Service Manual

Millennium 2 NL

DOT — Public Use Lift

"DOT — Public Use Lift" verifies that this platform lift meets the "public use lift" requirements of FMVSS No. 403. This lift may be installed on all vehicles appropriate for the size and weight of the lift, but must be installed on buses, school buses, and multi-purpose passenger vehicles other than motor homes with a gross vehicle weight rating (GVWR) that exceeds 4,536 kg (10,000 lb).

Manufacturing Revision Level: Rev. **D**

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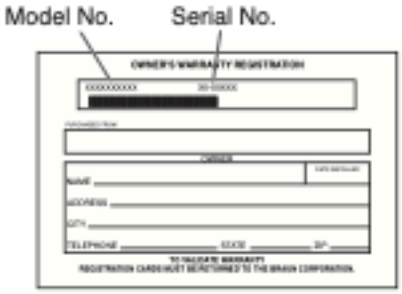
Warranty and Registration Instructions

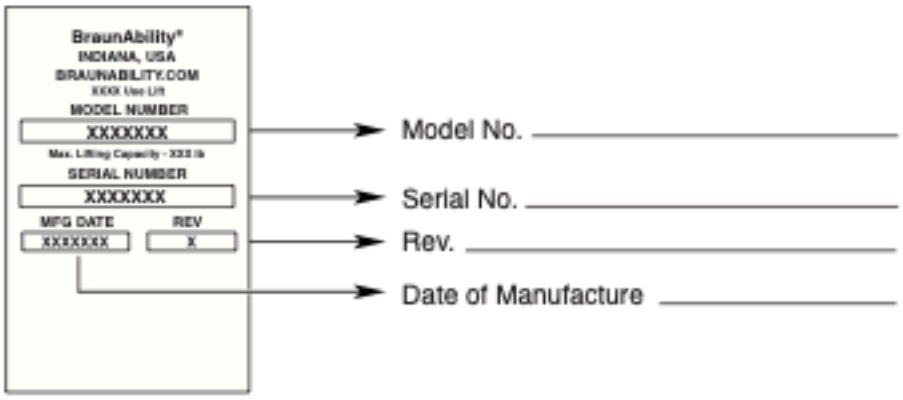
Immediately upon receiving the lift, examine the unit for any damage. Notify the carrier at once with any claims.

Two warranty/registration cards (shown right) are located in the lift-mounted manual storage pouch. The sales representative must process one of the cards. The consumer must fill out the other card and mail it to BraunAbility®. The warranty is provided in this manual. The warranty cards must be processed to activate the warranty.



Sample Warranty/Registration Card

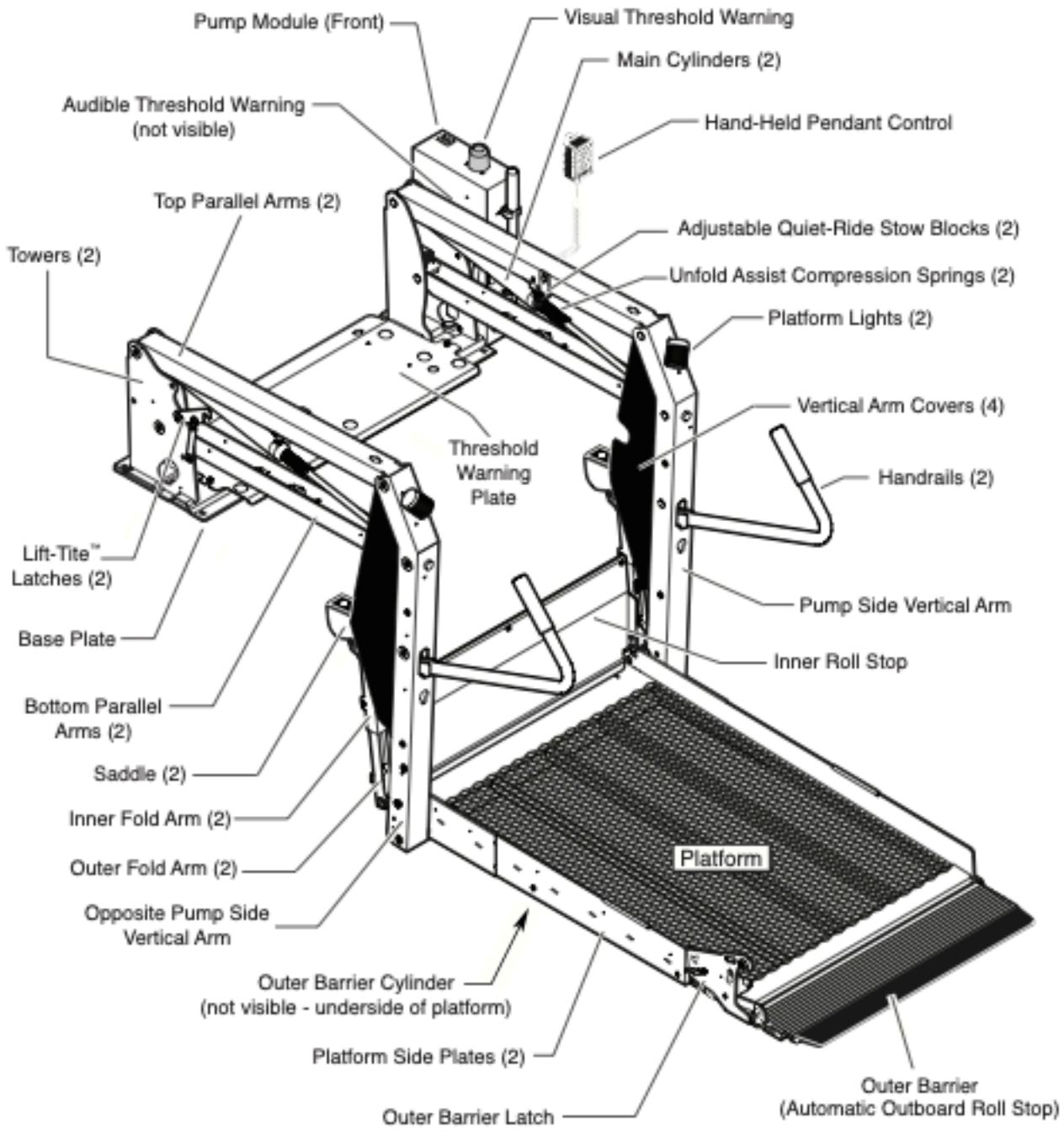
Two BraunAbility® Serial No. identification tags (shown below) are posted on the lift. One I.D. tag is posted on the opposite pump side vertical arm. A second I.D. tag is located on the opposite pump side tower. Both I.D. tags provide the product identification information provided on the warranty/ registration card. Record the information in the space provided (or document on a copy). This information must be provided when filing a warranty claim or ordering parts.

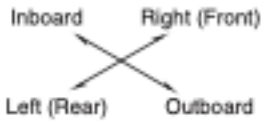


Sample Serial Number Identification Tag

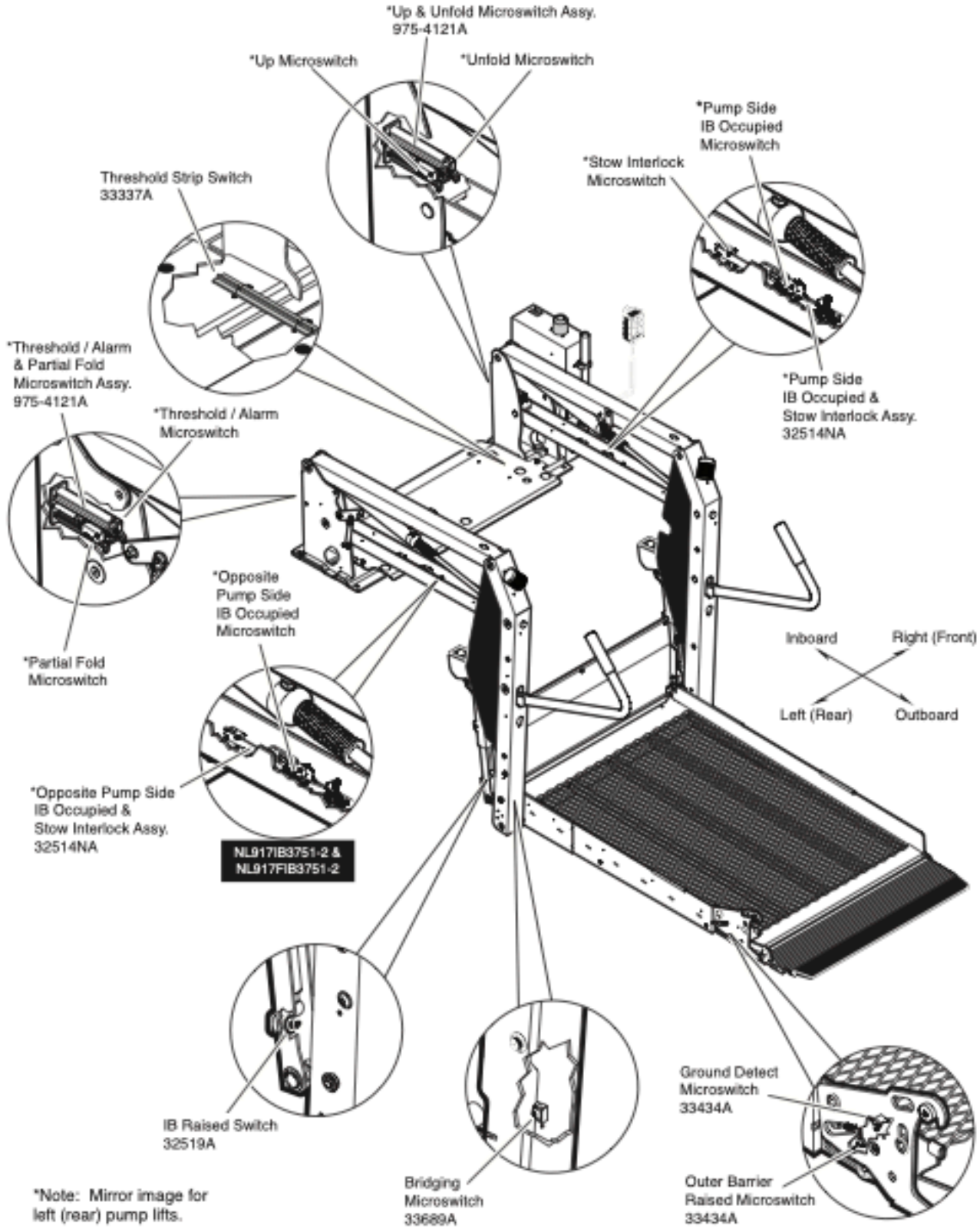
Contents

Lift Terminology





Switch and Sensor Locations



*Note: Mirror image for left (rear) pump lifts.

Certification Checklist Diagnostic Procedures

The following operations and conditions must be functionally verified in order for the lift to be FMVSS 403/404 compliant. If an operation does not function as described or a condition is not met, follow the referenced procedures to correct the problem or contact a BraunAbility Aftersales representative.

• Vehicle movement is prevented unless the lift door is closed, ensuring the lift is stowed.

1. Verify on the pump module mounted interlock connecter that the lift stowed signal - pin 9 has a ground signal OR lift not stowed signal - pin 5 has an open signal (depends on interlock used).
2. Refer to the interlock installation instructions.

• Lift operation shall be prevented unless the vehicle is stopped and vehicle movement is prevented.

1. Verify vehicle secure signal (pin 6) has a +12 volt signal.
2. Refer to the interlock installation instructions.

• The platform will not fold/stow if occupied.

- Refer to Platform Fold Pressure Adjustment procedures.

• The inner roll stop will not raise if occupied.

- Call BraunAbility Aftersales

• The outer barrier will not raise if occupied.

- Refer to Outer Barrier Fold Pressure Adjustment procedures.

• Verify platform lighting when lift is deployed and pendant illumination when lift is powered.

1. Replace bulb(s) in the light housing.

• A warning will activate if the threshold area is occupied when the platform is at least 1" below floor level.

1. Remove the threshold warning plate.
2. Verify the threshold strip switch connector is securely connected.
3. Reinstall threshold warning plate.
4. Test threshold warning (push down on plate). If warning is not activated, see Step 5.
5. Remove the threshold warning plate and replace non-functioning threshold switch.
6. Repeat Step 4. If warning is still not activated, call BraunAbility Aftersales.

• Platform movement is prohibited beyond the position where the inner roll stop is fully deployed (up).

- Call BraunAbility Aftersales.

• Platform movement shall be interrupted unless the outer barrier is deployed (up).

- Call BraunAbility Aftersales.

Platform Fold Pressure Adjustment

1. See Tower 4 (Fold) Switch Adjustment in the Tower Microswitch Adjustment section for proper microswitch setting before adjusting the platform fold pressure.
2. Position the platform at the floor level loading position.
3. Loosen the hex nut on the adjustment screw (do not remove hex nut).
4. Turn the adjustment screw counter clockwise until the platform does not fold when the Fold button is pressed.
5. Turn the adjustment screw clockwise in 1/4 turn increments and press the Fold button until the platform folds completely. Note: Return the platform to floor level position after each attempt to fold the platform.
6. Turn the adjustment screw an additional 1/8 turn after the platform folds successfully.
7. Tighten the hex nut without moving the adjustment screw.
8. Verify the platform will not stow while occupied.

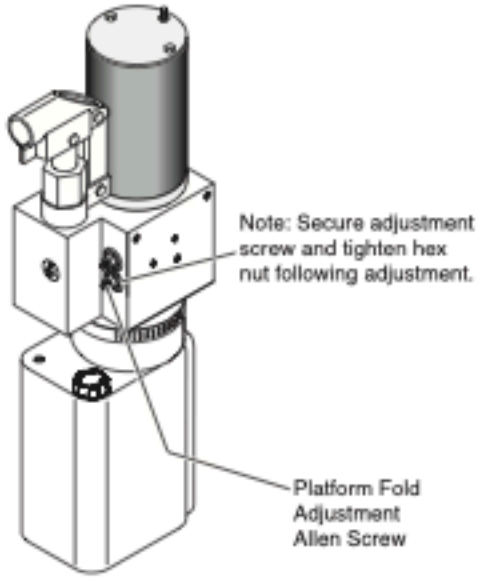


Figure A

Outer Barrier Fold Pressure Adjustment

1. Lower the platform to the ground level loading position.
2. Loosen the hex nut on the adjustment screw (do not remove hex nut).
3. Turn the adjustment screw counter clockwise until the outer barrier does not raise when the Up button is pressed.
4. Turn the adjustment screw clockwise in 1/4 turn increments until the outer barrier raises and fully locks in position when the Up button is pressed.
5. Turn the adjustment screw an additional 1/8 turn after the outer barrier folds successfully.
6. Tighten the hex nut without moving the adjustment screw.
7. Verify the outer barrier will not raise when occupied.

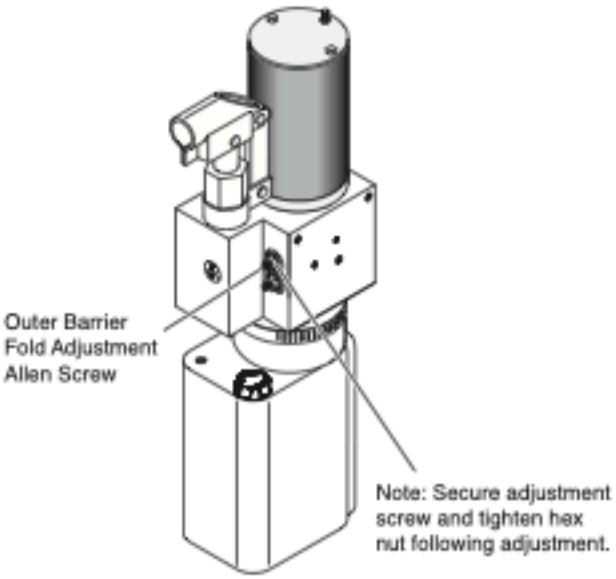


Figure B

Platform Angle Adjustment

Lowering Sequence Requirements

1. The outboard end (toe) of the platform must contact the ground first to ensure the spring-loaded outer barrier unfolds fully. See Figure C.

2. The inboard end (heel) of the platform must lower fully (vertical arms must contact ground when fully lowered). See Figure C.

The angle of the platform at ground level directly affects the angle of the platform when positioned at floor level.

Raise the platform to floor level. Note the angle of the platform.

The platform at floor level should have a slight upward angle as shown in Figure D.

Adjust platform angle as detailed below.

Figure C

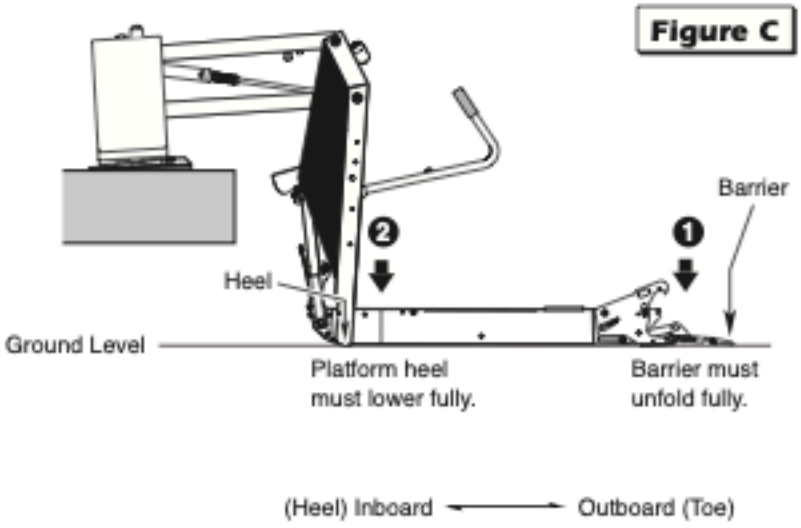
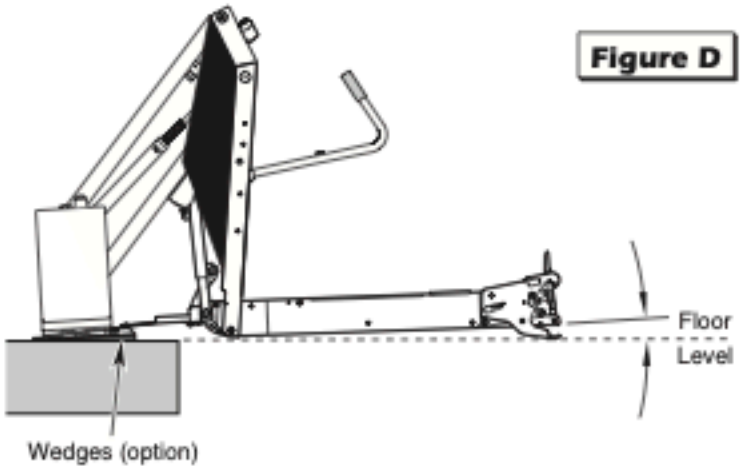


Figure D



Adjustment Procedure:

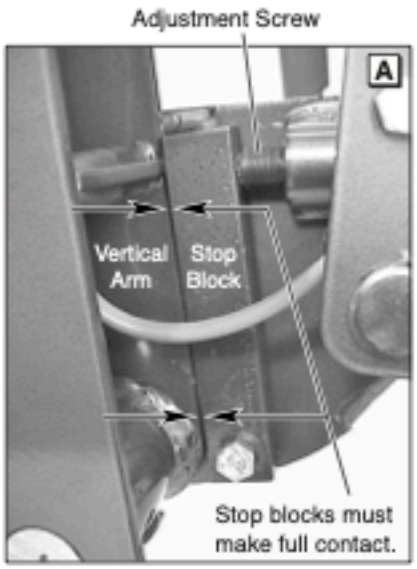
Platform angle adjustment Allen screws are provided on each side of the platform (see photo at right and details on following page).

Turn adjustment screws clockwise to raise the outboard end of the platform. Turn adjustment screws counterclockwise to lower the outboard end of the platform.

Both adjustment screws must be adjusted equally. Apply Loctite® to adjustment screws following adjustment.

Platform Stop Blocks: When adjusting platform angle, ensure both stop blocks are making full contact with the vertical arms (see photo at right and details on following page).

Floor Level Adjustment: Following platform angle adjustment, set platform floor level positioning as detailed in Tower Microswitch Adjustment.



Platform Angle Adjustment

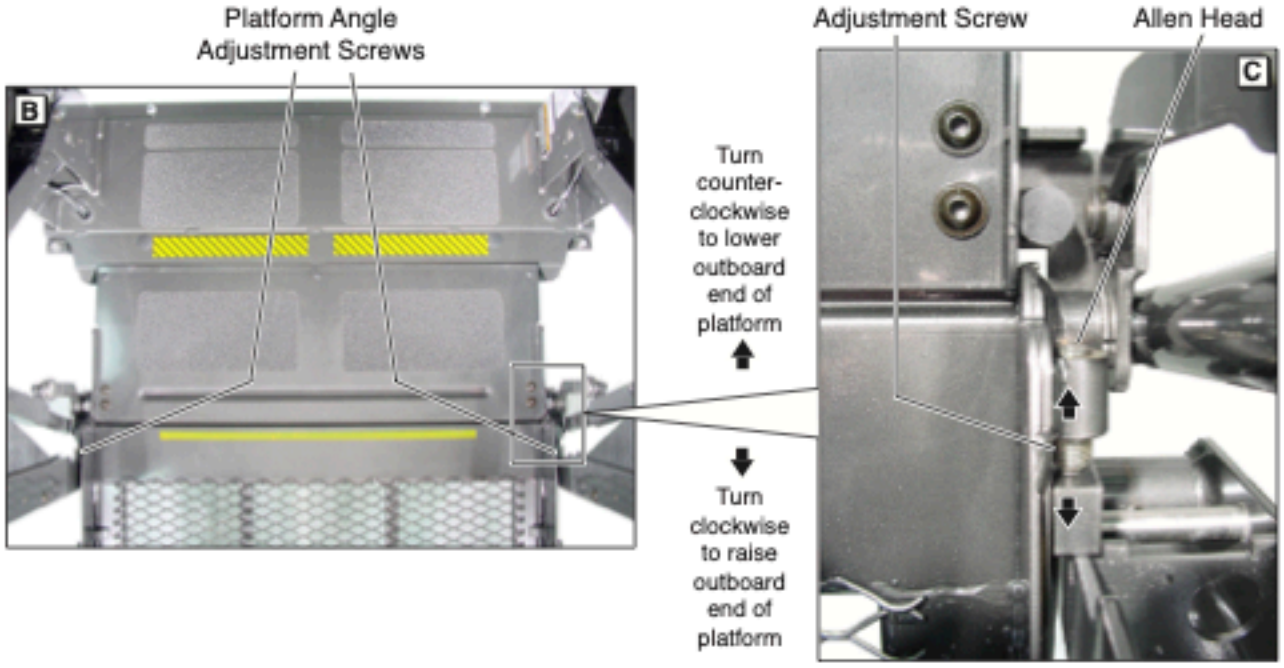
Adjustment Allen screws are provided on each side of the lift platform for adjusting the platform angle. Adjust platform angle as specified on previous page.

To raise the outboard end of platform - turn adjustment screw clockwise.

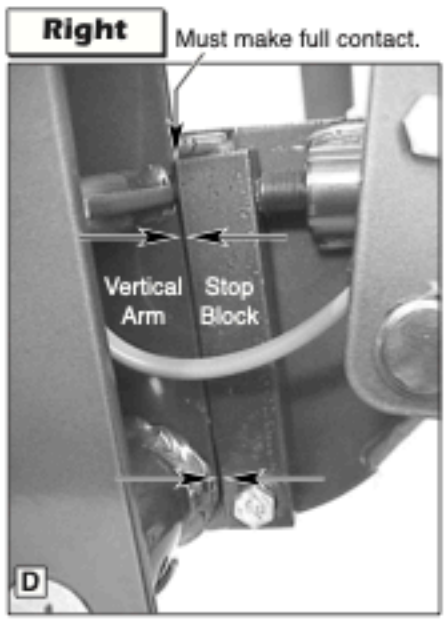
To lower the outboard end of platform - turn adjustment screw counterclockwise.

Note: Both adjustment screws must be adjusted equally.

Apply Loctite® to adjustment screws following adjustment.



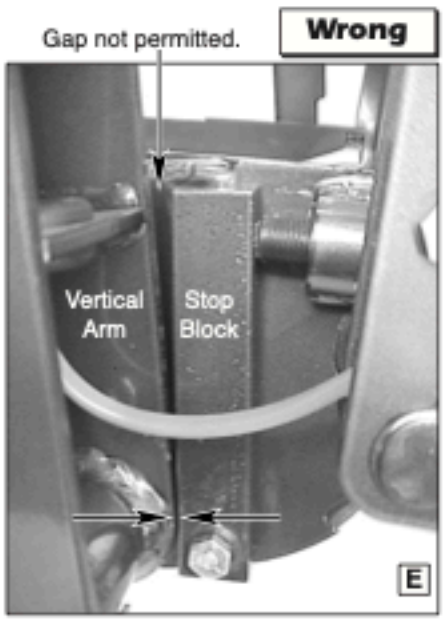
Platform Stop Blocks



Stop Block Guideline
All Lift Models

Both stop blocks must make full contact with the edge of vertical arms.

When adjusting platform angle, setting floor level position or adjusting bridging microswitch - ensure both stop blocks are making full contact with the vertical arms.



Tower Microswitch Adjustment

Figure E

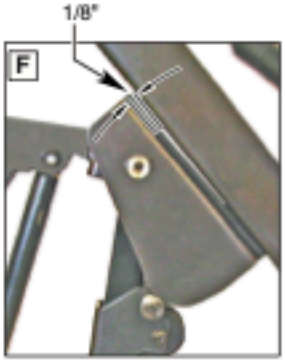
Note: Review adjustment procedures below and adjust as needed only.

Note: Left (rear) pump lift depicted. Right (front) pump lift is a mirrored image.

Tower 1 (Unfold) Switch Adjustment
Floor Position from Stow

1. Position platform at the fully stowed position using the manual hand pump or pendant control.
2. Turn switch adjustment screw clockwise 3 full turns.
3. Press pendant UNFOLD switch (continue pressing switch until platform stops unfolding).
4. When platform stops unfolding, turn switch adjustment screw counterclockwise while pressing the pendant UNFOLD switch. Platform position will change. Repeat adjustment until criteria below is met.

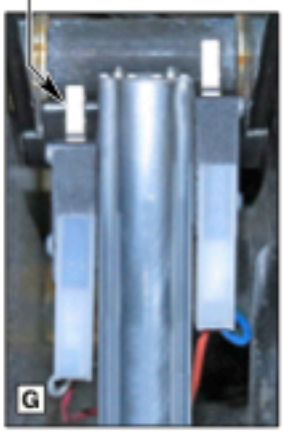
Proper Adjustment Criteria:
- Bridge plate should just rest on threshold plate (base plate).
- Should be an approximate 1/8˝ clearance between outboard end of rotating pivot slide arm saddle and the lower parallel arm. See Photo F.



Tower 2 (Up) Switch Adjustment
Floor Position from Below Floor

1. Lower platform a minimum of 6˝ below floor level position using the manual hand pump or pendant control.
2. Turn switch adjustment screw counterclockwise 3 full turns.
3. Press pendant UP switch (continue pressing switch until platform stops).
4. When platform stops, turn switch adjustment screw clockwise while pressing the pendant UP switch. Platform position will change. Adjust platform to meet criteria listed for Tower 1 Switch "Proper Adjustment Criteria".

Radius of Tower 4 Microswitch Blade activated by Apex of Activation Plate.



Tower 3 (Alarm) Switch Adjustment
Threshold Alarm Switch

1. Position platform at the fully raised (floor level) position using the pendant control.
2. Place pressure on the threshold warning plate (base plate). Continue applying pressure to threshold plate and turn switch adjustment screw clockwise until alarm sounds. If alarm sounds when pressure is first applied go to Step 3.
3. Continue applying pressure to threshold plate and slowly turn switch adjustment screw counterclockwise until the alarm stops sounding.

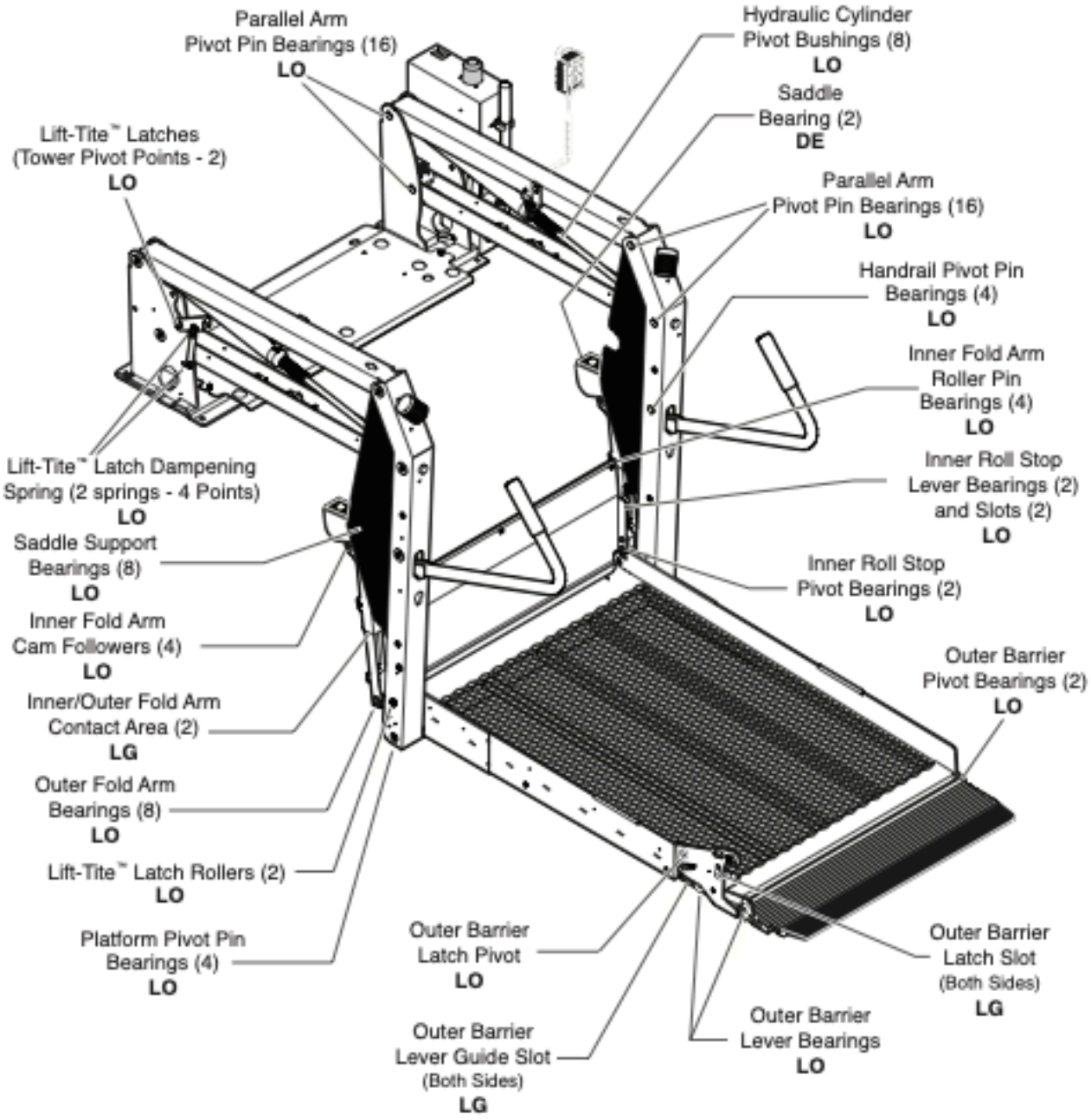
Tower 4 (Fold) Switch Adjustment
Partial Fold

1. Position platform at 45˚ angle using the manual hand pump or pendant control.
2. View the Tower 4 microswitch inside the lift tower (see Photo G). Turn the switch adjustment screw in or out as needed until the radius of the microswitch blade rides on the apex of the activation plate.
3. Verify proper adjustment. Criteria below must be met.

Proper Adjustment Criteria:
- Apply pressure (push down) on outboard end of platform by pressing the hand pendant FOLD switch. The platform should not fold (stow) with light pressure applied.
- When folding fully, the platform should stow tightly (snug with stow blocks).

Maintenance and Lubrication

Lubrication Diagram



See the Maintenance/Lubrication Schedule for recommended applications per number of cycles.

Lubricant	Type	Specified (recommended) Lubricant	Available Amount	BraunAbility Part No.
LO - Light Oil	Light Penetrating Oil (30 Weight or equivalent)	LPS2, General Purpose Penetrating Oil	16 oz. Aerosol Can	15807
DE - Door-Ease	Stainless Stick Style (tube)	Door-Ease Stick (tube)	1.68 oz.	15806
LG - Light Grease	Light Grease (Multipurpose)	Lubriplate	14 oz. Can	15805

Maintenance and Lubrication Schedule

Proper maintenance is necessary to ensure safe, trouble-free operation. Inspecting the lift for any wear, damage or other abnormal conditions should be a part of the transit agency daily service program. Simple inspections can detect potential problems.

The maintenance and lubrication procedures specified in this schedule must be performed by a BraunAbility authorized service representative at the scheduled intervals according to the number of cycles.

BraunAbility dual parallel arm lifts are equipped with hardened pins and self-lubricating bushings to decrease wear, provide smooth operation and extend the service life of the lift.

When servicing the lift at the recommended intervals, inspection and lubrication procedures specified in the previous sections should be repeated. Clean components and the surrounding area before applying lubricants. LPS2 General Purpose Penetrating Oil is recommended where Light Oil is called out. Use of improper lubricants can attract dirt or other contaminants which could result in wear or damage to the components. Platform components exposed to contaminants when lowered to the ground may require extra attention.

Lift components requiring grease are lubricated during assembly procedures. When these components are replaced, grease must be applied during installation procedures. Specified lubricants are available from BraunAbility (part numbers provided on previous page).

⚠WARNING

Maintenance and lubrication procedures must be performed as specified by an authorized service technician. Failure to do so may result in serious bodily injury and/or property damage.

All listed inspection, lubrication and maintenance procedures should be repeated at 750 cycle intervals following the scheduled 4500 cycle maintenance procedures. These intervals are a general guideline for scheduling maintenance procedures and will vary according to lift use and conditions. Lifts exposed to severe conditions (weather, environment, contamination, heavy usage, etc.) may require inspection and maintenance procedures to be performed more often than specified.

Cycle Counter: NL-2 Series lift models are equipped with a cycle counter located on the top of the pump module. This cycle counter allows the lift attendant/operator to easily track the number of cycles during daily inspections of the lift.

Discontinue lift use immediately if maintenance and lubrication procedures are not properly performed, or if there is any sign of wear, damage or improper operation. Contact your sales representative or call BraunAbility at 1-800-946-7513. One of our Aftersales representatives will direct you to an authorized service technician who will inspect your lift.

750 Cycles	Outer barrier pivot points (2)	Apply Light Oil - See Lubrication Diagram
	Outer barrier latch pivot point	Apply Light Oil - See Lubrication Diagram
	Outer barrier latch slot	Apply Light Grease to both sides of slot. See Lubrication diagram
	Outer barrier lever bearings (2)	Apply Light Oil - See Lubrication Diagram
	Lift-Tite™ latches (tower pivot points - 2)	Apply Light Oil - See Lubrication Diagram
	Lift-Tite™ latch gas (dampening) spring pivot points (2 springs - 4 points)	Apply Light Oil - See Lubrication Diagram
	Inspect Lift-Tite™ latches and gas springs for wear or damage (bent, deformed or misaligned), positive securement (lock nuts / external snap rings) and proper operation	Resecure, replace damaged parts or otherwise correct as needed. Note: Apply Light Grease to Lift-Tite™ latch tower pivot point if replacing latch.
	Inspect outer barrier for proper operation	Correct or replace damaged parts.
	Inspect outer barrier latch for proper operation, positive securement, and detached or missing spring	Correct or replace damaged parts and/or relubricate. See Lubrication Diagram
	Adjust fold pressure and outer barrier fold pressure	See Platfold Fold Pressure Adjustment and Outer Barrier Fold Pressure Adjustment

continued

Maintenance and Lubrication Schedule

750 Cycles	Verify FMVSS 403 / 404 Certification Checklist	See Certification Checklist Diagnostic Procedures
	Inspect lift for wear, damage or any abnormal condition	Correct as needed.
	Inspect lift for rattles	Correct as needed.
	Check roll stop cylinder for leaks	Place platform at floor level and remove drain plug from roll stop cylinder overflow chamber. If fluid is found, check again at 1,500 cycles, otherwise, check at 4,500 cycles. If the amount of fluid increases between inspections, the cylinder will need to be replaced.

1500 Cycles	**Perform all procedures listed in previous section also**	
	Inner/outer fold arms (2)	Apply grease (synthetic) to contact areas between inner/outer fold arms. See Lubrication Diagram
	Platform pivot pin bearings (4)	Apply Light Oil - See Lubrication Diagram
	Outer fold arm bearings (8)	Apply Light Oil - See Lubrication Diagram
	Inner roll stop pivot bearings (2)	Apply Light Oil - See Lubrication Diagram
	Inner roll stop lever bearings (2)	Apply Light Oil - See Lubrication Diagram
	Inner roll stop lever slot (2)	Apply Light Oil - See Lubrication Diagram
	Saddle support bearings (8)	Apply Light Oil - See Lubrication Diagram
	Inner fold arm roller pin bearings (4)	Apply Light Oil - See Lubrication Diagram
	Inner fold arm cam followers (4)	Apply Light Oil - See Lubrication Diagram
	Parallel arm pivot pin bearings (16)	Apply Light Oil - See Lubrication Diagram
	Handrail pivot pin bearings (4)	Apply Light Oil - See Lubrication Diagram
	Hydraulic cylinder pivot bushings (8)	Apply Light Oil - See Lubrication Diagram
	Outer barrier lever guide slot	Apply Light Grease to both sides of slot. See Lubrication Diagram
	Inspect Lift-Tite™ latch rollers for wear or damage, positive securement and proper operation (2)	Correct, replace damaged parts and/or relubricate.
	Inspect inner roll stop for: • Wear or damage • Proper operation. Roll stop should just rest on top surface of the threshold plate. • Positive securement (both ends)	Resecure, replace or correct as needed. See Platform Angle Instructions and Tower Microswitch Adjustment Instructions.
	Inspect handrail components for wear or damage, and for proper operation	Replace damaged parts.
	Inspect microswitches for securement and proper adjustment.	Resecure, replace or adjust as needed. See Microswitch Adjustment Instructions.
	Make sure lift operates smoothly	Realign towers and vertical arms. Lubricate or correct as needed.

continued

Maintenance and Lubrication Schedule

1500 Cycles	Inspect external snap rings: • Outer fold arm (6) • Lift-Tite™ latch roller (2) • Lift-Tite™ latch gas (dampening) spring (4) • Inner fold arm cam followers (4) • Inner fold arm roller pins (4) • Outer barrier hydraulic cylinder mounting pin (2) • Inner roll stop lever bracket pins (2)	Resecure or replace if needed.
	Inspect inner roll stop locks (2) and torsion springs (2) for wear or damage and for proper operation.	Replace damaged parts. Apply Light Oil to inner roll stop lock pivot point.
	Inspect outer fold arm pins (2), axles (2) and bearings (8) for wear or damage and positive securement	Replace damaged parts and resecure as needed. Apply Light Oil.
	Remove pump module cover and inspect: • Hydraulic hoses, fittings and connections for wear or leaks • Harness cables, wires, terminals and connections for securement or damage • Relays, fuses, power switch and lights for securement or damage	Resecure, replace or correct as needed.

4500 Cycles	**Perform all procedures listed in previous section also**	
	Inspect cotter pins on platform pivot pin (2)	Resecure, replace or correct as needed
	Hydraulic Fluid (Pump) - Check level. Note: Fluid should be changed if there is visible contamination. Inspect the hydraulic system (cylinder, hoses, fittings, seals, etc.) for leaks if fluid level is low.	Use BraunAbility 32840-QT (Exxon® Univis HVI 26). Do not mix with Dextron III or other hydraulic fluids. Check fluid level with platform lowered fully. Fill to maximum fluid level indicated on reservoir (specified on decal). Do not overfill. If fliud level decal is not present - measure 1-3/8" from the fill port to locate fluid level.
	Inspect cylinders, fittings and hydraulic connections for wear, damage or leaks	Tighten, repair or replace if needed.
	Inspect outer barrier cylinder hose assembly (hose, fasteners, connections, etc.) for wear, damage or leakage	Tighten, repair or replace if needed.
	Inspect parallel arms, bearings and pivot pins for visible wear or damage	Replace if needed.
	Inspect parallel arm pivot pin mounting bolts (8)	Tighten or replace if needed.
	Inspect platform pivot pins, bearings and vertical arms for wear, damage and positive securement	Replace damaged parts and resecure as needed. Apply Light Grease during reassembly procedures.
	Inspect inner/outer fold arms, saddle, saddle support and associated pivot pins and bearings for visible wear or damage	Replace if needed.
	Inspect gas springs (cylinders - 4) for wear or damage, proper operation and positive securement	Tighten, replace or correct as needed
	Inspect saddle bearing (UHMW - 2)	Apply Door-Ease or replace if needed. See Lubrication Diagram.

continued

Maintenance and Lubrication Schedule

4500 Cycles	Inspect vertical arm plastic covers	Resecure or replace if needed.
	Inspect power cable	Resecure, repair or replace if needed.
	Mounting	Check to see that the lift is securely anchored to the vehicle and there are no loose bolts, broken welds, or stress fractures.
	Decals and Antiskid	Replace decals if worn, missing or illegible. Replace antiskid if worn or missing.

Consecutive 750 Cycle Intervals	Repeat all previously listed inspection, lubrication and maintenance procedures at 750 cycle intervals.

Lift Disposal Procedure	No lift components contain unacceptable amounts of lead, cadmium, mercury, or hexavalent chromium. 1. Lower platform to ground. 2. Open pump module manual relief valve. 3. Disconnect power from lift. 4. Capture and recycle hydraulic fluid. 5. Disassemble lift and recycle components. Refer to exploded views in appropriate service manual.

NOTES

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