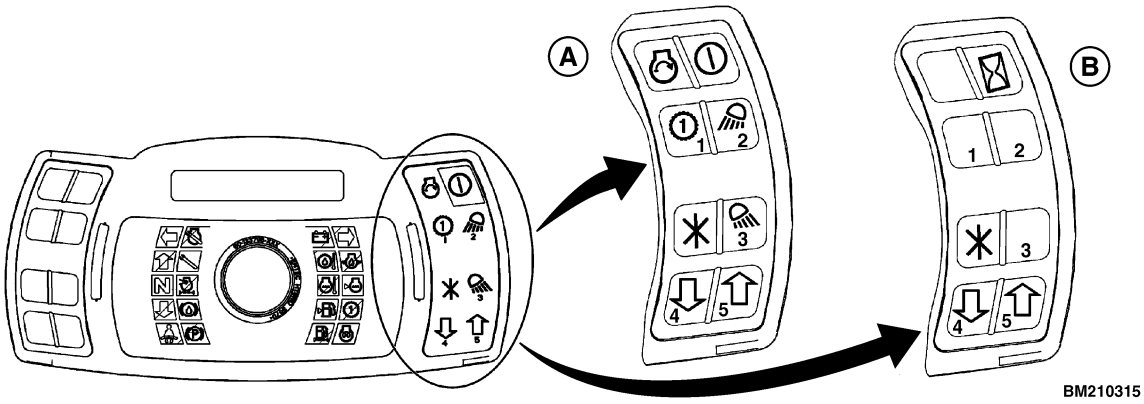
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 6 for the procedures on how to perform Proc_Cal_004: Lift Valve Output Threshold.

Table 6. Proc_Cal_004: Lift Valve Output Threshold



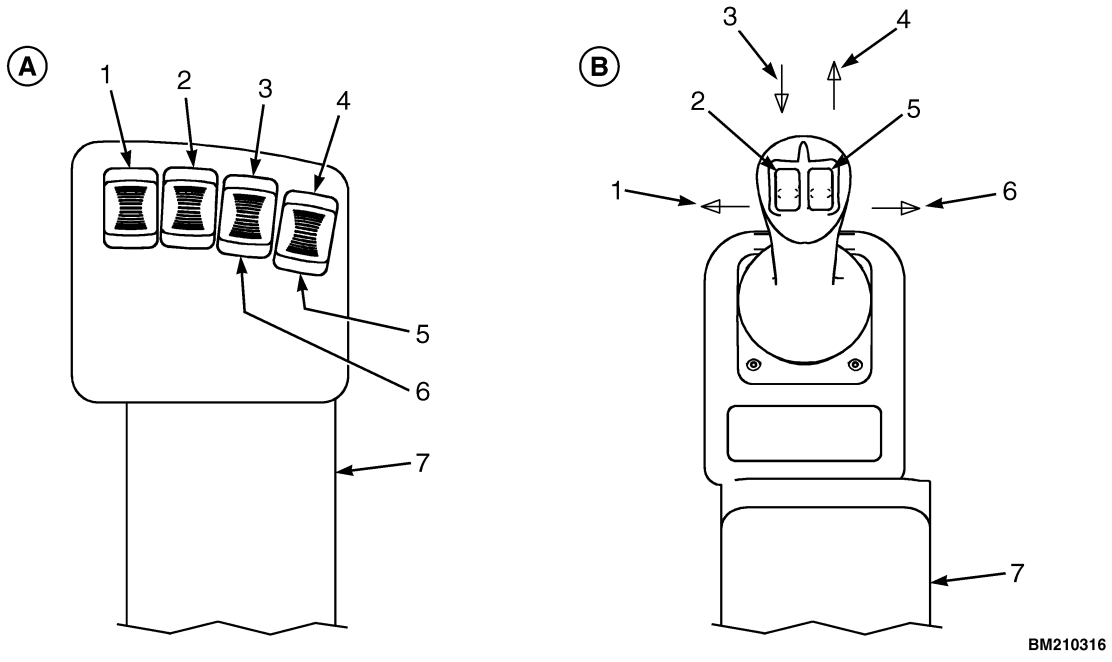
A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Perform Proc_Cal_025: Hydraulic Valve Pressure Gage Installation, Proc_Cal_001: Service Password Entry, and Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed before proceeding.

Information: "Creep" is defined as the threshold when a function first starts to move very slowly (barely perceptible motion). The identification of this motion is defined as the "visual method." The method that provides more consistent calibration is by monitoring the change in pressure when the function is activated; this is defined as the "pressure method."

Table 6. Proc_Cal_004: Lift Valve Output Threshold (Continued)

Information: Pressure Method: Perform actions 1, 2, 3, 4, and 6. Visual Method: Perform actions 2, 3, 5, and 6.		
Information: Leave truck running at idle after performing Proc_Cal_002.		
Action 1: With the truck running, note the pressure reading (standby pressure).		
Action 2: Activate Lift Control to Position Attachment 0.6 m (2 ft) up with no load on the forks/attachment.	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press * One Time	**You Will See:**	Lift Valve Output Press * at Creep



A. E-HYD CONTROL LEVERS

1.	LIFT/LOWER DIRECTION LIFT ↓ DIRECTION LOWER ↑	2. TILT DIRECTION BACK ↓ DIRECTION FWD ↑	*AUX 1 OR AUX 2 DIRECTION A ↑ DIRECTION B ↓	*AUX 2 OR AUX 3 DIRECTION A ↑ DIRECTION B ↓	*5. FOURTH LEVER *THIRD LEVER SEAT ARMREST

*AUX 2 IS IN THE FOURTH LEVER LOCATION EXCEPT AS FOLLOWS: WITH 5 FUNCTION VALVE WITH CLAMPING ATTACHMENT, AUX 2 IS IN THE THIRD LEVER LOCATION.

Table 6. Proc_Cal_004: Lift Valve Output Threshold (Continued)

<table>
<tr><td colspan="4">2. JOYSTICK</td></tr>
<tr><td>1. TILT BACK</td><td>2. AUX 1
DIRECTION A ↑
DIRECTION B ↓</td><td>3. LIFT ↓
4. ↑ LOWER</td><td>5. AUX 2
DIRECTION A ↑
DIRECTION B ↓</td><td>6. TILT FORWARD
7. SEAT ARMREST</td></tr>
<tr><td colspan="4">Action 3: SLOWLY Activate (Feather) Lift Control.....</td></tr>
<tr><td colspan="4">Action 4: Until the pressure is 0.7 MPa (100 psi) above the standby pressure. Note that the pressure reading may oscillate. Hold control steady and.....</td></tr>
<tr><td colspan="4">Action 5: WATCH for Attachment Movement. When it first starts to move slowly, HOLD control steady and.....</td></tr>
<tr><td colspan="4">Press * One Time while holding control.</td></tr>
<tr><td colspan="4">Action 6: STOP activating the Lift Control. LOOK at the display.
Go to the calibration step below that matches your display.</td></tr>
<tr><td colspan="2">If You See.....</td><td colspan="2">Result out of range
Repeat Calibration</td></tr>
<tr><td colspan="2">Press * One Time</td><td>You Will See:</td><td>Lift Valve Output
Press * at Creep</td></tr>
<tr><td colspan="4">Return to Action 3.
Pressure Method: Perform Actions 3, 4, and 6 again.
Visual Method: Perform Actions 3, 5, and 6 again.</td></tr>
<tr><td colspan="2">If You See.....</td><td colspan="2">Lower Valve Output
Press * at Creep</td></tr>
<tr><td colspan="4">To Continue with Calibrations.....</td></tr>
<tr><td colspan="4">Go to Action 2 of Proc_Cal_005.</td></tr>
<tr><td colspan="4">To Quit and Save....</td></tr>
<tr><td colspan="2">Step 1: Press ⇧ or ⇩</td><td>Until You See:</td><td>Lower Valve Output
Back 1 Level</td></tr>
<tr><td colspan="2">Step 2: Press * One Time</td><td>You Will See:</td><td>Calibrations
Back 1 Level</td></tr>
<tr><td colspan="4">Perform Proc_Cal_003: Save and Exit.</td></tr>
</table>

Proc_Cal_005: Lower Valve Output Threshold

WHEN TO PERFORM

Performed when troubleshooting procedures indicate, when lower valve components have been serviced, or when the lower valve is replaced.

CALIBRATION ORDER

1. Proc_Cal_001
2. Proc_Cal_002
3. Proc_Cal_005

WHY PERFORM

All electro-hydraulic valves have different operating characteristics. One of the key characteristics is the point at which hydraulic flow begins for a given command current. This cracking' current is determined by this process.

HOW TO PERFORM

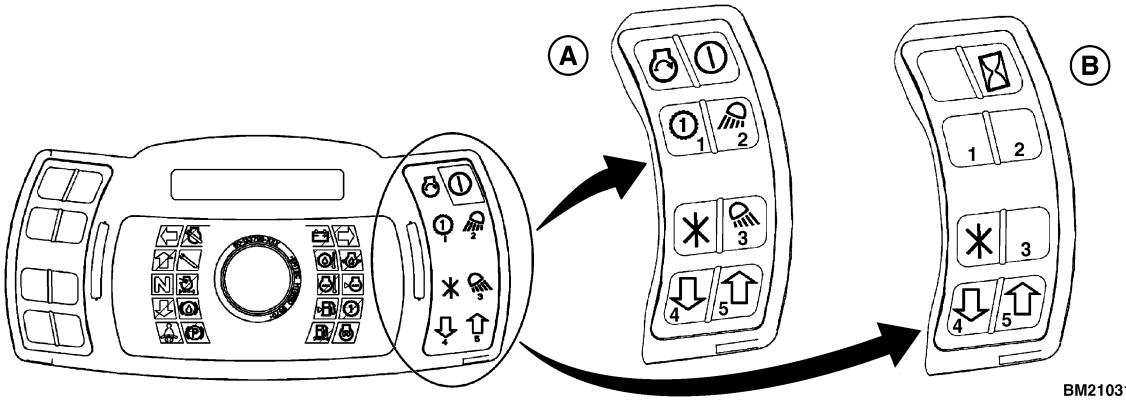
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 7 for the procedures on how to perform Pro_Cal_005: Lower Valve Output Threshold.

Table 7. Proc_Cal_005: Lower Valve Output Threshold



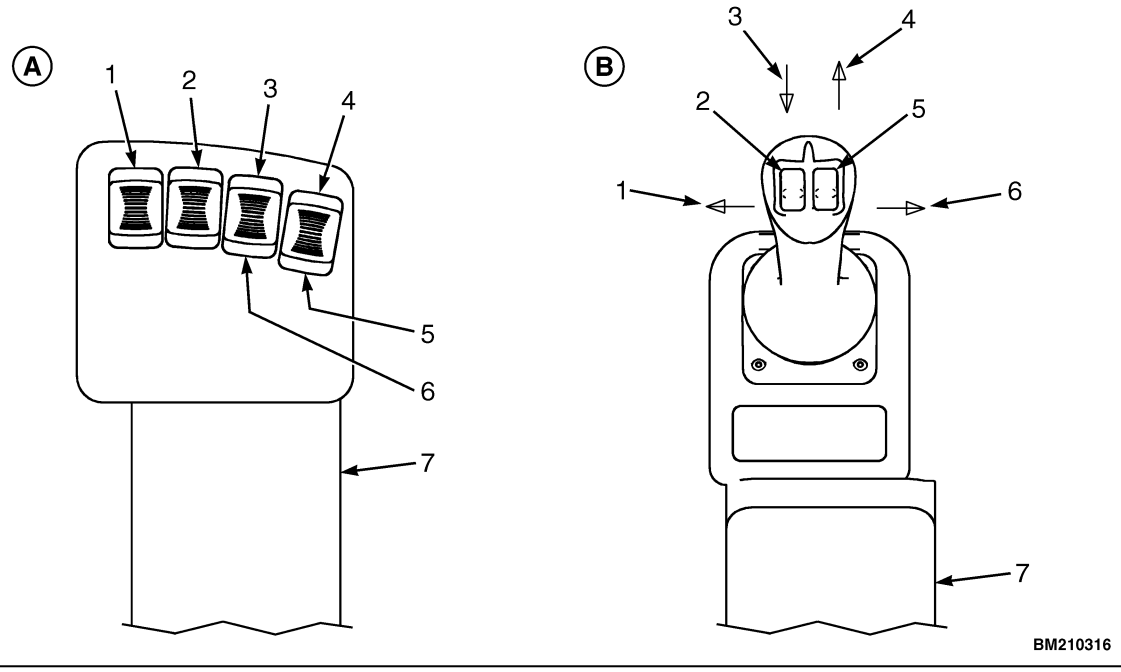
A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Perform Proc_Cal_001: Service Password Entry and Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed before proceeding.

Information: "Creep" is defined as the threshold when a function first starts to move very slowly (barely perceptible motion). The identification of this motion is defined as the "visual method." This procedure cannot be performed by using the pressure method.

Table 7. Proc_Cal_005: Lower Valve Output Threshold (Continued)

Information: Leave truck running at idle after performing Proc_Cal_002.		
Action 1: Activate Lift Control to Position Attachment 0.6 m (2 ft) up with no load on the forks/attachment. If the forks/attachment are/is not installed, ensure that the attachment will lower when the control is activated. It may be necessary to apply a load (approximately 90 kg (200 lb) to the attachment.	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Lower Valve Output
Step 4: Press * One Time	**You Will See:**	Lower Valve Output Press * at Creep



A. E-HYD CONTROL LEVERS

1. LIFT/LOWER DIRECTION LIFT ↓ DIRECTION LOWER ↑	2. TILT DIRECTION BACK ↓ DIRECTION FWD ↑	*AUX 1 OR AUX 2 DIRECTION A ↑ DIRECTION B ↓	*AUX 2 OR AUX 3 DIRECTION A ↑ DIRECTION B ↓	*5. FOURTH LEVER *THIRD LEVER	6. SEAT ARMREST

*AUX 2 IS IN THE FOURTH LEVER LOCATION EXCEPT AS FOLLOWS: WITH 5 FUNCTION VALVE WITH CLAMPING ATTACHMENT, AUX 2 IS IN THE THIRD LEVER LOCATION.

2. JOYSTICK

1. TILT BACK	2. AUX 1 DIRECTION A ↑ DIRECTION B ↓	3. LIFT ↓ 4. ↑ LOWER	5. AUX 2 DIRECTION A ↑ DIRECTION B ↓	6. TILT FORWARD 7. SEAT ARMREST	

Table 7. Proc_Cal_005: Lower Valve Output Threshold (Continued)

Action 2: SLOWLY Activate (Feather) Lower Control.		
Action 3: WATCH for Attachment Movement. When it first starts to move slowly, HOLD control steady and.....		
Press * One Time while holding the control.		
Action 4: STOP activating the Lower Control. LOOK at the display. Go to the Calibration Step below that matches your display.		
If You See.....	Result out of range Repeat Calibration	
Press * One Time	**You Will See:**	Lower Valve Output Press * at Creep
Return to Action 2. Perform Actions 2 through 4 again.		
If You See.....	Tilt Bk Valve Output Press * at Creep	
To Continue with Calibrations.....		
Go to Action 3 of Proc_Cal_006.		
To Quit and Save....		
Step 1: Press ⇧ or ⇩	**Until You See:**	Tilt Bk Valve Output Back 1 Level
Step 2: Press * One Time	**You Will See:**	Calibrations Back 1 Level
Perform Proc_Cal_003: Save and Exit.		

Proc_Cal_006: Tilt Back Valve Output Threshold

WHEN TO PERFORM

Performed when troubleshooting procedures indicate, when tilt back valve components have been serviced, or when the tilt back valve is replaced.

CALIBRATION ORDER

1. Proc_Cal_025
2. Proc_Cal_001
3. Proc_Cal_002
4. Proc_Cal_006

WHY PERFORM

All electro-hydraulic valves have different operating characteristics. One of the key characteristics is the point at which hydraulic flow begins for a given command current. This cracking' current is determined by this process.

HOW TO PERFORM

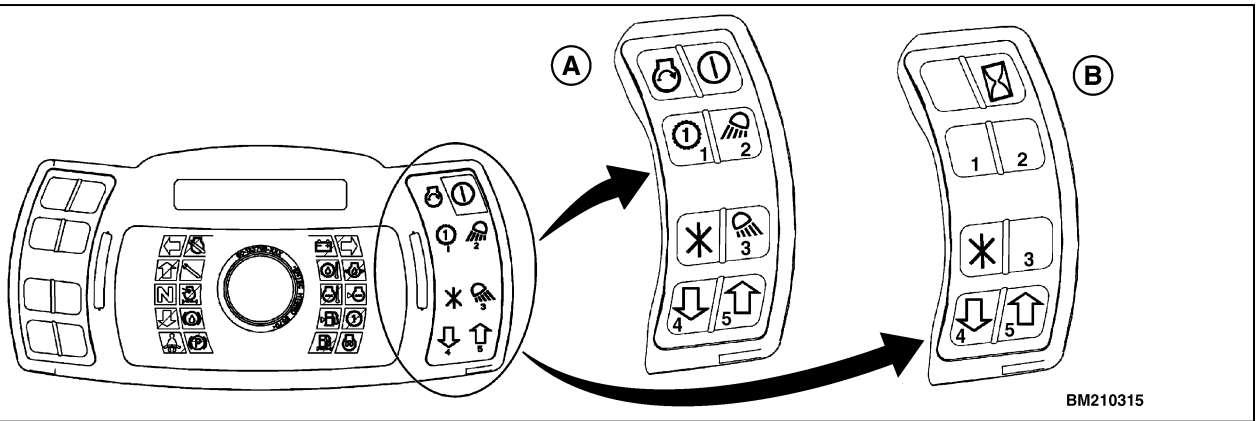
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 8 for the procedures on how to perform Proc_Cal_006: Tilt Back Valve Output Threshold.

Table 8. Proc_Cal_006: Tilt Back Valve Output Threshold



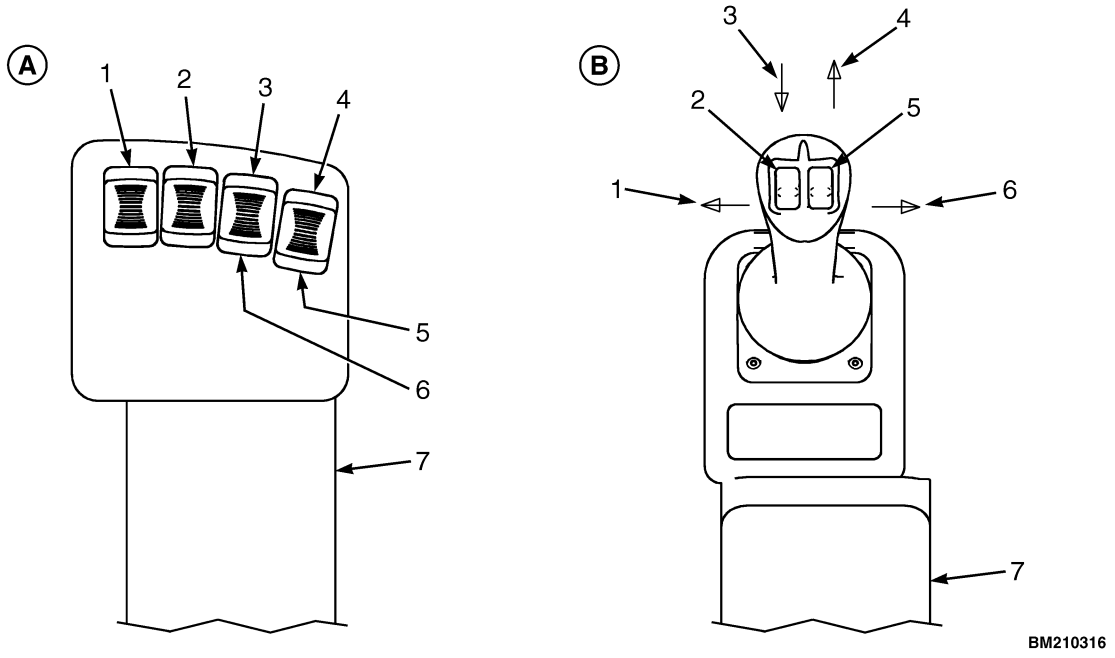
A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Perform Proc_Cal_025: Hydraulic Valve Pressure Gage Installation, Proc_Cal_001: Service Password Entry, and Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed before proceeding.

Information: "Creep" is defined as the threshold when a function first starts to move very slowly (barely perceptible motion). The identification of this motion is defined as the "visual method." The method that provides more consistent calibration is by monitoring the change in pressure when the function is activated; this is defined as the "pressure method."

Table 8. Proc_Cal_006: Tilt Back Valve Output Threshold (Continued)

Information: Pressure Method: Perform Actions 1, 2, 3, 4, and 6. Visual Method: Perform Actions 2, 3, 5, and 6.		
Information: Leave truck running at idle after performing Proc_Cal_002.		
Action 1: With the truck running, note the pressure reading (standby pressure).		
Action 2: Activate Lift Control to Position Attachment 0.6 m (2 ft) up with no load on the forks/attachment. Activate the tilt control to position the function in the middle of the range (mast is vertical).	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Tilt Bk Valve Output
Step 4: Press * One Time	**You Will See:**	Tilt Bk Valve Output Press * at Creep



A. E-HYD CONTROL LEVERS

1.	LIFT/LOWER DIRECTION LIFT ↓ DIRECTION LOWER ↑	2. TILT DIRECTION BACK ↓ DIRECTION FWD ↑	*AUX 1 OR AUX 2 DIRECTION A ↑ DIRECTION B ↓	*AUX 2 OR AUX 3 DIRECTION A ↑ DIRECTION B ↓	*5. FOURTH LEVER *THIRD LEVER 6. SEAT ARMREST 7.

*AUX 2 IS IN THE FOURTH LEVER LOCATION EXCEPT AS FOLLOWS: WITH 5 FUNCTION VALVE WITH CLAMPING ATTACHMENT, AUX 2 IS IN THE THIRD LEVER LOCATION.

Table 8. Proc_Cal_006: Tilt Back Valve Output Threshold (Continued)

<table>
<tr><td colspan="4">2. JOYSTICK</td></tr>
<tr><td>1. TILT BACK</td><td>2. AUX 1
DIRECTION A ↑
DIRECTION B ↓</td><td>3. LIFT ↓
4. ↑ LOWER</td><td>5. AUX 2
DIRECTION A ↑
DIRECTION B ↓</td><td>6. TILT FORWARD
7. SEAT ARMREST</td></tr>
<tr><td colspan="4">Action 3: SLOWLY Activate (Feather) Tilt Back Control.....</td></tr>
<tr><td colspan="4">Action 4: Until the pressure is just above the standby pressure (as the needle moves on an analog gage). Note that the pressure reading may oscillate. Hold control steady and.....</td></tr>
<tr><td colspan="4">Action 5: WATCH for Attachment Movement. When it first starts to move slowly, HOLD control steady and.....</td></tr>
<tr><td colspan="4">Press * One Time while holding the control.</td></tr>
<tr><td colspan="4">Action 6: STOP activating the Tilt Bk Control. LOOK at the display.
Go to the Calibration Step below that matches your display.</td></tr>
<tr><td colspan="2">If You See.....</td><td colspan="2">Result out of range
Repeat Calibration</td></tr>
<tr><td colspan="2">Press * One Time</td><td>You Will See:</td><td>Tilt Bk Valve Output
Press * at Creep</td></tr>
<tr><td colspan="4">Return to Action 3.
Pressure Method: Perform Actions 3, 4, and 6 again.
Visual Method: Perform Actions 3, 5, and 6 again.</td></tr>
<tr><td colspan="2">If You See.....</td><td colspan="2">Tilt Fw Valve Output
Press * at Creep</td></tr>
<tr><td colspan="4">To Continue with Calibrations.....</td></tr>
<tr><td colspan="4">Go to Action 3 of Proc_Cal_007.</td></tr>
<tr><td colspan="4">To Quit and Save....</td></tr>
<tr><td colspan="2">Step 1: Press ⇧ or ⇩</td><td>Until You See:</td><td>Tilt Fw Valve Output
Back 1 Level</td></tr>
<tr><td colspan="2">Step 2: Press * One Time</td><td>You Will See:</td><td>Calibrations
Back 1 Level</td></tr>
<tr><td colspan="4">Perform Proc_Cal_003: Save and Exit.</td></tr>
</table>

Proc_Cal_007: Tilt Forward Valve Output Threshold

WHEN TO PERFORM

Performed when troubleshooting procedures indicate, when tilt forward valve components have been serviced, or when the tilt forward valve is replaced.

CALIBRATION ORDER

1. Proc_Cal_025
2. Proc_Cal_001
3. Proc_Cal_002
4. Proc_Cal_007

WHY PERFORM

All electro-hydraulic valves have different operating characteristics. One of the key characteristics is the point at which hydraulic flow begins for a given command current. This cracking' current is determined by this process.

HOW TO PERFORM

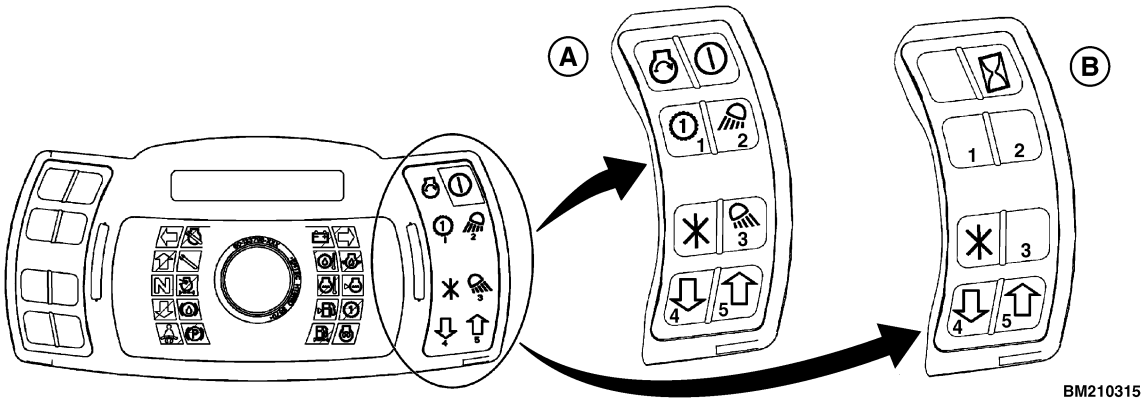
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 9 for the procedures on how to perform Proc_Cal_007: Tilt Forward Valve Output Threshold.

Table 9. Proc_Cal_007: Tilt Forward Valve Output Threshold



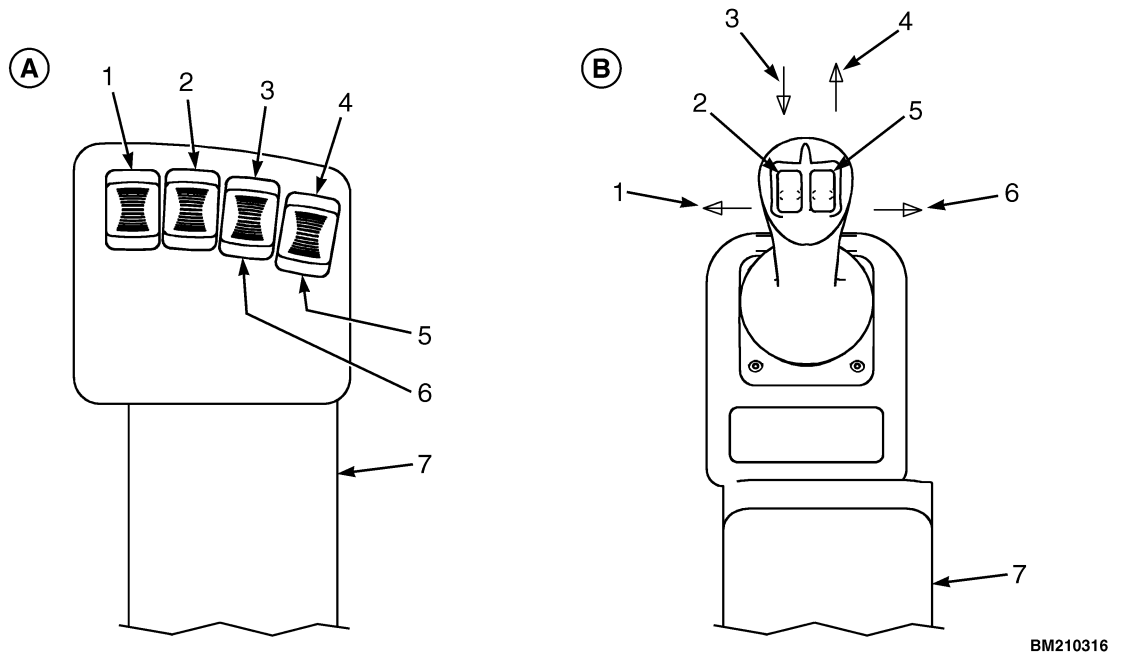
A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Perform Proc_Cal_025: Hydraulic Valve Pressure Gage Installation, Proc_Cal_001: Service Password Entry, and Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed before proceeding.

Information: "Creep" is defined as the threshold when a function first starts to move very slowly (barely perceptible motion). The identification of this motion is defined as the "visual method." The method that provides more consistent calibration is by monitoring the change in pressure when the function is activated; this is defined as the "pressure method."

Table 9. Proc_Cal_007: Tilt Forward Valve Output Threshold (Continued)

Information: Pressure Method: Perform Actions 1, 2, 3, 4, and 6. Visual Method: Perform Actions 2, 3, 5, and 6.		
Information: Leave truck running at idle after performing Proc_Cal_002.		
Action 1: With the truck running, note the pressure reading (standby pressure).		
Action 2: Activate Lift Control to Position Attachment 0.6 m (2 ft) up with no load on the forks/attachment. Activate the tilt control to position the function in the middle of the range (mast is vertical).	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Tilt Fw Valve Output
Step 4: Press * One Time	**You Will See:**	Tilt Fw Valve Output Press * at Creep



A. E-HYD CONTROL LEVERS

1.	LIFT/LOWER DIRECTION LIFT ↓ DIRECTION LOWER ↑	2. TILT DIRECTION BACK ↓ DIRECTION FWD ↑	*AUX 1 OR AUX 2 DIRECTION A ↑ DIRECTION B ↓	3. *AUX 2 OR AUX 3 DIRECTION A ↑ DIRECTION B ↓	4. *FOURTH LEVER *THIRD LEVER SEAT ARMREST	5. 6. 7.

*AUX 2 IS IN THE FOURTH LEVER LOCATION EXCEPT AS FOLLOWS: WITH 5 FUNCTION VALVE WITH CLAMPING ATTACHMENT, AUX 2 IS IN THE THIRD LEVER LOCATION.

Table 9. Proc_Cal_007: Tilt Forward Valve Output Threshold (Continued)

<table>
<tr><td colspan="3">2. JOYSTICK</td></tr>
<tr><td>1. TILT BACK
2. AUX 1
DIRECTION A ↑
DIRECTION B ↓
3. LIFT ↓
4. ↑ LOWER
5. AUX 2
DIRECTION A ↑
DIRECTION B ↓
6. TILT FORWARD
7. SEAT ARMREST</td><td colspan="2"></td></tr>
<tr><td colspan="3">Action 3: SLOWLY Activate (Feather) Tilt FWD Control.....</td></tr>
<tr><td colspan="3">Action 4: Until the pressure is just above the standby pressure (as the needle moves on an analog gage). Note that the pressure reading may oscillate. Hold control steady and.....</td></tr>
<tr><td colspan="3">Action 5: WATCH for Attachment Movement. When it first starts to move slowly, HOLD control steady and.....</td></tr>
<tr><td colspan="3">Press * One Time while holding the control.</td></tr>
<tr><td colspan="3">Action 6: STOP activating the Tilt Fw Control. LOOK at the display.
Go to the Calibration Step below that matches your display.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Result out of range
Repeat Calibration</td></tr>
<tr><td>Press * One Time</td><td>You Will See:</td><td>Tilt Fw Valve Output
Press * at Creep</td></tr>
<tr><td colspan="3">Return to Action 3.
Pressure Method: Perform Actions 3, 4, and 6 again.
Visual Method: Perform Actions 3, 5, and 6 again.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Aux 1 Valve Output Dir A
Press * at Creep</td></tr>
<tr><td colspan="3">To Continue with Calibrations.....</td></tr>
<tr><td colspan="3">Go to Action 3 of Proc_Cal_008.</td></tr>
<tr><td colspan="3">To Quit and Save....</td></tr>
<tr><td>Step 1: Press ⇧ or ⇩</td><td>Until You See:</td><td>Aux 1 Valve Output Dir A
Back 1 Level</td></tr>
<tr><td>Step 2: Press * One Time</td><td>You Will See:</td><td>Calibrations
Back 1 Level</td></tr>
<tr><td colspan="3">Perform Proc_Cal_003: Save and Exit.</td></tr>
</table>

Proc_Cal_008: Aux 1 Dir A Valve Output Threshold

WHEN TO PERFORM

Performed when troubleshooting procedures indicate, when Aux 1 Dir A valve components have been serviced, or when the Aux 1 Dir A valve is replaced.

CALIBRATION ORDER

1. Proc_Cal_025
2. Proc_Cal_001
3. Proc_Cal_002
4. Proc_Cal_008

WHY PERFORM

All electro-hydraulic valves have different operating characteristics. One of the key characteristics is the point at which hydraulic flow begins for a given command current. This cracking' current is determined by this process.

HOW TO PERFORM

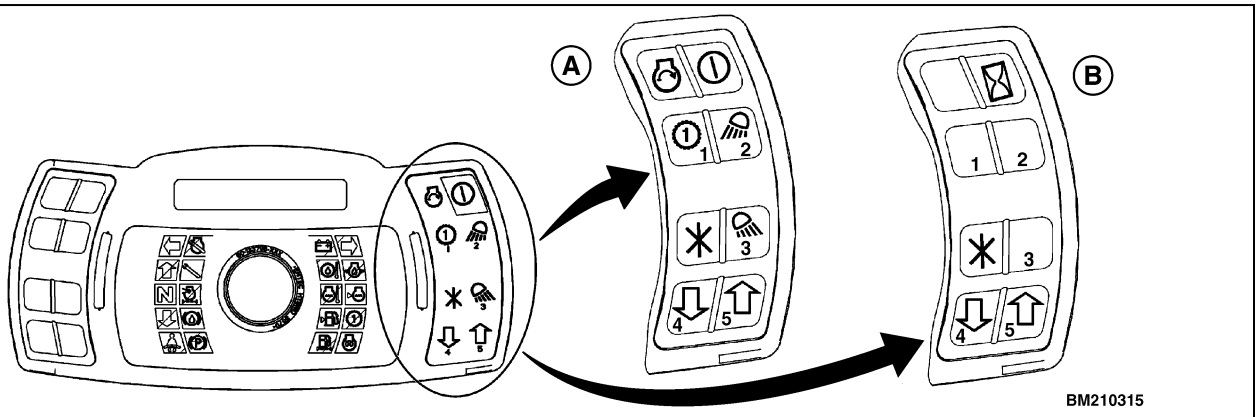
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 10 for the procedures on how to perform Pro_Cal_008: Aux 1 Dir A Valve Output Threshold.

Table 10. Proc_Cal_008: Aux 1 Dir A Valve Output Threshold



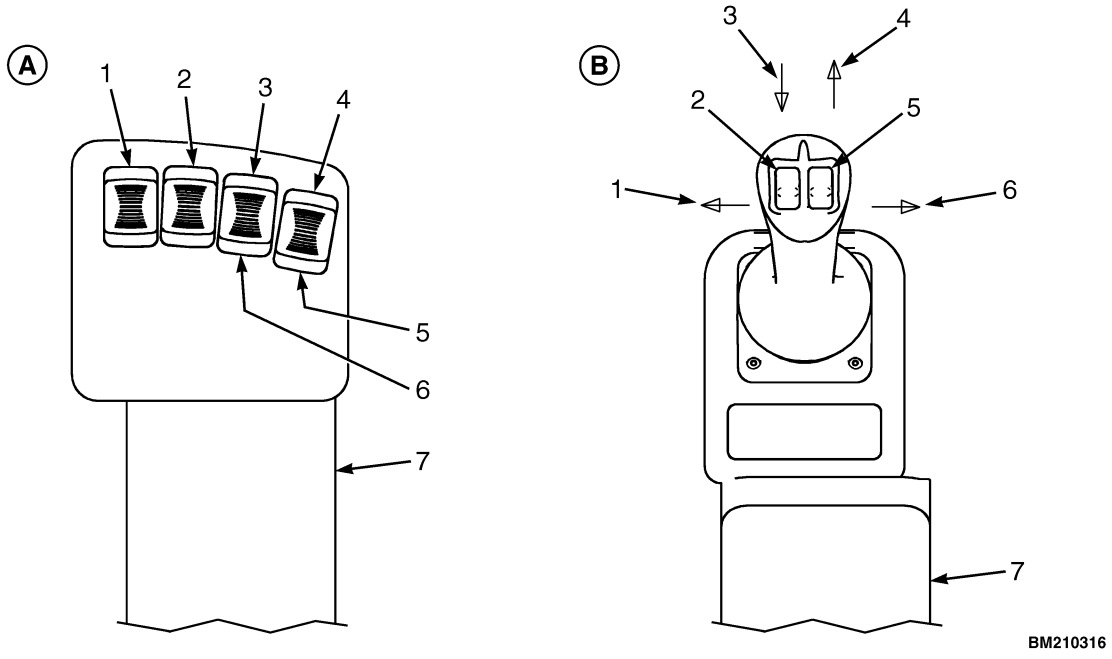
A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Perform Proc_Cal_025: Hydraulic Valve Pressure Gage Installation, Proc_Cal_001: Service Password Entry, and Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed before proceeding.

Information: "Creep" is defined as the threshold when a function first starts to move very slowly (barely perceptible motion). The identification of this motion is defined as the "visual method." The method that provides more consistent calibration is by monitoring the change in pressure when the function is activated; this is defined as the "pressure method."

Table 10. Proc_Cal_008: Aux 1 Dir A Valve Output Threshold (Continued)

Information: Pressure Method: Perform Actions 1, 2, 3, 4, and 6. Visual Method: Perform Actions 2, 3, 5, and 6.		
Information: Leave truck running at idle after performing Proc_Cal_002.		
Action 1: With the truck running, note the pressure reading (standby pressure).		
Action 2: Activate Lift Control to Position Attachment 0.6 m (2 ft) up with no load on the forks/attachment. Activate the Aux 1 control to position the function in the middle of the range.	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Aux 1 Valve Output Dir A
Step 4: Press * One Time	**You Will See:**	Aux 1 Valve Output Dir A Press * at Creep



E-HYD CONTROL LEVERS

1. LIFT/LOWER DIRECTION LIFT ↓ DIRECTION LOWER ↑	2. TILT DIRECTION BACK ↓ DIRECTION FWD ↑	*AUX 1 OR AUX 2 DIRECTION A ↑ DIRECTION B ↓	*AUX 2 OR AUX 3 DIRECTION A ↑ DIRECTION B ↓	5. FOURTH LEVER *THIRD LEVER 6 SEAT ARMREST 7	

*AUX 2 IS IN THE FOURTH LEVER LOCATION EXCEPT AS FOLLOWS: WITH 5 FUNCTION VALVE WITH CLAMPING ATTACHMENT, AUX 2 IS IN THE THIRD LEVER LOCATION.

Table 10. Proc_Cal_008: Aux 1 Dir A Valve Output Threshold (Continued)

<table>
<tr><td colspan="3">2. JOYSTICK</td></tr>
<tr><td>1. TILT BACK

2. AUX 1
DIRECTION A ↑
DIRECTION B ↓</td><td>3. LIFT ↓

4. ↑ LOWER</td><td>5. AUX 2
DIRECTION A ↑
DIRECTION B ↓

6. TILT FORWARD

7. SEAT ARMREST</td></tr>
<tr><td colspan="3">Action 3: SLOWLY Activate (Feather) Aux 1 Dir A Control.....</td></tr>
<tr><td colspan="3">NOTE: Optional for initial manufacture: Use the same pressure setting for both Dir A and Dir B of this function to provide uniform flow outputs.

Action 4: Until the pressure is just above the standby pressure (as the needle moves on an analog gage). Note that the pressure reading may oscillate. Hold control steady and.....</td></tr>
<tr><td colspan="3">Action 5: WATCH for Attachment Movement. When it first starts to move slowly, HOLD control steady and.....</td></tr>
<tr><td colspan="3">Press * One Time while holding the control.</td></tr>
<tr><td colspan="3">Action 4: STOP activating the Aux 1 Dir A Control. LOOK at the display.
Go to the Calibration Step below that matches your display.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Result out of range
Repeat Calibration</td></tr>
<tr><td>Press * One Time</td><td>You Will See:</td><td>Aux 1 Valve Output Dir A
Press * at Creep</td></tr>
<tr><td colspan="3">Return to Action 3.
Pressure Method: Perform Actions 3, 4, and 6 again.
Visual Method: Perform Actions 3, 5, and 6 again.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Aux 1 Valve Output Dir B
Press * at Creep</td></tr>
<tr><td colspan="3">To Continue with Calibrations.....</td></tr>
<tr><td colspan="3">Go to Action 3 of Proc_Cal_009.</td></tr>
<tr><td colspan="3">To Quit and Save....</td></tr>
<tr><td>Step 1: Press ⇧ or ⇩</td><td>Until You See:</td><td>Aux 1 Valve Output Dir B
Back 1 Level</td></tr>
<tr><td>Step 2: Press * One Time</td><td>You Will See:</td><td>Calibrations
Back 1 Level</td></tr>
<tr><td colspan="3">Perform Proc_Cal_003: Save and Exit.</td></tr>
</table>

Proc_Cal_009: Aux 1 Dir B Valve Output Threshold

WHEN TO PERFORM

Performed when troubleshooting procedures indicate, when Aux 1 Dir B valve components have been serviced, or when the Aux 1 Dir B valve is replaced.

CALIBRATION ORDER

1. Proc_Cal_025
2. Proc_Cal_001
3. Proc_Cal_002
4. Proc_Cal_009

WHY PERFORM

All electro-hydraulic valves have different operating characteristics. One of the key characteristics is the point at which hydraulic flow begins for a given command current. This cracking' current is determined by this process.

HOW TO PERFORM

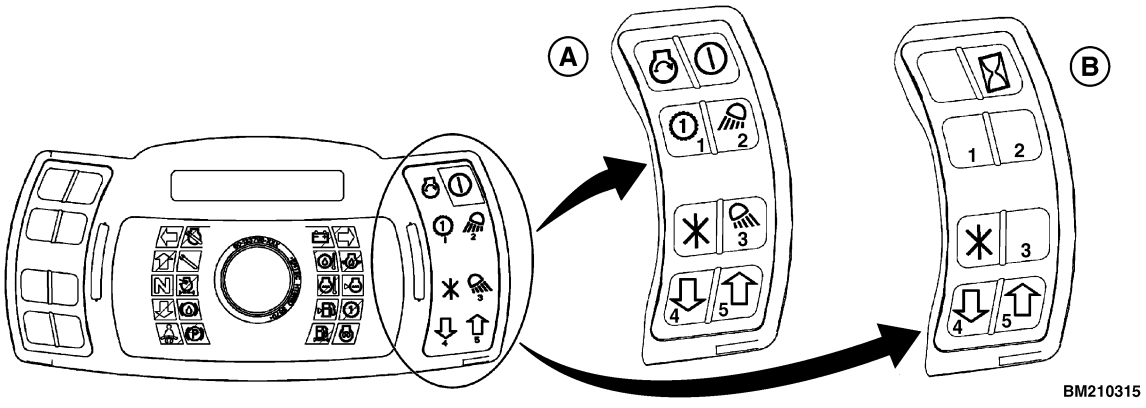
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 11 for the procedures on how to perform Proc_Cal_009: Aux 1 Dir B Valve Output Threshold.

Table 11. Proc_Cal_009: Aux 1 Dir B Valve Output Threshold



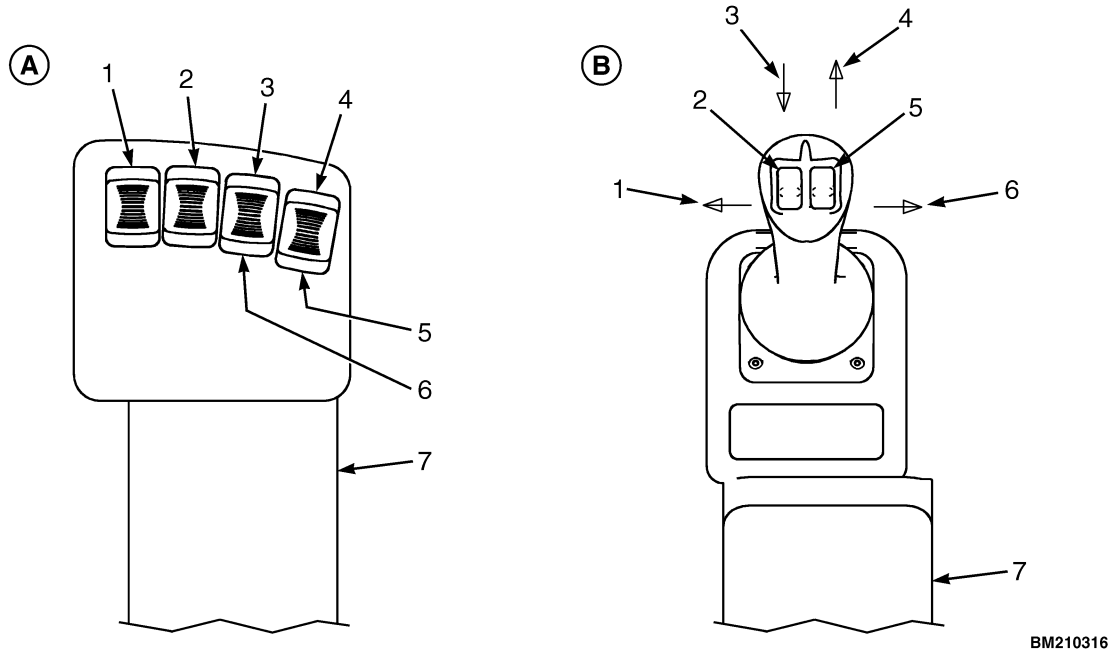
A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Perform Proc_Cal_025: Hydraulic Valve Pressure Gage Installation, Proc_Cal_001: Service Password Entry, and Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed before proceeding.

Information: "Creep" is defined as the threshold when a function first starts to move very slowly (barely perceptible motion). The identification of this motion is defined as the "visual method." The method that provides more consistent calibration is by monitoring the change in pressure when the function is activated; this is defined as the "pressure method."

Table 11. Proc_Cal_009: Aux 1 Dir B Valve Output Threshold (Continued)

Information: Pressure Method: Perform Actions 1, 2, 3, 4, and 6. Visual Method: Perform Actions 2, 3, 5, and 6.		
Information: Leave truck running at idle after performing Proc_Cal_002.		
Action 1: With the truck running, note the pressure reading (standby pressure).		
Action 2: Activate Lift Control to Position Atachment 0.6 m (2 ft) up with no load on the forks/attachment. Activate the Aux 1 control to position the function in the middle of the range.	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Aux 1 Output Dir B
Step 4: Press * One Time	**You Will See:**	Aux 1 Output Dir B Press * at Creep



A. E-HYD CONTROL LEVERS

1.	LIFT/LOWER DIRECTION LIFT ↓ DIRECTION LOWER ↑	2. TILT DIRECTION BACK ↓ DIRECTION FWD ↑	*AUX 1 OR AUX 2 DIRECTION A ↑ DIRECTION B ↓	*AUX 2 OR AUX 3 DIRECTION A ↑ DIRECTION B ↓	5. *FOURTH LEVER 6. *THIRD LEVER 7. SEAT ARMREST

*AUX 2 IS IN THE FOURTH LEVER LOCATION EXCEPT AS FOLLOWS: WITH 5 FUNCTION VALVE WITH CLAMPING ATTACHMENT, AUX 2 IS IN THE THIRD LEVER LOCATION.

Table 11. Proc_Cal_009: Aux 1 Dir B Valve Output Threshold (Continued)

<table>
<tr><td colspan="3">2. JOYSTICK</td></tr>
<tr><td colspan="3">1. TILT BACK
2. AUX 1
DIRECTION A ↑
DIRECTION B ↓
3. LIFT ↓
4. ↑ LOWER
5. AUX 2
DIRECTION A ↑
DIRECTION B ↓
6. TILT FORWARD
7. SEAT ARMREST</td></tr>
<tr><td colspan="3">Action 3: SLOWLY Activate (Feather) Aux 1 Dir B Control.....</td></tr>
<tr><td colspan="3">NOTE: Optional for initial manufacture: Use the same pressure setting for both Dir A and Dir B of this function to provide uniform flow outputs.

Action 4: Until the pressure is just above the standby pressure (as the needle moves on an analog gage). Note that the pressure reading may oscillate. Hold control steady and.....</td></tr>
<tr><td colspan="3">Action 5: WATCH for Attachment Movement. When it first starts to move slowly, HOLD control steady and.....</td></tr>
<tr><td colspan="3">Press * One Time while holding the control.</td></tr>
<tr><td colspan="3">Action 6: STOP activating the Aux 1 Dir B Control. LOOK at the display.
Go to the Calibration Step below that matches your display.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Result out of range
Repeat Calibration</td></tr>
<tr><td>Press * One Time</td><td>You Will See:</td><td>Aux 1 Valve Output Dir B
Press * at Creep</td></tr>
<tr><td colspan="3">Return to Action 3.
Pressure Method: Perform Actions 3, 4, and 6 again.
Visual Method: Perform Actions 3, 5, and 6 again.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Aux 2 Valve Output Dir A
Press * at Creep</td></tr>
<tr><td colspan="3">To Continue with Calibrations.....</td></tr>
<tr><td colspan="3">Go to Action 3 of Proc_Cal_010.</td></tr>
<tr><td colspan="3">To Quit and Save....</td></tr>
<tr><td>Step 1: Press ⇧ or ⇩</td><td>Until You See:</td><td>Aux 2 Valve Output Dir A
Back 1 Level</td></tr>
<tr><td>Step 2: Press * One Time</td><td>You Will See:</td><td>Calibrations
Back 1 Level</td></tr>
<tr><td colspan="3">Perform Proc_Cal_003: Save and Exit.</td></tr>
</table>

Proc_Cal_010: Aux 2 Dir A Valve Output Threshold

WHEN TO PERFORM

Performed when troubleshooting procedures indicate, when Aux 2 Dir A valve components have been serviced, or when the Aux 2 Dir A valve is replaced.

CALIBRATION ORDER

1. Proc_Cal_025
2. Proc_Cal_001
3. Proc_Cal_002
4. Proc_Cal_010

WHY PERFORM

All electro-hydraulic valves have different operating characteristics. One of the key characteristics is the point at which hydraulic flow begins for a given command current. This cracking' current is determined by this process.

HOW TO PERFORM

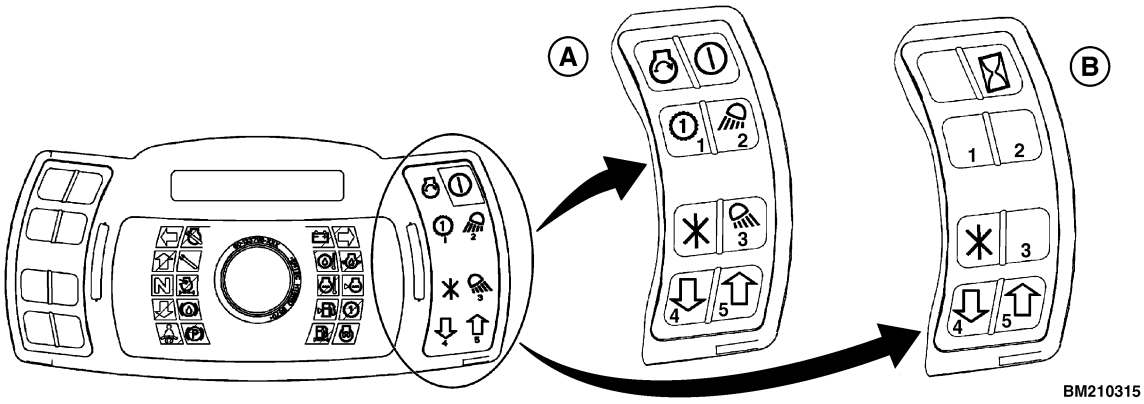
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 12 for the procedures on how to perform Proc_Cal_010: Aux 2 Dir A Valve Output Threshold.

Table 12. Proc_Cal_010: Aux 2 Dir A Valve Output Threshold



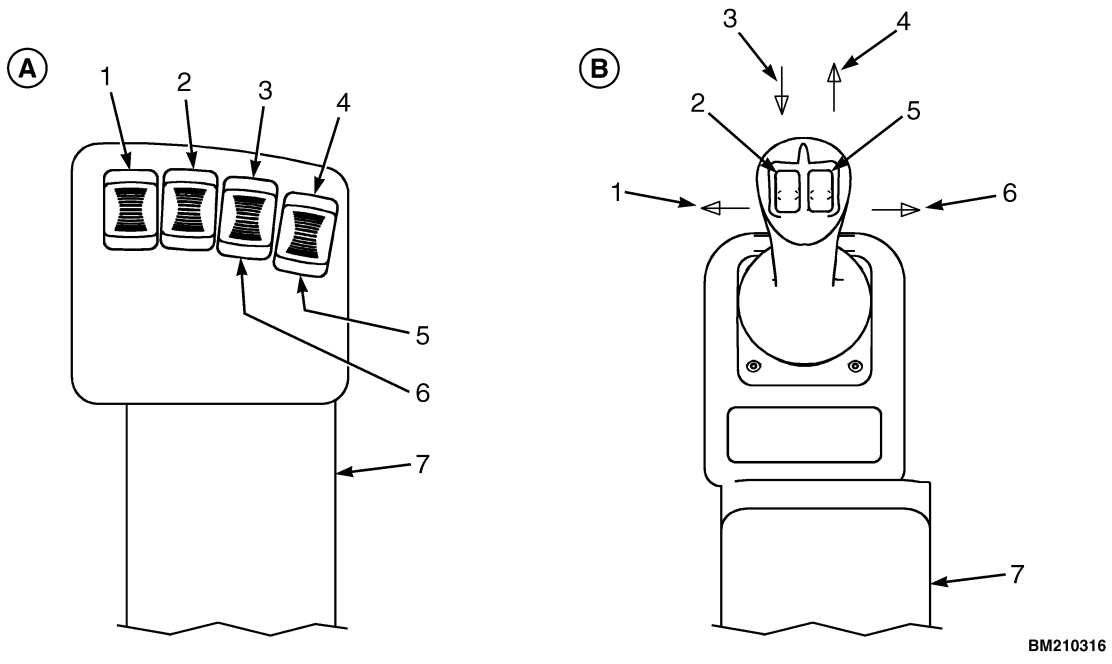
A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Perform Proc_Cal_025: Hydraulic Valve Pressure Gage Installation, Proc_Cal_001: Service Password Entry, and Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed before proceeding.

Information: "Creep" is defined as the threshold when a function first starts to move very slowly (barely perceptible motion). The identification of this motion is defined as the "visual method." The method that provides more consistent calibration is by monitoring the change in pressure when the function is activated; this is defined as the "pressure method."

Table 12. Proc_Cal_010: Aux 2 Dir A Valve Output Threshold (Continued)

Information: Pressure Method: Perform Actions 1, 2, 3, 4, and 6. Visual Method: Perform Actions 2, 3, 5, and 6.		
Information: Leave truck running at idle after performing Proc_Cal_002.		
Action 1: With the truck running, note the pressure reading (standby pressure).		
Action 2: Activate Lift Control to Position Attachment 0.6 m (2 ft) up with no load on the forks/attachment. Activate the Aux 2 control to position the function in the middle of the range.	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Aux 2 Valve Output Dir A
Step 4: Press * One Time	**You Will See:**	Aux 2 Valve Output Dir A Press * at Creep



A. E-HYD CONTROL LEVERS

1. LIFT/LOWER DIRECTION LIFT ↓ DIRECTION LOWER ↑	2. TILT DIRECTION BACK ↓ DIRECTION FWD ↑	*AUX 1 OR AUX 2 DIRECTION A ↑ DIRECTION B ↓	*AUX 2 OR AUX 3 DIRECTION A ↑ DIRECTION B ↓	5. *FOURTH LEVER 6. *THIRD LEVER 7. SEAT ARMREST	

*AUX 2 IS IN THE FOURTH LEVER LOCATION EXCEPT AS FOLLOWS: WITH 5 FUNCTION VALVE WITH CLAMPING ATTACHMENT, AUX 2 IS IN THE THIRD LEVER LOCATION.

Table 12. Proc_Cal_010: Aux 2 Dir A Valve Output Threshold (Continued)

<table>
<tr><td colspan="3">2. JOYSTICK</td></tr>
<tr><td colspan="3">1. TILT BACK
2. AUX 1
DIRECTION A ↑
DIRECTION B ↓
3. LIFT ↓
4. ↑ LOWER
5. AUX 2
DIRECTION A ↑
DIRECTION B ↓
6. TILT FORWARD
7. SEAT ARMREST</td></tr>
<tr><td colspan="3">Action 3: SLOWLY Activate (Feather) Aux 2 Dir A Control.....</td></tr>
<tr><td colspan="3">NOTE: Optional for initial manufacture: Use the same pressure setting for both Dir A and Dir B of this function to provide uniform flow outputs.

Action 4: Until the pressure is just above the standby pressure (as the needle moves on an analog gage). Note that the pressure reading may oscillate. Hold control steady and.....</td></tr>
<tr><td colspan="3">Action 5: WATCH for Attachment Movement. When it first starts to move slowly, HOLD control steady and.....</td></tr>
<tr><td colspan="3">Press * One Time while holding the control.</td></tr>
<tr><td colspan="3">Action 6: STOP activating the Aux 2 Dir A Control. LOOK at the display.
Go to the Calibration Step below that matches your display.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Result out of range
Repeat Calibration</td></tr>
<tr><td>Press * One Time</td><td>You Will See:</td><td>Aux 2 Valve Output Dir A
Press * at Creep</td></tr>
<tr><td colspan="3">Return to Action 3.
Pressure Method: Perform Actions 3, 4, and 6 again.
Visual Method: Perform Actions 3, 5, and 6 again.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Aux 2 Valve Output Dir B
Press * at Creep</td></tr>
<tr><td colspan="3">To Continue with Calibrations.....</td></tr>
<tr><td colspan="3">Go to Action 3 of Proc_Cal_011.</td></tr>
<tr><td colspan="3">To Quit and Save....</td></tr>
<tr><td>Step 1: Press ⇧ or ⇩</td><td>Until You See:</td><td>Aux 2 Valve Output Dir B
Back 1 Level</td></tr>
<tr><td>Step 2: Press * One Time</td><td>You Will See:</td><td>Calibrations
Back 1 Level</td></tr>
<tr><td colspan="3">Perform Proc_Cal_003: Save and Exit.</td></tr>
</table>

Proc_Cal_011: Aux 2 Dir B Valve Output Threshold

WHEN TO PERFORM

Performed when troubleshooting procedures indicate, when Aux 2 Dir B valve components have been serviced, or when the Aux 2 Dir B valve is replaced.

CALIBRATION ORDER

1. Proc_Cal_025
2. Proc_Cal_001
3. Proc_Cal_002
4. Proc_Cal_011

WHY PERFORM

All electro-hydraulic valves have different operating characteristics. One of the key characteristics is the point at which hydraulic flow begins for a given command current. This cracking' current is determined by this process.

HOW TO PERFORM

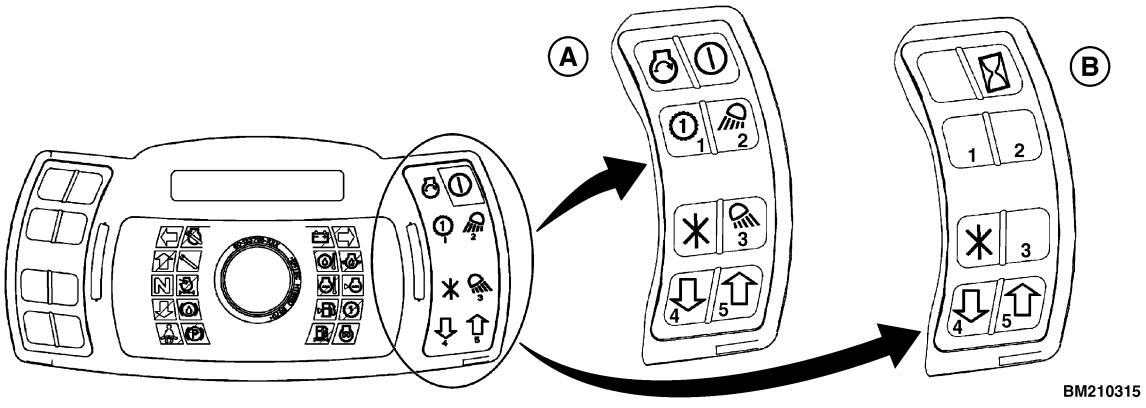
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 13 for the procedures on how to perform Proc_Cal_011: Aux 2 Dir B Valve Output Threshold.

Table 13. Proc_Cal_011: Aux 2 Dir B Valve Output Threshold



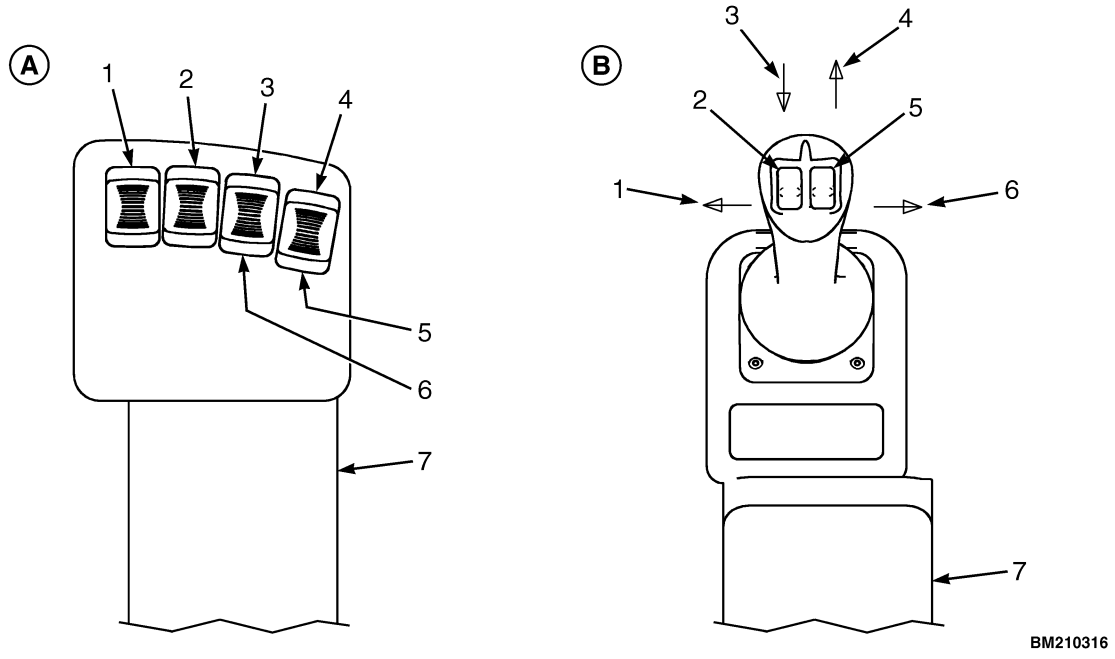
A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Perform Proc_Cal_025: Hydraulic Valve Pressure Gage Installation, Proc_Cal_001: Service Password Entry, and Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed before proceeding.

Information: "Creep" is defined as the threshold when a function first starts to move very slowly (barely perceptible motion). The identification of this motion is defined as the "visual method." The method that provides more consistent calibration is by monitoring the change in pressure when the function is activated. This is defined as the "pressure method."

Table 13. Proc_Cal_011: Aux 2 Dir B Valve Output Threshold (Continued)

Information: Pressure Method: Perform Actions 1, 2, 3, 4, and 6. Visual Method: Perform Actions 2, 3, 5, and 6.		
Information: Leave truck running at idle after performing Proc_Cal_002.		
Action 1: With the truck running, note the pressure reading (standby pressure).		
Action 2: Activate Lift Control to Position Attachment 0.6 m (2 ft) up with no load on the forks/attachment. Activate the Aux 2 control to position the function in the middle of the range.	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Aux 2 Output Dir B
Step 4: Press * One Time	**You Will See:**	Aux 2 Output Dir B Press * at Creep



A. E-HYD CONTROL LEVERS

1.	LIFT/LOWER DIRECTION LIFT ↓ DIRECTION LOWER ↑	2. TILT DIRECTION BACK ↓ DIRECTION FWD ↑	*AUX 1 OR AUX 2 DIRECTION A ↑ DIRECTION B ↓	*AUX 2 OR AUX 3 DIRECTION A ↑ DIRECTION B ↓	*5. FOURTH LEVER *THIRD LEVER 6. SEAT ARMREST 7.

*AUX 2 IS IN THE FOURTH LEVER LOCATION EXCEPT AS FOLLOWS: WITH 5 FUNCTION VALVE WITH CLAMPING ATTACHMENT, AUX 2 IS IN THE THIRD LEVER LOCATION.

Table 13. Proc_Cal_011: Aux 2 Dir B Valve Output Threshold (Continued)

<table>
<tr><td colspan="3">2. JOYSTICK</td></tr>
<tr><td colspan="3">1. TILT BACK
2. AUX 1
DIRECTION A ↑
DIRECTION B ↓
3. LIFT ↓
4. ↑ LOWER
5. AUX 2
DIRECTION A ↑
DIRECTION B ↓
6. TILT FORWARD
7. SEAT ARMREST</td></tr>
<tr><td colspan="3">Action 3: SLOWLY Activate (Feather) Aux 2 Dir B Control.....</td></tr>
<tr><td colspan="3">NOTE: Optional for initial manufacture: Use the same pressure setting for both Dir A and Dir B of this function to provide uniform flow outputs.

Action 4: Until the pressure is just above the standby pressure (as the needle moves on an analog gage). Note that the pressure reading may oscillate. Hold control steady and.....</td></tr>
<tr><td colspan="3">Action 5: WATCH for Attachment Movement. When it first starts to move slowly, HOLD control steady and.....</td></tr>
<tr><td colspan="3">Press * One Time while holding the control.</td></tr>
<tr><td colspan="3">Action 6: STOP activating the Aux 2 Dir B Control. LOOK at the display.
Go to the Calibration Step below that matches your display.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Result out of range
Repeat Calibration</td></tr>
<tr><td>Press * One Time</td><td>You Will See:</td><td>Aux 2 Valve Output Dir B
Press * at Creep</td></tr>
<tr><td colspan="3">Return to Action 3.
Pressure Method: Perform Actions 3, 4, and 6 again.
Visual Method: Perform Actions 3, 5, and 6 again.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Aux 3 Valve Output Dir A
Press * at Creep</td></tr>
<tr><td colspan="3">To Continue with Calibrations.....</td></tr>
<tr><td colspan="3">Go to Action 3 of Proc_Cal_012.</td></tr>
<tr><td colspan="3">To Quit and Save....</td></tr>
<tr><td>Step 1: Press ⇧ or ⇩</td><td>Until You See:</td><td>Aux 3 Valve Output Dir A
Back 1 Level</td></tr>
<tr><td>Step 2: Press * One Time</td><td>You Will See:</td><td>Calibrations
Back 1 Level</td></tr>
<tr><td colspan="3">Perform Proc_Cal_003: Save and Exit.</td></tr>
</table>

Proc_Cal_012: Aux 3 Dir A Valve Output Threshold

WHEN TO PERFORM

Performed when troubleshooting procedures indicate, when Aux 3 Dir A valve components have been serviced, or when the Aux 3 Dir A valve is replaced.

CALIBRATION ORDER

1. Proc_Cal_025
2. Proc_Cal_001
3. Proc_Cal_002
4. Proc_Cal_012

WHY PERFORM

All electro-hydraulic valves have different operating characteristics. One of the key characteristics is the point at which hydraulic flow begins for a given command current. This cracking' current is determined by this process.

HOW TO PERFORM

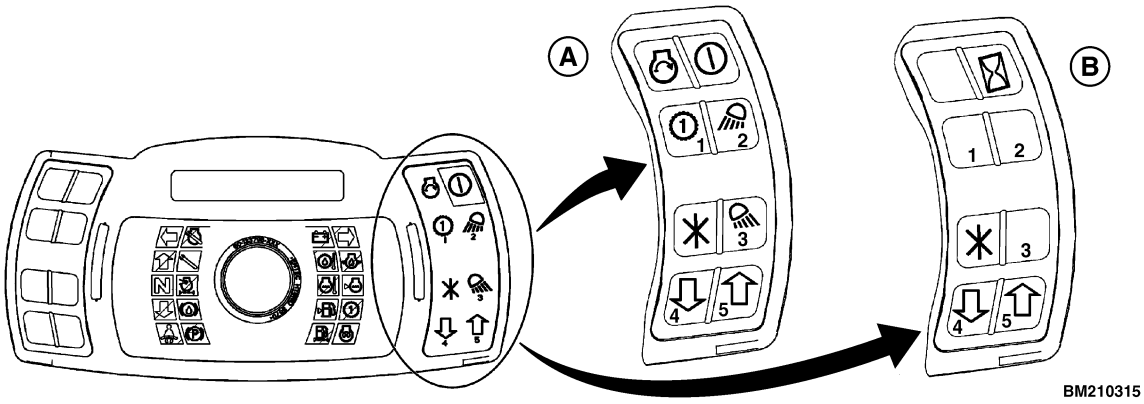
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 14 for the procedures on how to perform Proc_Cal_012: Aux 3 Dir A Valve Output Threshold.

Table 14. Proc_Cal_012: Aux 3 Dir A Valve Output Threshold



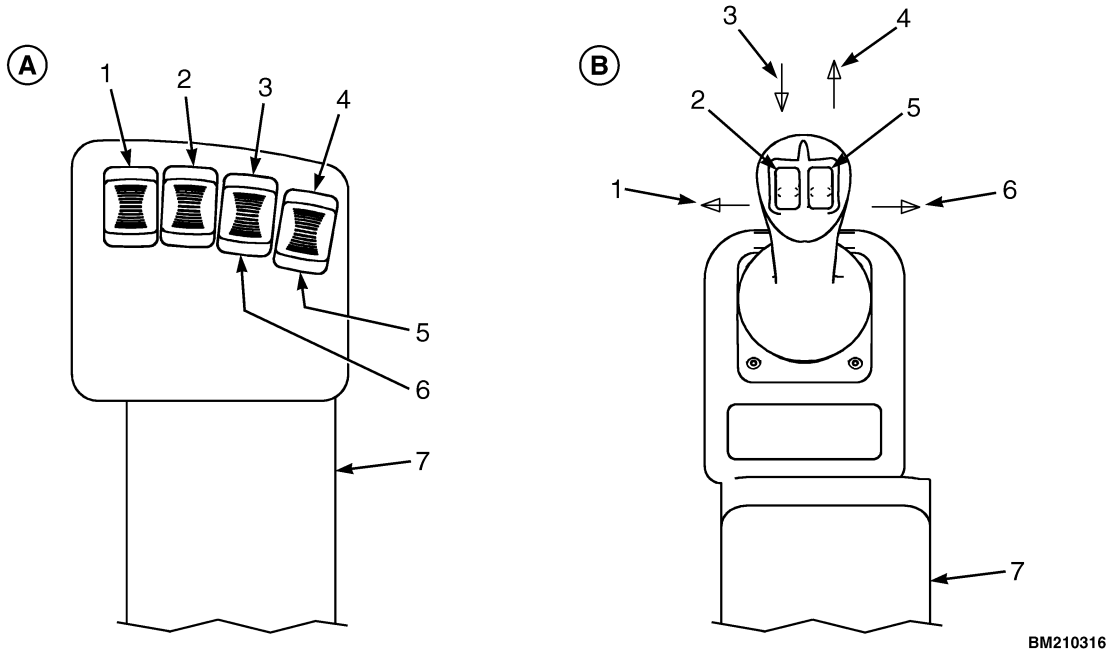
A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Perform Proc_Cal_025: Hydraulic Valve Pressure Gage Installation, Proc_Cal_001: Service Password Entry, and Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed before proceeding.

Information: "Creep" is defined as the threshold when a function first starts to move very slowly (barely perceptible motion). The identification of this motion is defined as the "visual method." The method that provides more consistent calibration is by monitoring the change in pressure when the function is activated; this is defined as the "pressure method."

Table 14. Proc_Cal_012: Aux 3 Dir A Valve Output Threshold (Continued)

Information: Pressure Method: Perform Actions 1, 2, 3, 4, and 6. Visual Method: Perform Actions 2, 3, 5, and 6.		
Information: Leave truck running at idle after performing Proc_Cal_002.		
Action 1: With the truck running, note the pressure reading (standby pressure).		
Action 2 Activate Lift Control to Position Attachment 0.6 m (2 ft) up with no load on the forks/attachment. Activate the Aux 3 control to position the function in the middle of the range.	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Aux 3 Output Dir A
Step 4: Press * One Time	**You Will See:**	Aux 3 Output Dir A Press * at Creep



A. E-HYD CONTROL LEVERS

1. LIFT/LOWER DIRECTION LIFT ↓ DIRECTION LOWER ↑	2. TILT DIRECTION BACK ↓ DIRECTION FWD ↑	*AUX 1 OR AUX 2 DIRECTION A ↑ DIRECTION B ↓	*AUX 2 OR AUX 3 DIRECTION A ↑ DIRECTION B ↓	*4. FOURTH LEVER *5. THIRD LEVER 6. SEAT 7. ARMREST	

*AUX 2 IS IN THE FOURTH LEVER LOCATION EXCEPT AS FOLLOWS: WITH 5 FUNCTION VALVE WITH CLAMPING ATTACHMENT, AUX 2 IS IN THE THIRD LEVER LOCATION.

Table 14. Proc_Cal_012: Aux 3 Dir A Valve Output Threshold (Continued)

<table>
<tr><td colspan="3">2. JOYSTICK</td></tr>
<tr><td colspan="3">1. TILT BACK
2. AUX 1
DIRECTION A ↑
DIRECTION B ↓
3. LIFT ↓
4. ↑ LOWER
5. AUX 2
DIRECTION A ↑
DIRECTION B ↓
6. TILT FORWARD
7. SEAT ARMREST</td></tr>
<tr><td colspan="3">Action 3: SLOWLY Activate (Feather) Aux 3 Dir A Control.....</td></tr>
<tr><td colspan="3">NOTE: Optional for initial manufacture: Use the same pressure setting for both Dir A and Dir B of this function to provide uniform flow outputs.

Action 4: Until the pressure is just above the standby pressure (as the needle moves on an analog gage). Note that the pressure reading may oscillate. Hold control steady and.....</td></tr>
<tr><td colspan="3">Action 5: WATCH for Attachment Movement. When it first starts to move slowly, HOLD control steady and.....</td></tr>
<tr><td colspan="3">Press * One Time while holding the control.</td></tr>
<tr><td colspan="3">Action 6: STOP activating the Aux 3 Dir A Control. LOOK at the display.
Go to the Calibration Step below that matches your display.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Result out of range
Repeat Calibration</td></tr>
<tr><td>Press * One Time</td><td>You Will See:</td><td>Aux 3 Valve Output Dir A
Press * at Creep</td></tr>
<tr><td colspan="3">Return to Action 3.
Pressure Method: Perform Actions 3, 4, and 6 again.
Visual Method: Perform Actions 3, 5, and 6 again.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Aux 3 Valve Output Dir B
Press * at Creep</td></tr>
<tr><td colspan="3">To Continue with Calibrations.....</td></tr>
<tr><td colspan="3">Go to Action 3 of Proc_Cal_013.</td></tr>
<tr><td colspan="3">To Quit and Save....</td></tr>
<tr><td>Step 1: Press ⇧ or ⇩</td><td>Until You See:</td><td>Aux 3 Valve Output Dir B
Back 1 Level</td></tr>
<tr><td>Step 2: Press * One Time</td><td>You Will See:</td><td>Calibrations
Back 1 Level</td></tr>
<tr><td colspan="3">Perform Proc_Cal_003: Save and Exit.</td></tr>
</table>

Proc_Cal_013: Aux 3 Dir B Valve Output Threshold

WHEN TO PERFORM

Performed when troubleshooting procedures indicate, when Aux 3 Dir B valve components have been serviced, or when the Aux 3 Dir B valve is replaced.

CALIBRATION ORDER

1. Proc_Cal_025
2. Proc_Cal_001
3. Proc_Cal_002
4. Proc_Cal_013

WHY PERFORM

All electro-hydraulic valves have different operating characteristics. One of the key characteristics is the point at which hydraulic flow begins for a given command current. This cracking' current is determined by this process.

HOW TO PERFORM

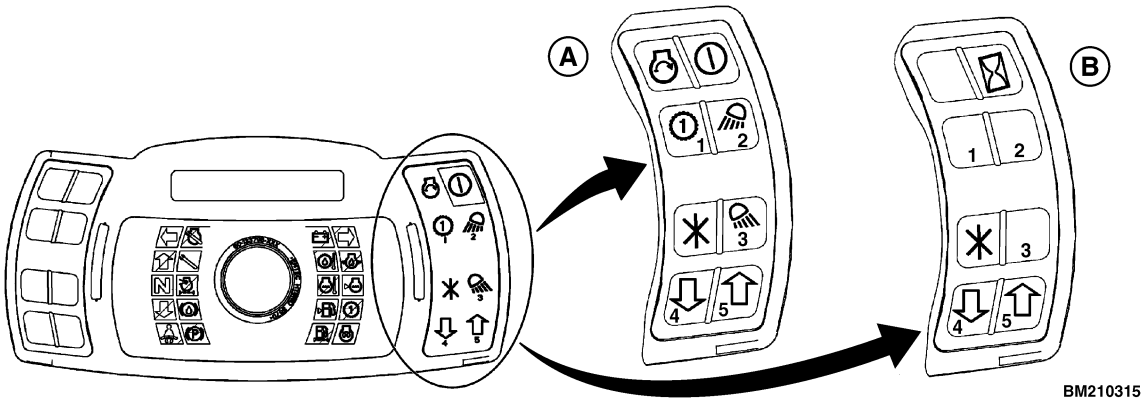
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 15 for the procedures on how to perform Proc_Cal_013: Aux 3 Dir B Valve Output Threshold.

Table 15. Proc_Cal_013: Aux 3 Dir B Valve Output Threshold



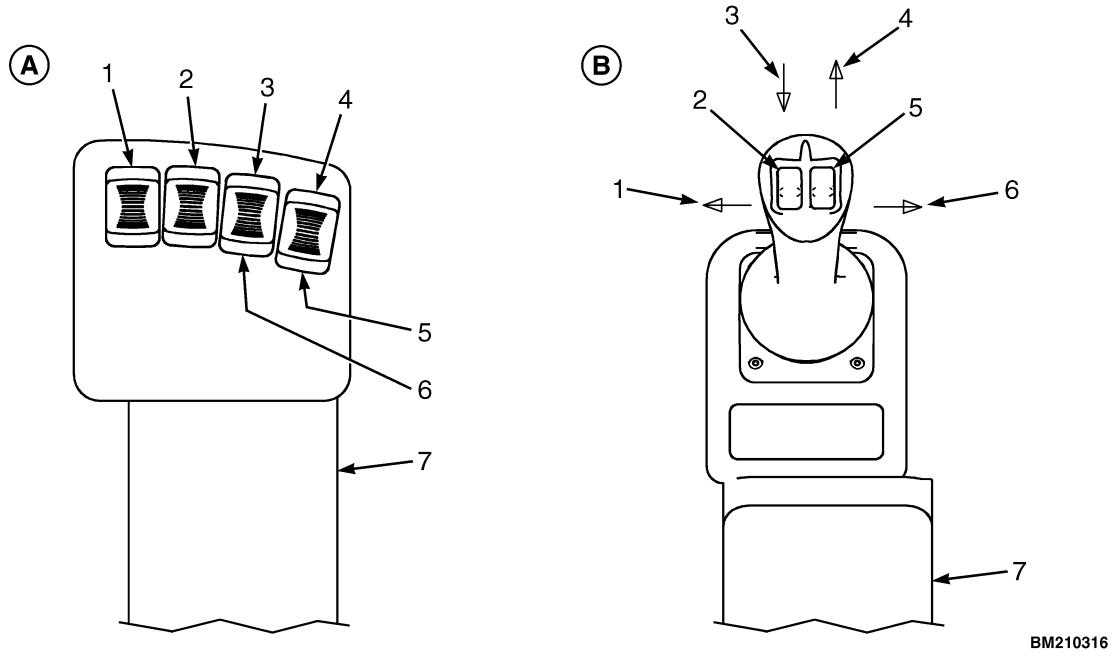
A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Perform Proc_Cal_025: Hydraulic Valve Pressure Gage Installation, Proc_Cal_001: Service Password Entry, and Proc_Cal_002: Hydraulic Valve Calibration Warm Up and Air Bleed before proceeding.

Information: "Creep" is defined as the threshold when a function first starts to move very slowly (barely perceptible motion). The identification of this motion is defined as the "visual method." The method that provides more consistent calibration is by monitoring the change in pressure when the function is activated; this is defined as the "pressure method."

Table 15. Proc_Cal_013: Aux 3 Dir B Valve Output Threshold (Continued)

Information: Pressure Method: Perform Actions 1, 2, 3, 4, and 6. Visual Method: Perform Actions 2, 3, 5, and 6.		
Information: Leave truck running at idle after performing Proc_Cal_002.		
Action 1: With the truck running, note the pressure reading (standby pressure).		
Action 2: Activate Lift Control to Position Attachment 0.6 m (2 ft) up with no load on the forks/attachment. Activate the Aux 3 control to position the function in the middle of the range.	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Aux 3 Output Dir B
Step 4: Press * One Time	**You Will See:**	Aux 3 Output Dir B Press * at Creep



A. E-HYD CONTROL LEVERS

1.	LIFT/LOWER DIRECTION LIFT ↓ DIRECTION LOWER ↑	2. TILT DIRECTION BACK ↓ DIRECTION FWD ↑	*AUX 1 OR AUX 2 DIRECTION A ↑ DIRECTION B ↓	*AUX 2 OR AUX 3 DIRECTION A ↑ DIRECTION B ↓	5. *FOURTH LEVER 6. *THIRD LEVER 7. SEAT ARMREST

*AUX 2 IS IN THE FOURTH LEVER LOCATION EXCEPT AS FOLLOWS: WITH 5 FUNCTION VALVE WITH CLAMPING ATTACHMENT, AUX 2 IS IN THE THIRD LEVER LOCATION.

Table 15. Proc_Cal_013: Aux 3 Dir B Valve Output Threshold (Continued)

<table>
<tr><td colspan="3">2. JOYSTICK</td></tr>
<tr><td>1. TILT BACK
2. AUX 1
DIRECTION A ↑
DIRECTION B ↓
3. LIFT ↓
4. ↑ LOWER
5. AUX 2
DIRECTION A ↑
DIRECTION B ↓
6. TILT FORWARD
7. SEAT ARMREST</td><td colspan="2"></td></tr>
<tr><td colspan="3">Action 3: SLOWLY Activate (Feather) Aux 3 Dir B Control.....</td></tr>
<tr><td colspan="3">NOTE: Optional for initial manufacture: Use the same pressure setting for both Dir A and Dir B of this function to provide uniform flow outputs.

Action 4: Until the pressure is just above the standby pressure (as the needle moves on an analog gage). Note that the pressure reading may oscillate. Hold control steady and.....</td></tr>
<tr><td colspan="3">Action 5: WATCH for Attachment Movement. When it first starts to move slowly, HOLD control steady and.....</td></tr>
<tr><td colspan="3">Press * One Time while holding the control.</td></tr>
<tr><td colspan="3">Action 6: STOP activating the Aux 3 Dir B Control. LOOK at the display.
Go to the Calibration Step below that matches your display.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Result out of range
Repeat Calibration</td></tr>
<tr><td>Press * One Time</td><td>You Will See:</td><td>Aux 3 Valve Output Dir B
Press * at Creep</td></tr>
<tr><td colspan="3">Return to Action 3.
Pressure Method: Perform Actions 3, 4, and 6 again.
Visual Method: Perform Actions 3, 5, and 6 again.</td></tr>
<tr><td>If You See.....</td><td colspan="2">Calibrations
Aux 3 Valve Output Dir B</td></tr>
<tr><td colspan="3">You May Quit and Save.....</td></tr>
<tr><td colspan="3">Perform Proc_Cal_003: Save and Exit.</td></tr>
</table>

Proc_Cal_014: Load Weight Zero Point

WHEN TO PERFORM

Performed by the operator when the no-load weight displayed on the screen with the forks in the "weighing position" is not within ±2 percent of truck capacity. (This is ±45.4 kg (100 lb) for a 2268 kg (5,000 lb) truck).

This procedure will write a value to the Tare Weight memory location. If you are going to perform Proc_Cal_015 Loaded Weight Calibration, you can skip this procedure as its value will be overwritten.

CALIBRATION ORDER

1. Proc_Cal_001

2. Proc_Cal_014

WHY PERFORM

Allows the system to take into account the weight of the carriage assembly for weight displays.

HOW TO PERFORM

WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 16 for the procedures on how to perform Proc_Cal_014: Load Weight Zero Point.

Table 16. Proc_Cal_014: Load Weight Zero Point

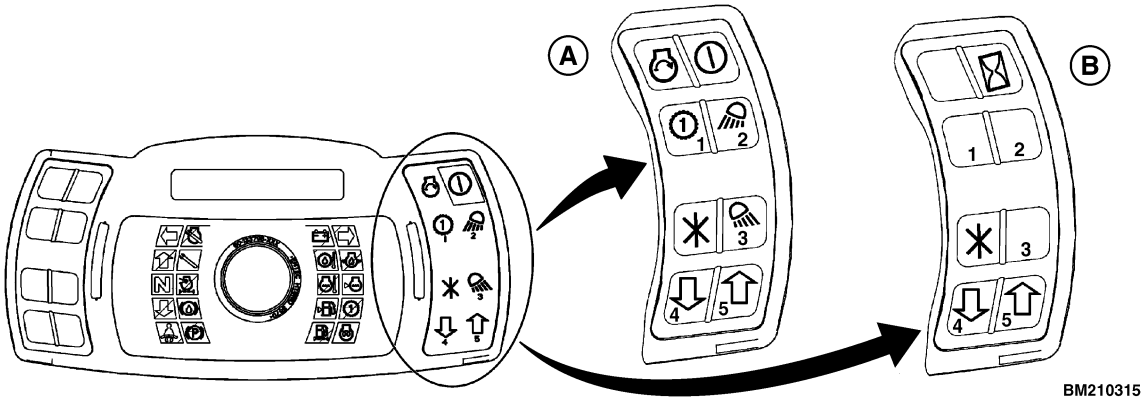
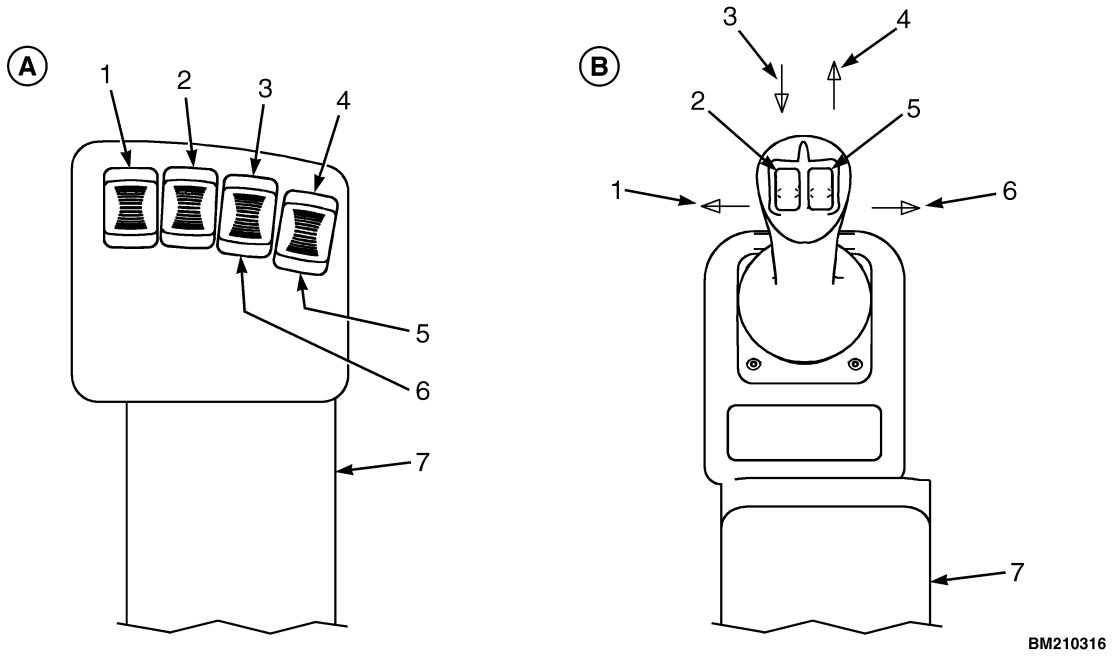
<table>
<tr><td colspan="3"> 
</td></tr>
<tr><td colspan="3">A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS</td></tr>
<tr><td colspan="3">Proc_Cal_001: Service Password Entry before proceeding.</td></tr>
<tr><td colspan="3">Action 1: Start Engine.</td></tr>
<tr><td colspan="3">Action 2: Position Mast Vertical.</td></tr>
<tr><td>Action 3: With No Load, Activate Lift Control to Raise Forks/ Attachment Approximately 0.6 m (2 ft), But If Freelift Is Present, Not More Than Maximum Freelift.</td><td>You Will See:</td><td>Main Menu
Passwords</td></tr>
</table>

Table 16. Proc_Cal_014: Load Weight Zero Point (Continued)



E-HYD CONTROL LEVERS

1. LIFT/LOWER DIRECTION LIFT ↓ DIRECTION LOWER ↑	2. TILT DIRECTION BACK ↓ DIRECTION FWD ↑	*AUX 1 OR AUX 2 DIRECTION A ↑ DIRECTION B ↓	*AUX 2 OR AUX 3 DIRECTION A ↑ DIRECTION B ↓	*FOURTH LEVER	
				*THIRD LEVER	
				SEAT ARMREST	

*AUX 2 IS IN THE FOURTH LEVER LOCATION EXCEPT AS FOLLOWS: WITH 5 FUNCTION VALVE WITH CLAMPING ATTACHMENT, AUX 2 IS IN THE THIRD LEVER LOCATION.

2. JOYSTICK

1.	TILT BACK	2.	AUX 1 DIRECTION A ↑ DIRECTION B ↓	3.	LIFT ↓	5.	AUX 2 DIRECTION A ↑ DIRECTION B ↓	6.	TILT FORWARD
				4.	↑ LOWER			7.	SEAT ARMREST

Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Load Weight Set Zero
Step 4: Press * One Time	**You Will See:**	Load Weight Set Zero Press * with No Load

Action 4: Lower The Empty Forks/Attachment Approximately 51 mm (2 in.), Wait One Second And Immediately Press * One Time.

Perform Proc_Cal_003: Save and Exit if not performing additional calibration procedures.

Proc_Cal_015: Loaded Weight Calibration

WHEN TO PERFORM

1. Perform when the pressure transducer is replaced.

OR

2. Perform the calibration when the following procedure does not pass.

   Lift a load equal to approximately 3/4 the lift truck capacity or more and raise the load in the same manner as when performing the Proc_Cal_014: Load Weight Zero Point several times to ensure the system repeats within approximately ±2 percent of truck capacity. If it does not, then remove the load and recheck the Proc_Cal_014: Load Weight Zero Point. If the load weights are then within tolerance, continue using the system. If not within tolerance, then proceed to perform the Loaded Weight Calibration.

CALIBRATION ORDER

1. Proc_Cal_001
2. Proc_Cal_015

WHY PERFORM

Because known load weights are not weighing within ±2 percent of truck capacity.

HOW TO PERFORM

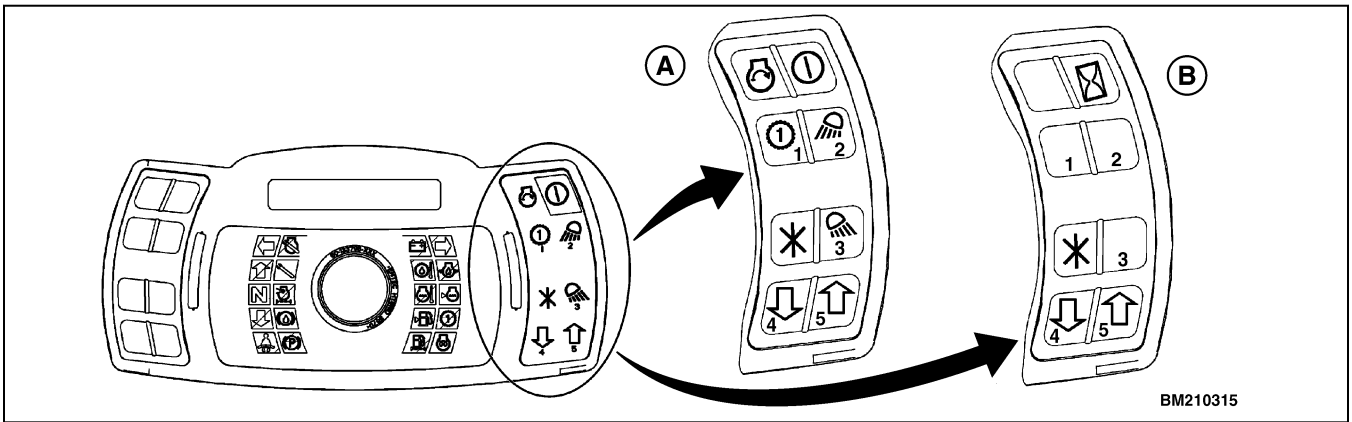
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 17 for the procedures on how to perform Proc_Cal_015: Loaded Weight Calibration.

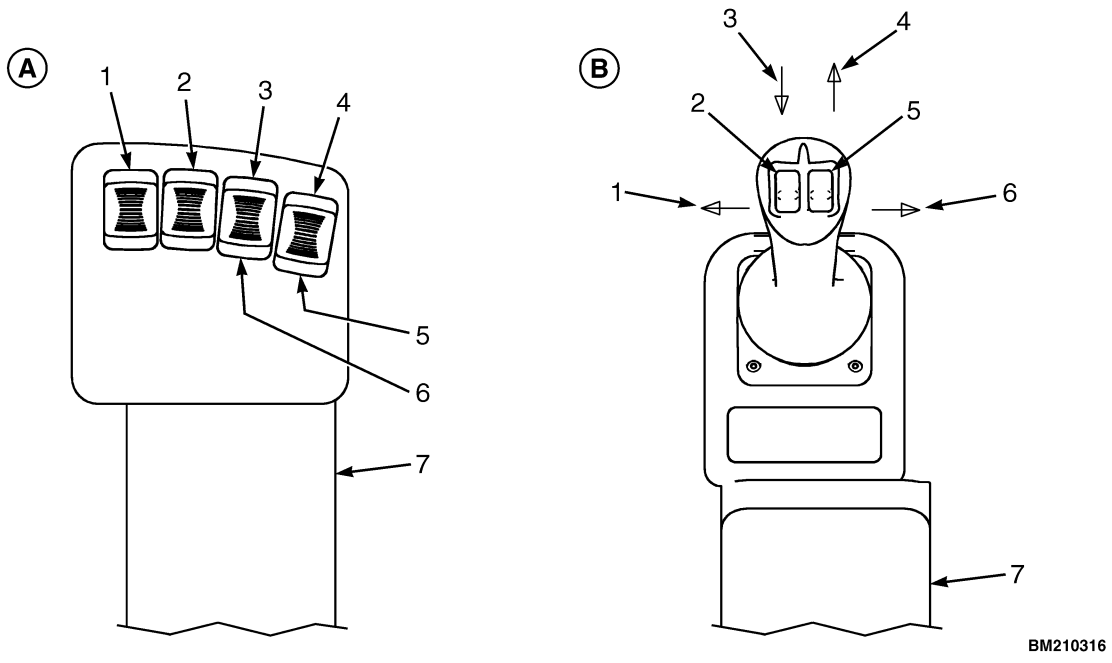
Table 17. Proc_Cal_015: Loaded Weight Calibration



A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Proc_Cal_001: Service Password Entry before proceeding.		
Action 1: Start Engine.		
Action 2: Position Mast Vertical.		
Action 3: With No Load, Activate Lift Control to Raise Forks/ Attachment Approximately 0.6 m (2 ft), But If Freelift Is Present, Not More Than Maximum Freelift.	**You Will See:**	Main Menu Passwords

Table 17. Proc_Cal_015: Loaded Weight Calibration (Continued)



E-HYD CONTROL LEVERS

1. LIFT/LOWER DIRECTION LIFT ↓ DIRECTION LOWER ↑	2. TILT DIRECTION BACK ↓ DIRECTION FWD ↑	*AUX 1 OR AUX 2 DIRECTION A ↑ DIRECTION B ↓	*AUX 2 OR AUX 3 DIRECTION A ↑ DIRECTION B ↓	*FOURTH LEVER	
				*THIRD LEVER	
				SEAT ARMREST	

*AUX 2 IS IN THE FOURTH LEVER LOCATION EXCEPT AS FOLLOWS: WITH 5 FUNCTION VALVE WITH CLAMPING ATTACHMENT, AUX 2 IS IN THE THIRD LEVER LOCATION.

2. JOYSTICK

1.	TILT BACK	2.	AUX 1 DIRECTION A ↑ DIRECTION B ↓	3.	LIFT ↓	5.	AUX 2 DIRECTION A ↑ DIRECTION B ↓	6.	TILT FORWARD
				4.	↑ LOWER			7.	SEAT ARMREST

Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Load Weight Calibration
Step 4: Press * One Time	**You Will See:**	Load Weight Set Zero Press * with No Load

Table 17. Proc_Cal_015: Loaded Weight Calibration (Continued)

Action 4: Lower The Empty Forks/Attachment Approximately 51 mm (2 in.), Wait One Second And Immediately Press * One Time.	**You Will See:**	Lift Known Load To Weighing Height
Action 5: Safely Raise A Load Of Known Weight Equal To 3/4 Or More Of Rated Lift Truck Capacity. Lift To A Height Of Approximately 0.6 m (2 ft), But If Freelift Is Present, Not More Than Maximum Freelift. Ensure Mast Is Vertical.		
Step 6: Press * One Time	**You Will See:**	Scroll to Correct Weight with #### lbs.
Step 7: Press ⇧ or ⇩	**Until You See:**	Weight On Display Equal To Weight On Forks/ Attachment.
Action 6: Lower Known Weight Load.		
Action 7: Safely Raise A Load Of Known Weight To A Height Of Approximately 0.6 m (2 ft), But If Freelift Is Present, Not More Than Maximum Freelift.		
Action 8: Lower Known Weight Load Approximately 51 mm (2 in.), Wait One Second, Read The Load Weight.		
Step 8: Press ⇧ or ⇩	**Until You See:**	The Weight Displayed One Second After Stopping Is Within 2% Of Weight On Forks.
Action 9: Repeat Action 6 Through 8 Until 2% Noted In Step 8 Is Achieved. The load may have to be raised several times and it may take several presses of the scroll⇧ and ⇩ buttons before the correct weight is displayed.		
Action 10: Lower Known Weight Load.		
Action 11: Safely Raise A Load Of Known Weight To A Height Of Approximately 0.6 m (2 ft), But If Freelift Is Present, Not More Than Maximum Freelift.		
Action 12: Lower Known Weight Load Approximately 51 mm (2 in.), Wait One Second And Immediately Press * One Time.		
Perform Proc_Cal_003: Save and Exit if not performing additional calibration procedures.		

Proc_Cal_016: Transmission Valve Calibration

NOTE: The information contained in the transmission calibration procedures described below, apply to all lift trucks covered in this YRM**EXCEPT** lift truck models:

- GLP/GDP60VX, GLP/GDP70VX (GP/GLP/GDP135VX, GP/GLP/GDP155VX) (C878, D878, E878)
- GLC/GDC60VX, GLC/GDC70VX (GC/GLC/GDC135VX, GC/GLC/GDC155VX) (C879, D879, E879, F879)
- GLP/GDP80VX, GLP/GDP80VX9, GLP/GDP90VX (GLP/GDP170VX, GLP/GDP175VX36, GLP/GDP190VX) (A909, B909)

Calibration procedures for the following lift truck models can be found in Table 20:

- GLP/GDP60VX, GLP/GDP70VX (GP/GLP/GDP135VX, GP/GLP/GDP155VX) (C878, D878, E878)
- GLC/GDC60VX, GLC/GDC70VX (GC/GLC/GDC135VX, GC/GLC/GDC155VX) (C879, D879, E879, F879)
- GLP/GDP80VX, GLP/GDP80VX9, GLP/GDP90VX (GLP/GDP170VX, GLP/GDP175VX36, GLP/GDP190VX) (A909, B909)

APPLICABLE SYSTEM/OPTION

Electronic Power Shift Transmission

WHEN TO PERFORM

Performed whenever disassembling or replacing the transmission, the transmission valve, or the transmission pressure sensors.

CALIBRATION ORDER

1. Proc_Cal_001

NOTE: Brakes must be properly adjusted and functioning prior to performing this procedure.

2. Proc_Cal_016

WHY PERFORM

Performed to compensate for clutch pack control valve pressure in relation to valve command current tolerances.

HOW TO PERFORM

WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

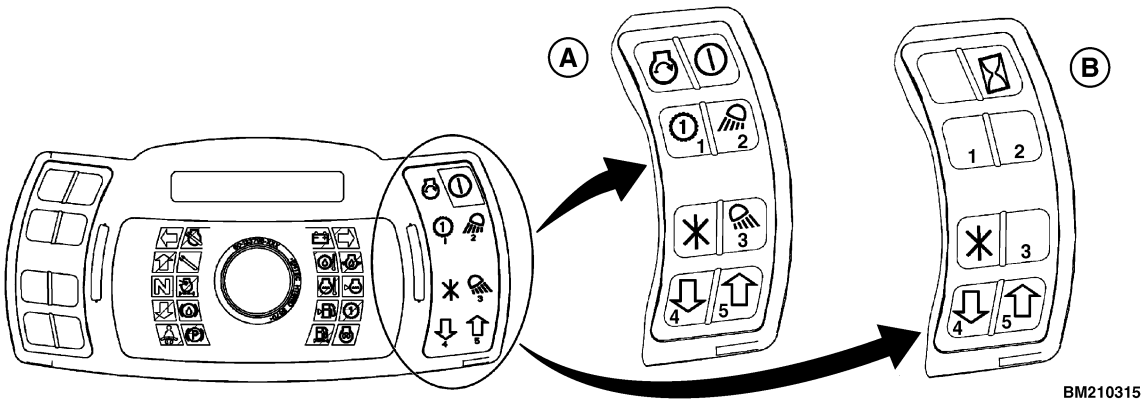
Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

WARNING

Keep park brake applied, full service brake applied, and full accelerator applied during entire time that automated transmission valve calibration is occurring.

Refer to Table 18 for the procedures on how to perform Proc_Cal_016: Transmission Valve Calibration.

Table 18. Proc_Cal_016: Transmission Valve Calibration



A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Information: Parking Brake and Service Brakes MUST be properly adjusted and functioning before performing this procedure.

Perform Proc_Cal_001: Service Password Entry before proceeding.

Action: Start Engine.	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Calibrate Xsmn Valve
Step 4: Press * One Time	**You Will See:**	Calibrate Xsmn Valve Press * to Begin

Action 1: APPLY Parking Brake and leave on throughout process.

Action 2: FULLY APPLY Service Brakes and HOLD during process.

Action 3: FULLY Depress Accelerator Pedal and HOLD during process.

Action 4: Allow for the transmission to warm up to 46°C (115°F).

Information: This is an automated process. The Engine, Park Brake, and Service Brake must all be ON for the process to start.

If either Parking or Service Brake is NOT applied, you will see.....	Apply Parking Brake Apply Service Brake

Table 18. Proc_Cal_016: Transmission Valve Calibration (Continued)

If both Parking and Service Brakes are applied, you will see.....	Calibrate Xmsn Valve Press * to Begin.	
NOTE: Keep park brake applied, full service brake applied, and full accelerator applied during entire time that automated transmission valve calibration is occurring. Press * One Time	**You Will See:**	Calibrate Xmsn Valve Done in 15
Watch display countdown. When completed successfully.....	**You Will See:**	Calibrations Calibrate Xmsn Valve
Perform Proc_Cal_003: Save and Exit.		

Proc_Cal_016A: Transmission Valve Calibration-Electronic Extended Function

NOTE: The information contained in the transmission calibration procedures described below, apply to all lift trucks covered in this YRM**EXCEPT** lift truck models:

- GLP/GDP60VX, GLP/GDP70VX (GP/GLP/GDP135VX, GP/GLP/GDP155VX) (C878, D878, E878)
- GLC/GDC60VX, GLC/GDC70VX (GC/GLC/GDC135VX, GC/GLC/GDC155VX) (C879, D879, E879, F879)
- GLP/GDP80VX, GLP/GDP80VX9, GLP/GDP90VX (GLP/GDP170VX, GLP/GDP175VX36, GLP/GDP190VX) (A909, B909)

For the models listed above, see Proc_Cal_016B: Trans. Valve Calibration-Electronic and Electronic Extended Function for calibration procedures.

APPLICABLE SYSTEM/OPTION

Electronic Power Shift Transmission

WHEN TO PERFORM

Performed whenever disassembling or replacing the transmission, the transmission valve, or the transmission pressure sensors.

CALIBRATION ORDER

1. Proc_Cal_001

NOTE: Brakes must be properly adjusted and functioning prior to performing this procedure.

2. Proc_Cal_016A

WHY PERFORM

Performed to compensate for clutch pack control valve pressure in relation to valve command current tolerances.

HOW TO PERFORM

WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

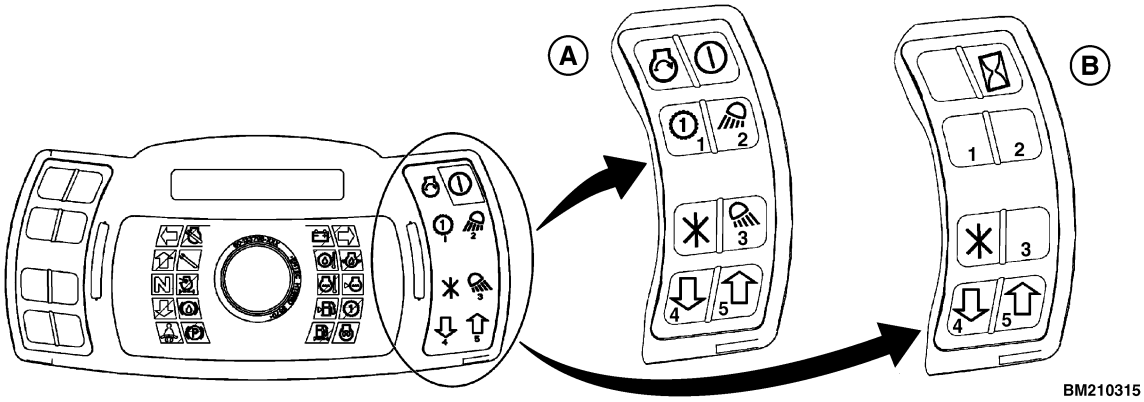
Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

WARNING

Keep park brake applied, full service brake applied, and full accelerator applied during entire time that automated transmission valve calibration is occurring.

Refer to Table 19 for the procedures on how to perform Proc_Cal_016: Transmission Valve Calibration.

Table 19. Proc_Cal_016A: Transmission Valve Calibration



A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Information: Parking Brake and Service Brakes MUST be properly adjusted and functioning before performing this procedure.

Perform Proc_Cal_001: Service Password Entry before proceeding.

Action: Start Engine.	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Calibrate Xsmn Valve
Step 4: Press * One Time	**You Will See:**	Calibrate Xsmn Valve Press * to Begin

Action 1: APPLY Parking Brake and leave on throughout process.

Action 2: FULLY APPLY Service Brakes and HOLD during process.

Action 3: FULLY Depress Accelerator Pedal and HOLD during process.

Action 4: Allow for the transmission to warm up to 46°C (115°F).

Information: This is an automated process. The Engine, Park Brake, and Service Brake must all be ON for the process to start.

If either Parking or Service Brake is NOT applied, you will see.....	Apply Parking Brake Apply Service Brake
If both Parking and Service Brakes are applied, you will see.....	Calibrate Xmsn Valve Press * to Begin.

Table 19. Proc_Cal_016A: Transmission Valve Calibration (Continued)

NOTE: Keep park brake applied, full service brake applied, and full accelerator applied during entire time that automated transmission valve calibration is occurring. If you release the service brake at any time during L2 calibration, the calibration will start over from the beginning. Press * One Time	**You Will See:**	Calibrate Xmsn Valve Done in 35
Watch display countdown. When completed successfully..... The engine will go to idle and you will see for approximately 2 minutes:	**You Will See:**	Calibrate Xmsn Valve Xmsn Calibration 0
Watch display. When completed successfully..... You will see for approximately 2 minutes:	**You Will See:**	Calibrate Xmsn Valve Xmsn Calibration 1
Watch display. When completed successfully..... You will see for approximately 2 minutes:	**You Will See:**	Calibrate Xmsn Valve Xmsn Calibration 2
Watch display. When completed successfully.....	**You Will See:**	Calibrations Calibrate Xmsn Valve
Perform Proc_Cal_003: Save and Exit.		

Proc_Cal_016B: Trans. Valve Calibration-Electronic and Electronic Extended Function

NOTE: The information contained in the transmission calibration procedures described below, apply to the following lift truck models covered in this YRM:

- GLP/GDP60VX, GLP/GDP70VX (GP/GLP/GDP135VX, GP/GLP/GDP155VX) (C878, D878, E878)
- GLC/GDC60VX, GLC/GDC70VX (GC/GLC/GDC135VX, GC/GLC/GDC155VX) (C879, D879, E879, F879)
- GLP/GDP80VX, GLP/GDP80VX9, GLP/GDP90VX (GLP/GDP170VX, GLP/GDP175VX36, GLP/GDP190VX) (A909, B909)

APPLICABLE SYSTEM/OPTION

Electronic Power Shift Transmission

WHEN TO PERFORM

Performed whenever disassembling or replacing the transmission, the transmission valve, or the transmission pressure sensors.

CALIBRATION ORDER

1. Proc_Cal_001

NOTE: Brakes must be properly adjusted and functioning prior to performing this procedure.

2. Proc_Cal_016B

WHY PERFORM

Performed to compensate for clutch pack control valve pressure in relation to valve command current tolerances.

HOW TO PERFORM

WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

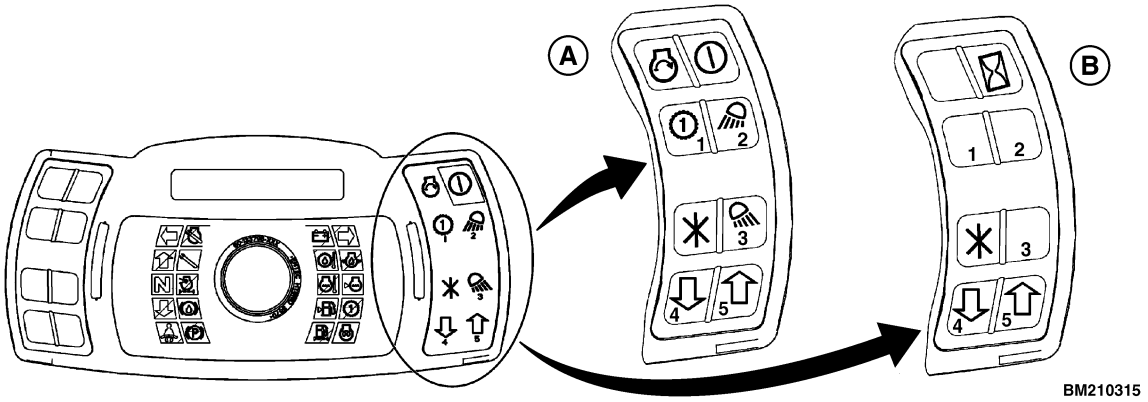
Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

WARNING

Keep park brake applied, full service brake applied, and full accelerator applied during entire time that automated transmission valve calibration is occurring.

Refer to Table 20 for the procedures on how to perform Proc_Cal_016: Transmission Valve Calibration.

Table 20. Proc_Cal_016B: Transmission Valve Calibration



A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Information: Parking Brake and Service Brakes MUST be properly adjusted and functioning before performing this procedure.

Perform Proc_Cal_001: Service Password Entry before proceeding.

Action: Start Engine.	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Calibrate Xsmn Valve
Step 4: Press * One Time	**You Will See:**	Calibrate Xsmn Valve Press * to Begin

Action 1: APPLY Parking Brake and leave on throughout process.

Action 2: FULLY APPLY Service Brakes and HOLD during process.

Action 3: FULLY Depress Accelerator Pedal and HOLD during process.

Action 4: Allow for the transmission to warm up to 60°C (140°F).

Information: This is an automated process. The Engine, Park Brake, and Service Brake must all be ON for the process to start.

If either Parking or Service Brake is NOT applied, you will see.....	Apply Parking Brake Apply Service Brake
If both Parking and Service Brakes are applied, you will see.....	Calibrate Xmsn Valve Press * to Begin.

Table 20. Proc_Cal_016B: Transmission Valve Calibration (Continued)

NOTE: Keep park brake applied, full service brake applied, and full accelerator applied during entire time that automated transmission valve calibration is occurring. If you release the service brake at any time during L2 calibration, the calibration will start over from the beginning. Press * One Time	**You Will See:**	Xmsn Oil Temp xxx°
Watch display countdown. When completed successfully..... The engine will go to idle and you will see for approximately 5 minutes:	**You Will See:**	Calibrate Xmsn Valve Xmsn Calibration 0
Watch display. When completed successfully..... You will see for approximately 5 minutes:	**You Will See:**	Calibrate Xmsn Valve Xmsn Calibration 1
Watch display. When completed successfully..... You will see for approximately 5 minutes:	**You Will See:**	Calibrate Xmsn Valve Xmsn Calibration 2
Watch display. When completed successfully..... You will see for approximately 5 minutes:	**You Will See:**	Calibrate Xmsn Valve Xmsn Calibration 3
Watch display. When completed successfully..... You will see for approximately 5 minutes:	**You Will See:**	Calibrate Xmsn Valve Xmsn Calibration 4
Watch display. When completed successfully.....	**You Will See:**	Calibrations Calibrate Xmsn Valve
Perform Proc_Cal_003: Save and Exit.		

Proc_Cal_019: Mazda LP and Gas Accelerator Pedal Adjustment

REQUIRED TOOLS

LPG:

- 13mm Open-End Wrench

Gas:

- #3 Phillips Head Screwdriver
- 10mm Open-End Wrench
- 13mm Open-End Wrench

WHEN TO PERFORM

Perform when adjusting or first installing an accelerator pedal assembly on fork trucks equipped with the Mazda LP and Mazda gas engines and electronic control transmission.

CALIBRATION ORDER

1. Proc_Cal_001

2. Proc_Cal_019

WHY PERFORM

Sets the lost motion in the throttle assembly for the proper operation of the clutch pack braking and inching functions.

HOW TO PERFORM

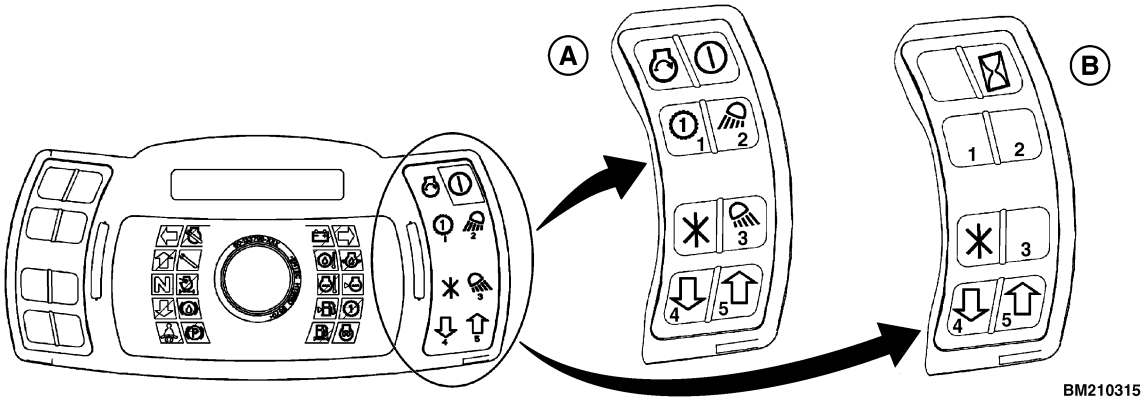
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 21 for the procedures on how to perform Proc_Cal_019: Mazda LP and Gas Accelerator Pedal Adjustment.

Table 21. Proc_Cal_019: Mazda LP and Gas Accelerator Pedal Adjustment



A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Perform: Proc_Cal_001 Service Password Entry.

Action: Ignition switch **ON**.		

Table 21. Proc_Cal_019: Mazda LP and Gas Accelerator Pedal Adjustment (Continued)

Action: Transmission in neutral.		
Action: Park brake applied.	**You Will See:**	Main Menu Passwords
Step 1: Press ⇧ or ⇩	**Until You See:**	Main Menu Calibrations
Step 2: Press * One Time	**You Will See:**	Calibrations Lift Valve Output
Step 3: Press ⇧ or ⇩	**Until You See:**	Calibrations Accelerator Pedal
Step 4: Press * One Time	**You Will See:**	Accel Pedal xx% Xxx RPM
Information: Top line will show numbers for percent of pedal travel. Bottom line is engine RPM.		
Action 1: With the engine warm (80°C (176°F) minimum coolant temperature) and at idle, slowly press the throttle pedal until the engine RPM reaches 850. The accelerator pedal value should be between 22 and 27 percent.	**You Will See:**	Accel Pedal 25% 850 RPM
Action 2 (LPG) : If this value is below 22 percent, then adjust slack into the cable by adjusting the nuts on the engine throttle cable bracket. If the value is above 27 percent, remove the slack in the cable by adjusting the same nuts. If there is not enough adjustment, verify that the bell crank to cowl clearance is correct. When adjustment is complete, tighten throttle cable adjusting screws to 8 to 15 N•m (6 to 11 lbf ft). Refer to the **Frame** section for your lift truck for complete adjustment procedures.		
Action 2 (Gas) : If this value is below 22 percent, increase the clearance between the bellcrank screw and the bellcrank follower by adjusting the bellcrank screw. If the value is above 27 percent, decrease the clearance between the bellcrank screw and the bellcrank follower by adjusting the bellcrank screw. When adjustment is complete, lock the adjusting screw with the jam nut. Refer to the **Frame** section for your lift truck for complete adjustment procedures.		
Action 3: Adjust bumper on the underside of the throttle pedal and tighten jam nut as shown in the **Frame** section for your lift truck.		
Action: Ignition **OFF**.		

Proc_Cal_025: Hydraulic Valve Pressure Gage Installation

WHEN TO PERFORM

Perform whenever any hydraulic calibration items are performed by using the pressure method.

WHY PERFORM

Installation of a pressure gage will allow for the pressure method to be used whenever any hydraulic calibration items are performed.

HOW TO PERFORM

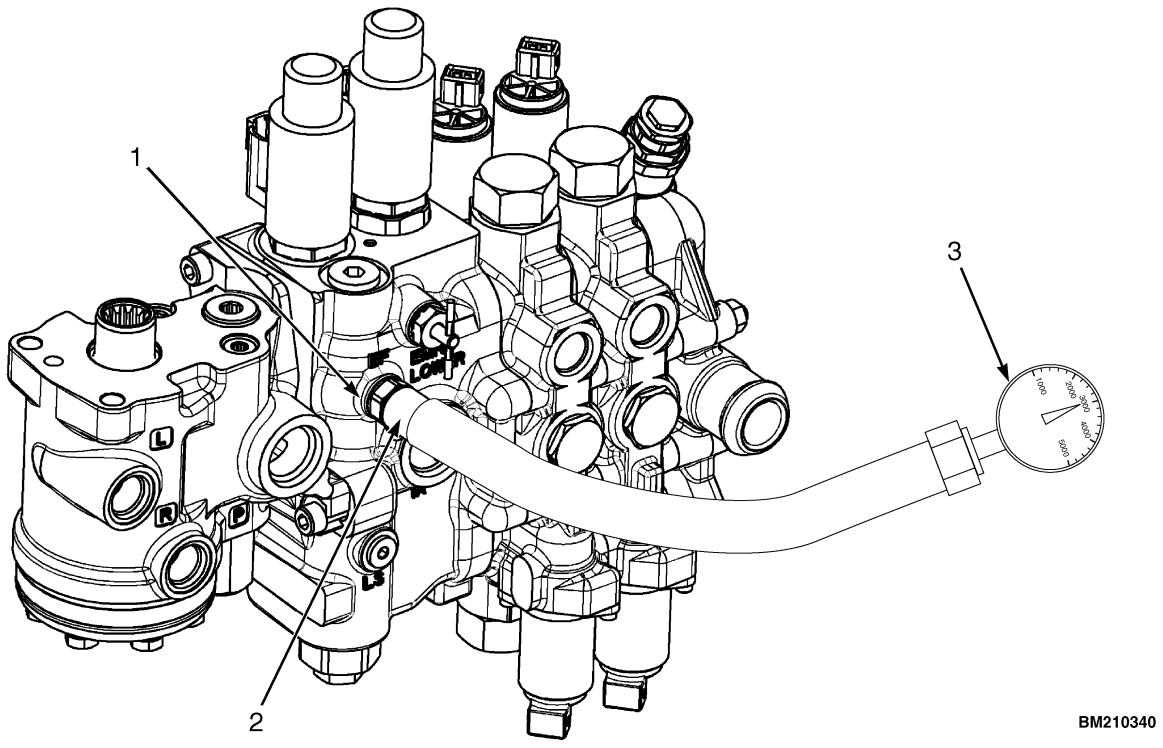
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 22 for the procedures on how to perform Proc_Cal_025: Hydraulic Valve Pressure Gage Installation.

Table 22. Proc_Cal_025: Hydraulic Valve Pressure Gage Installation



1. EF PORT
2. DIAGNOSTIC FITTING
3. PRESSURE GAGE

Table 22. Proc_Cal_025: Hydraulic Valve Pressure Gage Installation (Continued)

Information: "Creep" is defined as the threshold when a function first starts to move very slowly (barely perceptible motion). The identification of this motion is defined as the "visual method." The method that provides more consistent calibration is by monitoring the change in pressure when the function is activated; this is defined as the "pressure method."
Action: With the ignition turned **OFF**, install a 24 MPa (3500 psi) minimum analog pressure gage in the EF Port. (See illustration above.) It is highly recommended to use a small diameter hose (approximately 2 to 3 mm ID) to minimize pressure variation seen at the gage.
Information: It is recommended that the diagnostic fitting installed in the EF Port is used. This fitting is a Parker EMA3/3/7/16-20UNF-2A or HYDAC 06003735. A gage can be connected to this fitting by using a flexible hose (Parker SMA3-200, SMA3-400, SMA3-800, SMA3-2000, SMA3-4000, or equivalent). The alternative is to remove the diagnostic fitting and connect directly to the EF Port; port size: SAE #4 O-ring Port (7/16-20UNF). If this is done, ensure that the fitting is tightened to the torque specified per HC-712, and that the connection is leak-free after the calibrations are completed and the gage is removed. Preceding procedure is the same for lift trucks equipped with OPS solenoids.

Proc_Cal_026: Travel Speed Calibration

WHEN TO PERFORM

For trucks with electronic or enhanced electronic transmissions that perform advanced functions, perform the calibration process whenever changing the drive tire size or if the truck travel speed diagnostic display is not reading correctly.

CALIBRATION ORDER

No prior calibration required.

WHY PERFORM

Advanced function transmission control decisions are based on travel speed. The VSM needs accurate travel speed information for advanced functions such as enhanced power reversals, auto-decel, and travel speed limiting, to work correctly.

HOW TO PERFORM

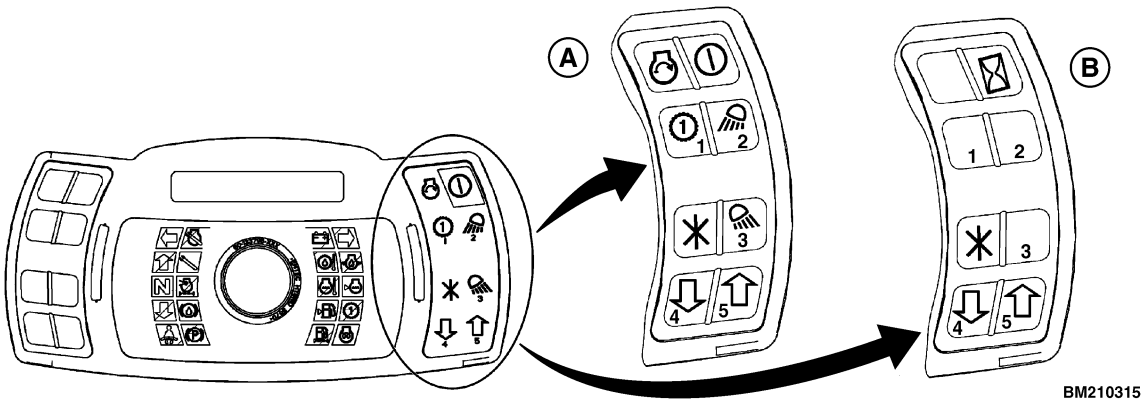
WARNING

Keep yourself and all others clear of the lift mechanism. Never allow anyone under or on the forks.

Never put hands, arms, head, or legs through the mast or near the carriage or lift chains. This warning applies not only to the operator but also the helper. A helper must not be near the load or the lift mechanism while the operator is attempting to handle a load. The lift mechanism has moving parts with close clearances that can cause serious injury.

Refer to Table 23 for the procedures on how to perform Proc_Cal_026: Travel Speed Calibration.

Table 23. Proc_Cal_026: Travel Speed Calibration



A. TYPICAL DISPLAY WITHOUT KEY, WITH OPTIONS
B. TYPICAL DISPLAY WITH KEY, WITHOUT OPTIONS

Action 1: Make two marks 15 m (50 ft) apart on level ground.

Action 2: Drive truck up to the first mark. Be sure to choose a reference point on the truck to line up with the mark on the ground. Also be sure that the steer tires are aligned straight ahead.

Action 3: Shut the engine **OFF** and enter the service password in the dash.

Action 4: Start the engine.

Action 5: Scroll to the Calibrations Menu and press *.

Action 6: Scroll to the Travel Speed Sensor and press *.

Action 7: Press * when ready to begin.

Action 8: Drive to the second mark (15 m (50 ft), stopping when the reference point you made lines up with the 15 m (50 ft) mark. Be sure to drive straight as possible. Travel speed will not have any affect on the outcome of the calibration.

Action 9: Press *.

Action 10: The display should say "Save and Exit" if the calibration process was performed properly.

Action 11: Press * twice to save the calibration.

Verification: Access the speed indicator by using the ⇧ or ⇩, or by performing **Action 12** through **Action 15**.

Action 12: Press *.

Action 13: Scroll to the Diagnostics Menu and press *.

Action 14: Scroll to the XMSN/Brake Data Disp Menu and press *.

Action 15: Scroll to Travel Speed Sensor Menu and press *.

Drive the truck at top speed and verify that the top speed agrees with the model truck within ±1.61 km/h (±1 mph).

NOTE: The travel speed diagnostic display in 1.61 km/h (1 mph) increments. Any speed between whole numbers is always rounded down to the nearest whole number.