



Service Manual for:

NL Millennium Series

Public Use Wheelchair Lifts

Series A1

DOT — Public Use Lift

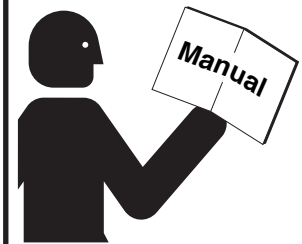
“DOT — Public Use Lift” verifies that this platform lift meets the “public use lift” requirements of FMVSS No. 403. This lift may be installed on all vehicles appropriate for the size and weight of the lift, but must be installed on buses, school buses, and multi-purpose passenger vehicles other than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

THE BRAUN CORPORATION
“Providing Access to the World”[®]

International Corporate Hdqrs: P.O. Box 310 Winamac, IN 46996 USA
1-800-THE LIFT (574) 946-6153 FAX: (574) 946-4670



WARNING



Read manual before installing or servicing lift. Failure to do so may result in serious bodily injury and/or property damage.

Braun NL Series

31668 Rev. A
January
2008

Patent #5,261,779 Patent #6,599,079
Patent #6,065,924 Patent #6,692,217
Patent #6,238,169 Patent #6,739,824
Patent #6,464,447 Patents Pending

Congratulations

We at The Braun Corporation wish to express our fullest appreciation on your new purchase. With you in mind, our skilled craftsmen have designed and assembled the finest lift available.

This manual provides service-related material. Refer to the FMVSS No. 403 Quick Reference Installation Sheet for installation instructions, operating instructions and maintenance procedures.

Braun Millennium Series™ lifts are built for dependability and will provide years of pleasure and independence as long as the lift is installed and serviced as specified by a Braun certified technician, and the lift is operated by an instructed person.

Sincerely,
THE BRAUN CORPORATION



Ralph W. Braun
Chief Executive Officer

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 The Braun Corporation. The warranty is provided on the back cover of this manual. **The warranty cards must be processed to activate the warranty.**

Series No.	Pump Code
Model No.	Serial No.
	Cylinder Code
OWNER'S WARRANTY REGISTRATION	
NL9171B-A1-00025-56-14CG	
PURCHASED FROM _____	
OWNER	
NAME _____	DATE INSTALLED _____
ADDRESS _____	
CITY _____	
TELEPHONE _____	STATE _____ ZIP _____
TO VALIDATE WARRANTY REGISTRATION CARDS MUST BE RETURNED TO THE BRAUN CORPORATION.	

Sample Warranty/Registration Card

Two Braun Serial No./Series 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.**

The Braun Corporation 1-800-THE LIFT™ BRAUNLIFT.COM™	
DOT Public Use Lift MODEL#	
NL9171B	
Max. Lifting Capacity - 800 lbs.	
SERIAL NUMBER	
A1-00025	
PUMP CODE	CYLINDER
56	14CG
MFG DATE	
01/24/05	
CE cS*72/245*95/54*0110*00 <small>PATENT PENDING- 5,261,779-6,065,924-6,238,169-6,46 4,447-6,599,079-6,692,217-6,739,824</small>	

Sample Serial No./Series No. Identification Tag

Model No. _____

Series No. _____

Serial No. _____

Pump Code _____

Cylinder Code _____

Date of Manufacture _____

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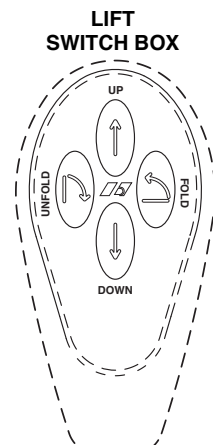
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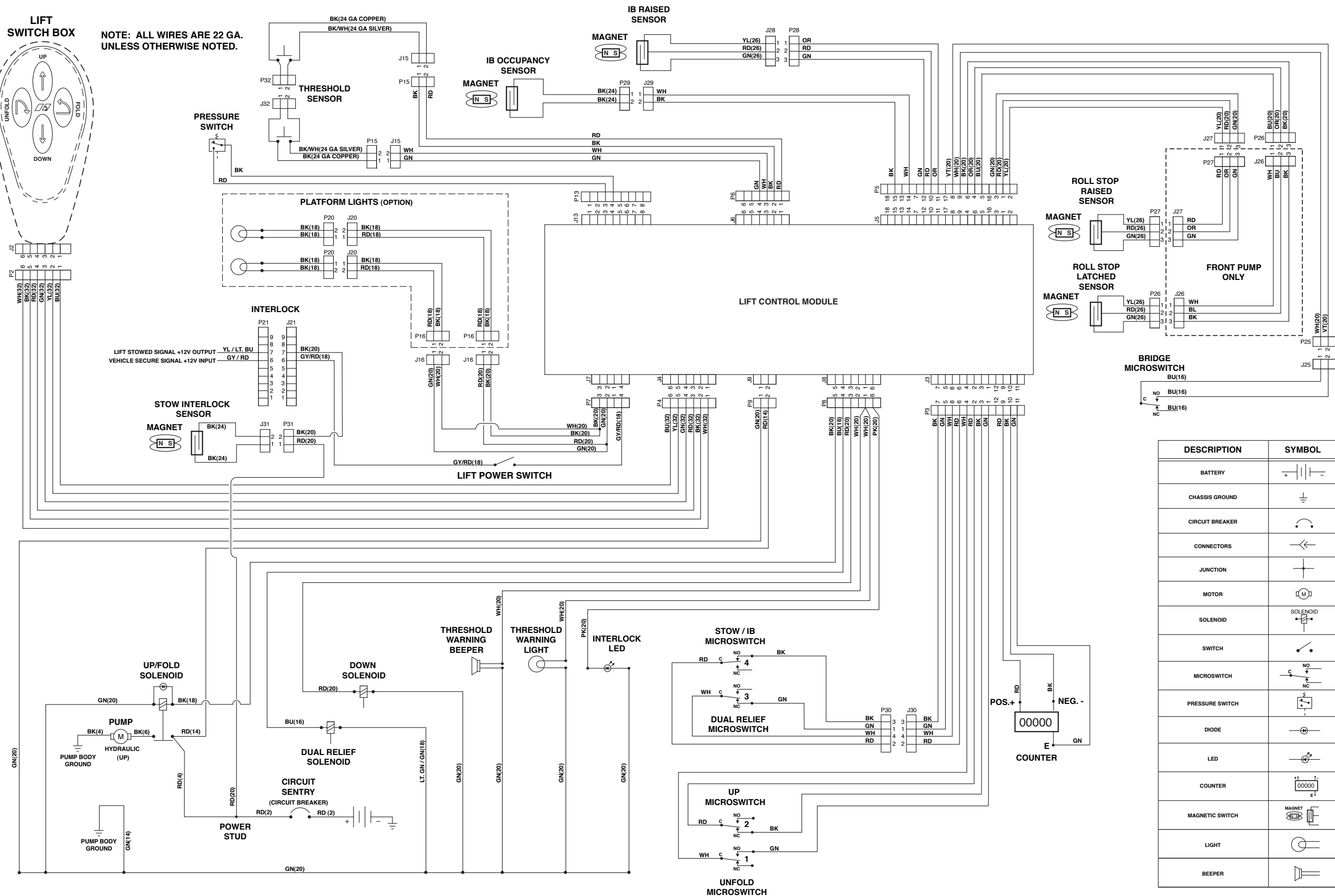
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Lift Electrical Schematic



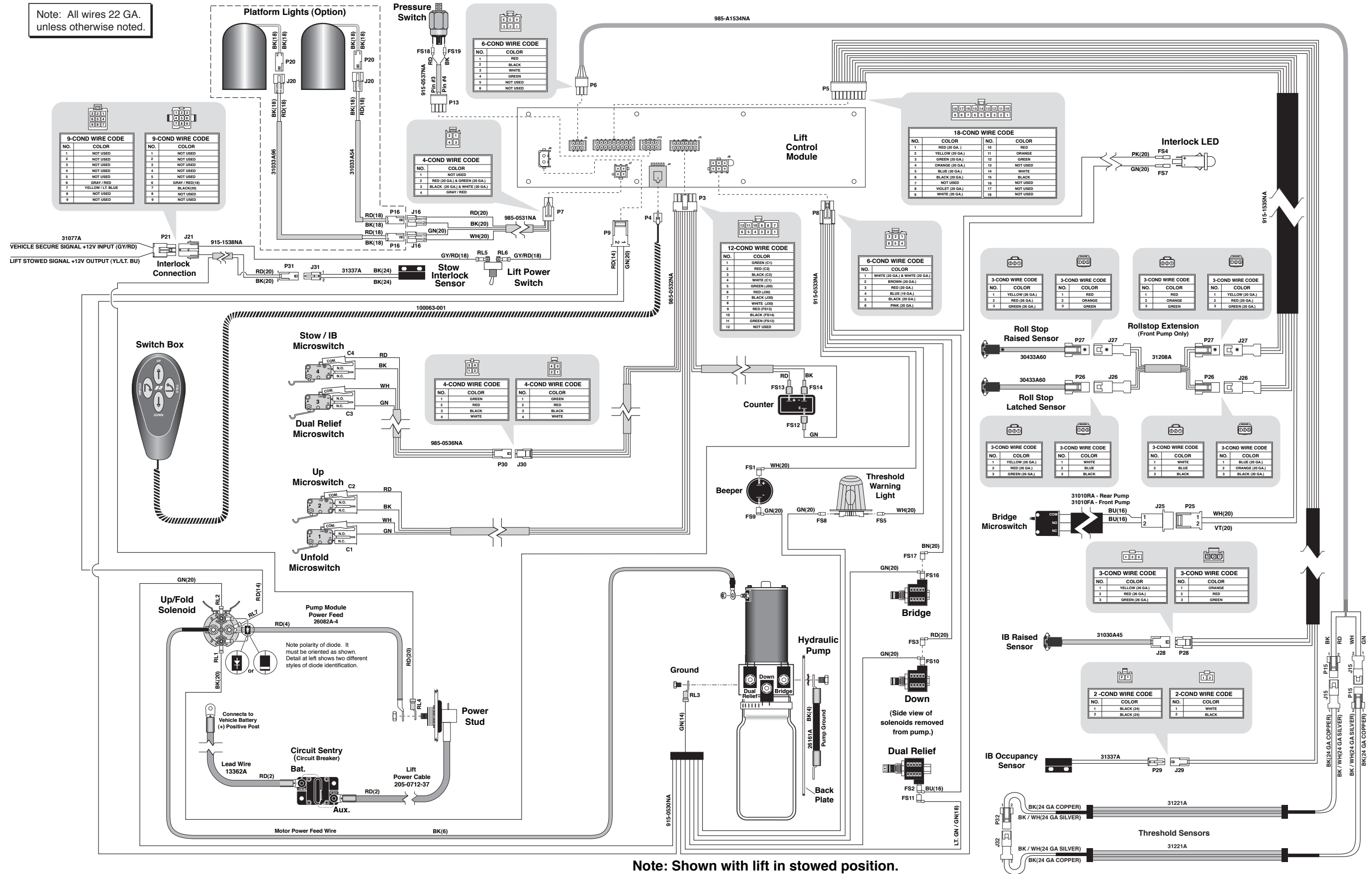
NOTE: ALL WIRES ARE 22 GA. UNLESS OTHERWISE NOTED.



DESCRIPTION	SYMBOL
BATTERY	
CHASSIS GROUND	
CIRCUIT BREAKER	
CONNECTORS	
JUNCTION	
MOTOR	
SOLENOID	
SWITCH	
MICROSWITCH	
PRESSURE SWITCH	
DIODE	
LED	
COUNTER	
MAGNETIC SWITCH	
LIGHT	
BEEPER	

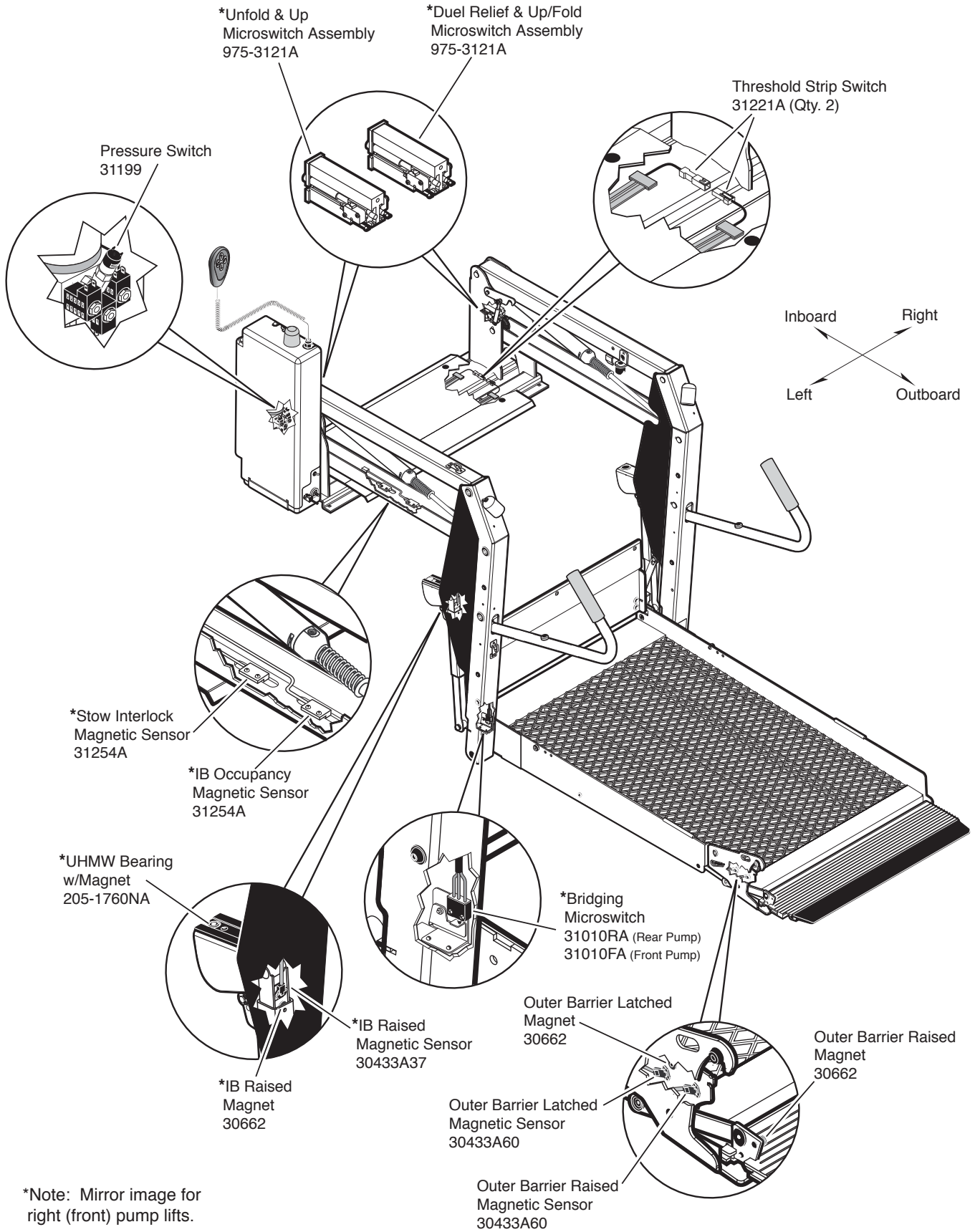
Lift Wiring Diagram

Note: All wires 22 GA. unless otherwise noted.



Note: Shown with lift in stowed position.

Switch and Sensor Locations



LCD Error Codes

Listed below are codes that the lift controller outputs during lift operation. The codes will be displayed on an LCD screen located on the lift control board inside the pump module. See the Manual Operating Instructions in the operator's manual for pump cover removal instructions.

Millennium LCD Error Codes

Non-Flashing Numbers

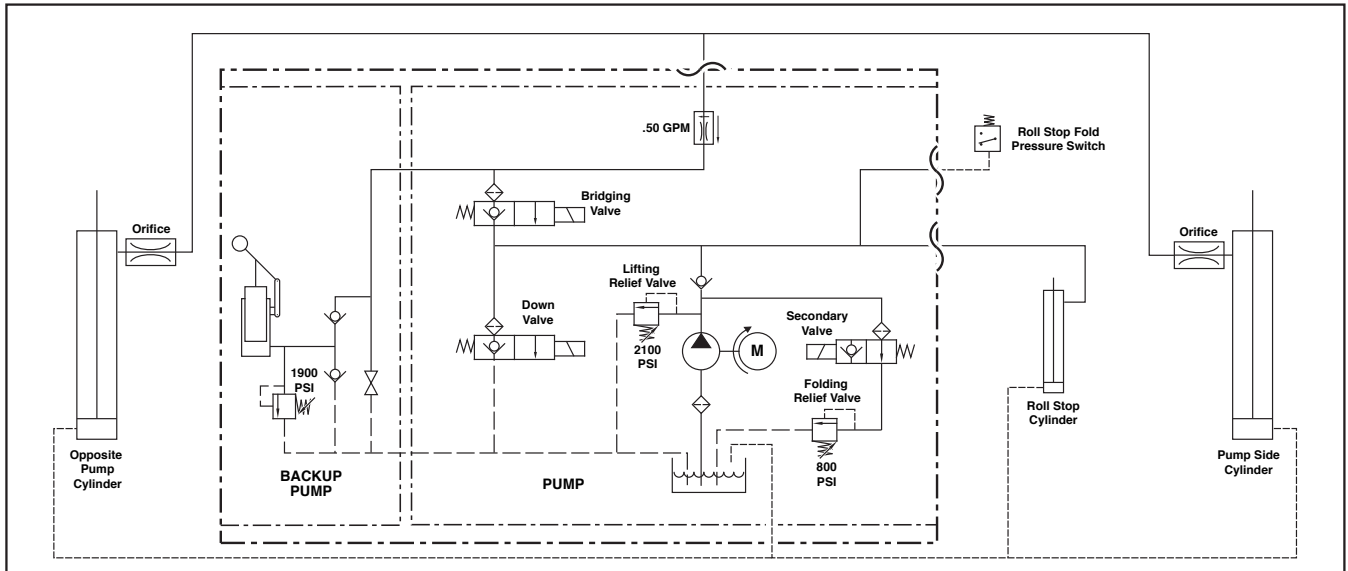
- 01 – Platform Stowed
- 02 – Platform Unfolding
- 03 – Platform Unfolding Paused
- 04 – Platform at Floor Level
- 05 – Platform Beginning to Lower
- 06 – Platform Lowering (Threshold Cannot Be Occupied from this Point Down)
- 07 – Outer Barrier Moving to Horizontal Position
- 08 – Platform at Ground Level
- 09 – Outer Barrier Moving to Vertical Position
- 10 – Platform Raising
- 11 – Platform Raising Paused at Floor
- 12 – Platform Folding (limited pressure)
- 13 – Platform Folding (full pressure)
- 14 – Timed Fold (Cinching Lift Tite) or (Anti-Rattle State)
- 15 – Platform Folding Stopped
- 28 – Illegal Function/Not Defined
- 29 – Interlock Fault Not Recognized
- 30 – Platform Location Unknown
- 31 – Platform Location Transition State; Attempting to Locate Position
- 50 – Outboard Barrier Is Not Up When Tower 4 LED Is Not On
- 51 – Threshold is Occupied When Tower 2 LED Is Not On
- 52 – Inboard Barrier Is Not Up and Locked When Tower 1 and Tower 4 LED's Are On
- 53 – Inboard Barrier Occupied Sensor Is Not Activated When Tower 1 and Tower 2 LED's Are On
- 54 – Outboard Barrier is Occupied Before it is Up

- 55 – Outboard Barrier in Not Up When the Outboard Barrier Latch is Down
- 56 – Outboard Barrier is Not Latched and trying to go down after the hand control button has been released. Must reset by pressing the Up button until the outboard barrier is latched, then press down so the platform goes to the ground level and the outboard barrier is deployed
- 75 – Low Voltage Detected; must turn off power switch to reset LCD
- 77 – Vehicle Secure Interlock has not been activated
- 99 – Controller Program is not Valid; Replace Controller

Flashing Numbers

- Flashing 65 – Unfold button is pressed
- Flashing 66 – Fold button is pressed
- Flashing 67 – Down button is pressed
- Flashing 68 – Up button is pressed
- Flashing 69 – Bridge switch is activated
- Flashing 70 – Outboard barrier latch switch is activated
- Flashing 72 – Outboard barrier up switch is activated
- Flashing 73 – Inboard barrier up switch is activated
- Flashing 74 – Inboard barrier occupied switch is activated
- Flashing 76 – Outboard barrier occupied switch is activated
- Flashing 78 – Threshold tape switch "A" is activated
- Flashing 79 – Threshold tape switch "B" is activated
- Flashing 83 – Tower #1 switch is activated
- Flashing 84 – Tower #2 switch is activated
- Flashing 85 – Tower #3 switch is activated
- Flashing 86 – Tower #4 switch is activated

Hydraulic Schematic



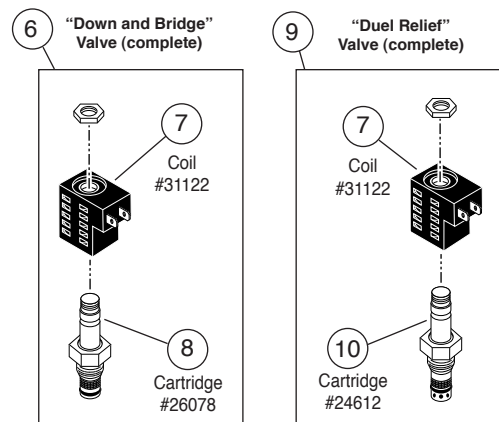
Description	Symbol	Description	Symbol
Fixed Displacement Pump		Hydraulic Port	
Pump Motor		2 Way 2 Position Solenoid Valve	
Backup Pump		Pressure Compensated Flow Control	
Single Acting Cylinder		Relief Valve	
Check Valve		Filter Screen	
Unfold Orifice		Vented Reservoir	
Manual Shutoff Valve		Orifice	
Pressure Switch			

Hydraulics Parts List

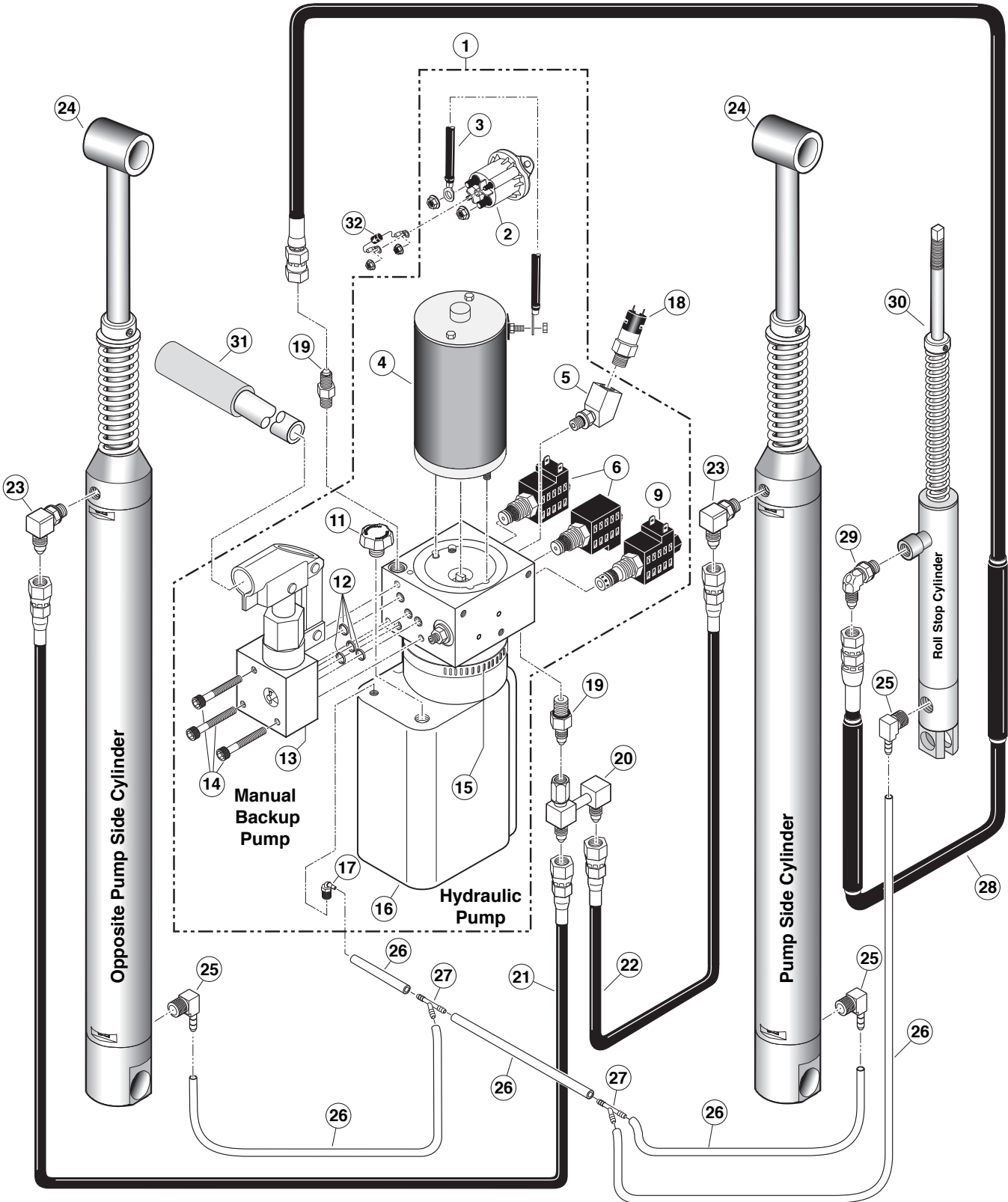
Item	Qty.	Description	Part #
1	1	Pump Assembly (M268-0113)12V - with Reservoir/with Backup Pump	31038-12V
2	1	Solenoid, 4-Post (See Pump Module Exploded View for Solenoid Selection)	
3	1	Power Cable, Up Solenoid to Motor	29049
4	1	Motor, Pump - 12 Volt - Low RPM	31350
5	1	Elbow, 65° - Male 7/16-20 SAE O-Ring to 7/16-20 SAE O-Ring Boss	26578
6	2	Valve Assembly, "Down / Bridge" (complete)	31348K
7	3	Coil (only), "Down / Bridge" Valve - (shown below)	31122
8	2	Cartridge (only), "Down / Bridge" Valve - (shown below)	26078
9	1	Valve Assembly, "Duel Relief" (complete)	31120K
10	1	Cartridge (only), "Duel Relief" Valve - (shown below)	31121
11	1	Cap, Reservoir Filler	16935
12	4	O-Ring (only), Hand Pump Mounting	17351
13	1	Hand Pump (Backup) with O-Rings (Item 12)	26074
14	3	Screw, 1/4-20 x 2-1/4", Allen Head	26080
15	1	Clamp, Reservoir - H-48 (M259)	17069
16	1	Reservoir, Hydraulic Fluid	16934
17	1	Fitting, 90° - 1/8" NPT x 1/8" Barb - Plastic	87563
18	1	Switch, Pressure, 7/16-20 SAE O-Ring Male	31199
19	2	Fitting, Male 7-16-20 SAE O-Ring to Male 7/16-20 JIC 37°	24504
20	1	Elbow, (1) Female 7/16-20 JIC 37 Swivel - (2) Male 7/16-20 JIC 37°	26579
21	1	Hose Assembly, 1/8" (Opposite Pump Side)	16004A-086
22	1	Hose Assembly, 1/8" (Pump Side)	16004A-046
23	2	Elbow, 90°, 7/16-20 SAE O-Ring Male - 7/16-20 JIC 37° Male, Orifice	26667
24	2	Cylinder ▶	C1514.3-9408
25	3	Elbow, 90°, 1/4" NPT Male to 1/4" Barbed	15150
26	1	Hose, Thermal Plastic - Black, 1/8" I.D.	23742R*
27	2	Connector, Plastic "Y", 1/8" O.D.	18877
28	1	Hose Assembly, 3/16" w/Two Guards	915-2601-136
29	1	Fitting, 90° - Male 9/16-18 SAE O-Ring to Male 7/16-20 JIC 37°	87622
30	1	Cylinder, Roll Stop (Contains Items 25 & 30)	25309-05A
31	1	Handle with Grip	17206A
32	1	Diode Assembly, Up Solenoid	73906A

▶ **Seal Kits:** If repairing a cylinder, order Seal Kit #1500-0500P.

* Raw material items ordered and priced per inch (order specified length).



Hydraulics Diagram



Pump Module Parts List

Item	Qty.	Description	Part No.
	1	Pump Module (complete), 12 Volt, Rear	917-A1516RNA
1	1	Pump Assembly (M268-0113) 12V-120G - Dual Relief / ARS (Includes Items 2 & 3)	31038-12V
2	1	Power Cable, Up Solenoid to Motor	29049
3	1	Solenoid, Up - 4-Post - Trombetta	31129
4	1	Diode Assembly, Up Solenoid	73906A
5	4	Nut, #10-32, Serrated Flange	83080
6	2	Fitting, Male 7/16-20 O-Ring to Male 7/16-20 JIC 37°	24504
7	1	Elbow, Female Swivel 7/16-20 JIC 37° to (2) Male 7/16-20 JIC 37°	26579
8	1	Switch, Pressure	31199
9	1	Control, Hand Pendant Assembly - Standard (Includes Items 10-18)	100063-001
10	1	Keypad, Hand Control	30000
11	1	Hand Pendant Case - Front	100027-001
12	1	Seal, Hand Control - Standard	100066-001
13	1	Module, Hand Control	100041-001
14	1	Screw, 10-32 x 1/2", Phillip, Pan Head	82744
15	1	Hand Pendant Case - Rear	100028-001
16	1	Hanger, Round - Hand Control	73793
17	2	Screw, #4-40 x 1/4", Phillip, Pan Head	11480
18	1	Cord, Coiled - 6-Conductor	100044-001
19	1	Shield, Electrical	31304
20	1	Control Board Assembly	100080-001
21	1	Plate, Backing / Mounting - Rear	985-0501RN
22	8	Standoff, Snap-In	31011
23	1	Cover, Pump, 2-Piece - Back (Complete Assembly 915-0513RNA Includes Items 23 - 30)	915-0513RN
24	1	Receptacle, Clip On	28803
25	1	Lens, Threshold Warning - Red	30704
26	1	Decal, Warning / Pressure Relief Valve (Not shown - see Decal Section)	22249
27	1	Spacer, Lens - NHTSA	31386
28	1	Metal Ring Base - Lamp	30971
29	1	Socket, Lamp	30703
30	3	Screw, #8-32 x 1/2" Pan Head Phillips - Thread Cut	30974
31	1	Bulb, Light	19841
32	1	Diode, Green LED, Panel Mount	29545
33	1	Strain Relief - Liquid Tight	30753
34	1	Rivet, Snap, .201" x .217"/.256"	25973
35	2	Washer, 5/16" Flat	10063
36	2	Bolt, 5/16-18 x 3/4", Nylock, Hex * See note below	29608
37	2	Bolt, 5/16-18 x 1/2", Nylock, Hex * See note below	10012
38	1	Cable, Ground	26161A
39	1	Washer, 5/16" External Tooth	16368
40	1	Beeper, Continuous	30487
41	1	Switch, Toggle	12185
42	1	Decal, Lift Power - On/Off (Not shown - see Decal Section)	21494
43	1	Stud, Power Feed	26084
44	1	Rubber Boot, Red ♦See note below	82046
45	1	Harness, Interlock Interface	31077A
46	1	Pump Handle with Grip	17206A
47	1	Cover, Pump - 2-Piece - Top / Front (Complete Assembly 915-0519RNA Includes Items 47 - 59)	915-0519RN
48	3	Rivet, Pop, SD43BS - 1/8" - .13"/.19"	12954
49	1	Plug, Window - Clear	30443
50	1	Stud, Wing Head - 1/4 Turn	28804
51	1	Retainer, Push On	28805
52	1	Washer, Nylon, 1/4" I.D. x 11/16" O.D. x .030"	12690
53	1	Clip, Pump Handle - Top	915-5517
54	1	Clip, Pump Handle - Bottom	915-5518
55	1	Decal, Manual Instructions - Public (Not shown - see Decal Section)	31412
56	1	Decal, Removal / Installation - Pump Cover (Not shown - see Decal Section)	29051
57	1	Decal, Warning - Control Board Damage - ESD (Not shown - see Decal Section)	30787
58	1	Decal, Removal / Installation Pump Handle (Not shown - see Decal Section)	29052
59	1	Decal, Installation & Warning - Hydraulic Pressure Switch (Not shown - see Decal Section)	27154
60	1	Clamp, Hose - Solenoid Mounting	29663
61	1	Ground Wire, Motor	31263A
62	1	Solenoid, 4-Post	28308MOD

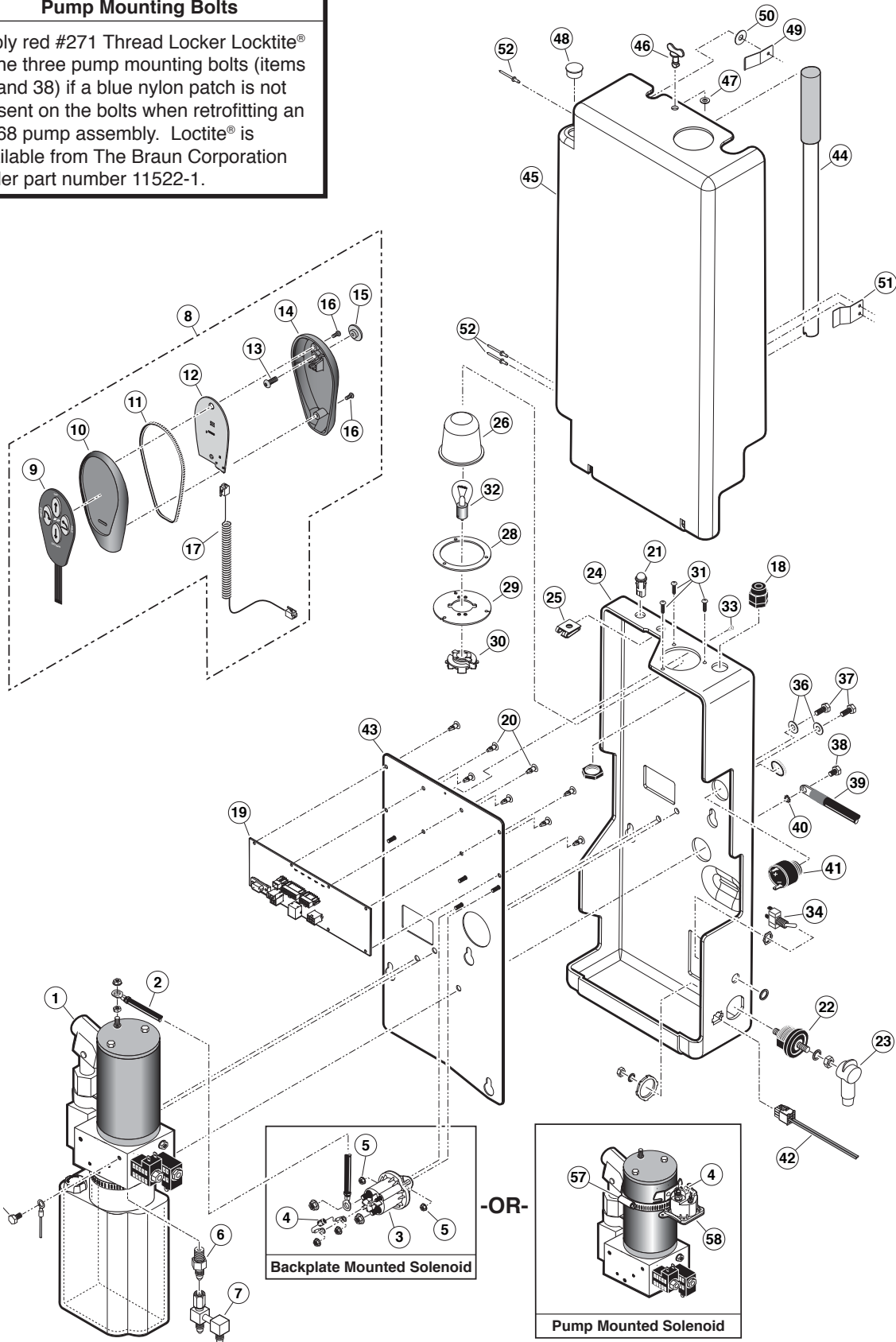
* Apply red #271 Thread Locker Loctite® to the four hex bolts (items 36 and 37) if a blue nylon patch is not present on the bolts when retrofitting an M268-0113 pump assembly. Loctite® is available from The Braun Corporation under part number 11522.

♦ Indicates items available for replacement part purposes **only**. These items **are not** included with replacement pump modules.

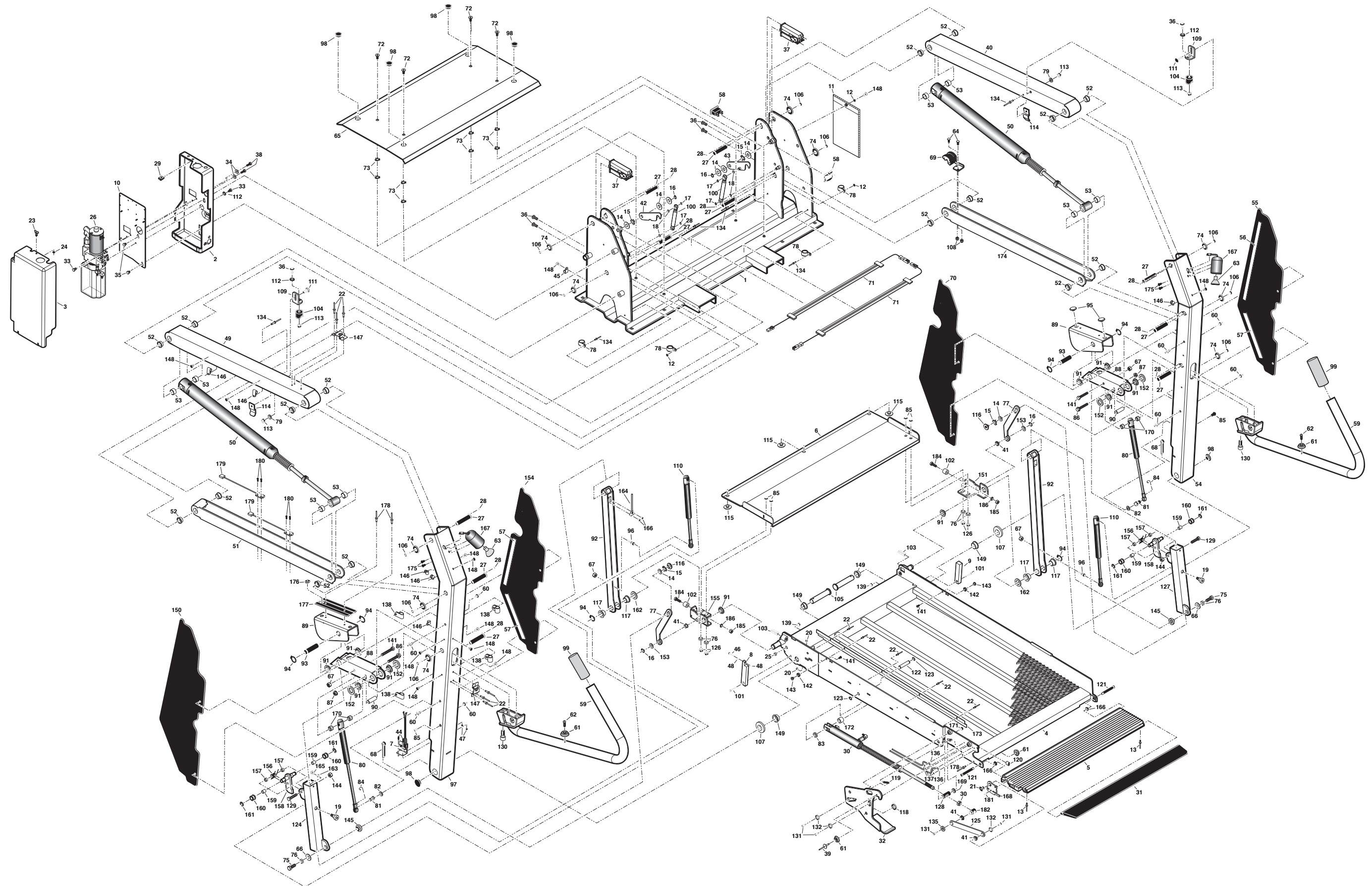
Pump Module Diagram

Pump Mounting Bolts

Apply red #271 Thread Locker Loctite® to the three pump mounting bolts (items 37 and 38) if a blue nylon patch is not present on the bolts when retrofitting an M268 pump assembly. Loctite® is available from The Braun Corporation under part number 11522-1.



Lift Exploded View



"Providing Access to the World"®



**Over 300 Braun
Dealers Worldwide**

 **THE BRAUN
CORPORATION®**
"Providing Access to the World"



International Corporate Hdqrs: P.O. Box 310 Winamac, IN 46996 USA
1-800-THE LIFT (574) 946-6153 FAX: (574) 946-4670

**Braun™ Five-Year
Limited Warranty**

The Braun Corporation of Winamac, Indiana, warrants that it will repair (or replace at Braun's sole option) any defect in material or workmanship in its wheelchair lift for five years*, providing the lift is installed, operated and maintained properly. This warranty is limited to the original purchaser and does not cover defects in the motor vehicle on which it is installed, or defects in the lift caused by a defect in any part of the motor vehicle.

This warranty commences on the date the lift is put in service, providing the warranty registration card is completed and received by The Braun Corporation within 20 days of purchase. If no warranty card is received, the warranty will expire three years from the date of manufacture as identified on the lift serial number tag.

This warranty also covers the cost of labor for the repair (or replacement at Braun's sole option) of parts for three years when performed by an authorized Braun representative. (A labor schedule determines cost allowance for repairs and is available upon request).

This warranty does not cover normal maintenance, service, or periodic adjustments necessitated by use or wear. The Braun Corporation will not, under any circumstances, pay for loss of use, incidental, or consequential damages related to the lift or vehicle in which it is installed.

This warranty will become null and void if the lift has been damaged through accident, misuse, or neglect, or if the lift has been altered in any respect.

* The five-year portion of this warranty covers the following lift's power train parts:

- Cable ▪ Cylinder ▪ Flow Control ▪ Gear Box ▪ Motor ▪ Pump ▪ Hydraulic Hose & Fittings
- Solid State Controller

All remaining lift components are covered by a three-year warranty.

Return Authorization Procedure

When processing any warranty claims (parts, repairs, etc.), all requests must be processed through The Braun Corporation Product Support Department. Call 1-800-THE LIFT (extension 3009) during normal working hours. Product Support will issue a Return Material Authorization (RMA) number and detail the procedures required for processing returns and/or authorizing credit.

The lift identification information is provided on the Braun Serial No./Series No. identification tag and the two warranty cards (shown on inside front cover). The lift identification information must be provided when filing a warranty claim or ordering parts.



International Corporate Hdqrs: P.O. Box 310 Winamac, IN 46996 USA
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31668 Rev. A
January 2008

BRAUN
MILLENNIUM
SERIES

Braun NL Series

All illustrations, descriptions and specifications in this manual are based on the latest product information available at the time of publication. The Braun Corporation reserves the right to make changes at any time without notice.

Patent #5,261,779

Patent #6,065,924

Patent #6,238,169

Patent #6,464,447

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Patent #6,739,824

Patents Pending

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