

2001



Maintenance and Service Manual



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

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WARNING



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

28081

November 2001



Entervan[®] II

Braun 2001 Entervan[®] II

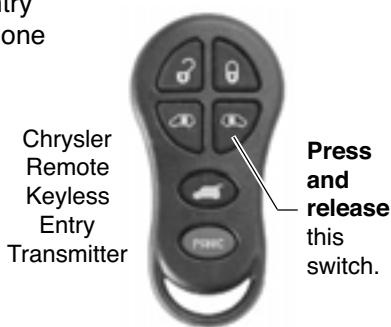
ENTERVAN OPERATION QUICK REFERENCE GUIDE

Entervan Operation Overview

This overview provides a simplified explanation of Entervan operation. Read the entire owner's (operator's) manual for complete details. Contact The Braun Corporation at 1-800-THE LIFT if any of this information is not understood.

Power Operation

Entervan power functions are managed by the One-Touch electronic control system. The control system can be activated using the Chrysler remote keyless entry transmitter or any one of five interior-mounted control switches.



Control switches display the slide door graphic.



One-Touch Control Activation

Entervan power door, ramp and kneel functions are activated by **pressing and releasing** any control switch.

Open Functions: When activating the Open functions, the power door opens, the kneel system lowers the rear of the vehicle and the ramp unfolds.

Close Functions: When activating the Close functions, the ramp folds, the kneel system raises the rear of the vehicle and the power door closes.

Manual Operation

In event of power or equipment failure, the door, ramp and kneel system can be manually operated. Read the operator's for further details.

ENTERVAN OPERATION QUICK REFERENCE GUIDE

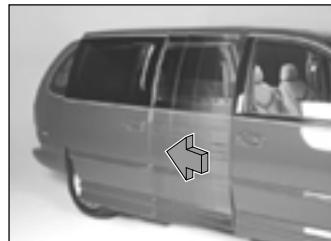
Operating The Braun Entervan Couldn't Be Simpler . . .



1 Just press any one of the buttons like the one pictured above . . .

2

And the sliding door opens



3

The rear suspension lowers



4 The ramp unfolds



Allowing easy entrance!

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Maintenance and Service Requirements

Braun Entervans must be maintained and serviced by a Braun authorized service representative who has attended and been certified by The Braun Corporation Sales and Service School for Braun Mobility Products.

Read and become familiar with the operating procedures outlined in the Entervan operator's manual and the maintenance and troubleshooting information contained in this manual before beginning operation, maintenance or service procedures.

Contact The Braun Corporation at 1-800-THE LIFT if any of this information is not understood.

One-Touch Control System

Entervan power functions are managed by the One-Touch electronic control system. The control system can be activated using the Chrysler remote keyless entry transmitter or any of the interior-mounted control switches.

Braun Corporation Aftermarket Control Systems Policy: The Braun Corporation manufactures dedicated control systems for its products. These control systems have been designed and tested for use in conjunction with specific Braun products. Braun control systems are the **only** control systems authorized for use with Braun products.

Do not attempt to interface aftermarket control systems without authorization from The Braun Corporation. **To do so may result in serious bodily injury and/or property damage.**

Safety Precautions

⚠WARNING

Read this manual, the Entervan operator's manual and supplements before performing operation, maintenance or service procedures. Failure to do so may result in serious bodily injury and/or property damage.

⚠WARNING Maintenance and service procedures must be performed only by authorized service personnel.

⚠WARNING Perform maintenance and lubrication procedures exactly as outlined in the Maintenance and Lubrication Schedule contained in this manual.

⚠WARNING Perform troubleshooting and service procedures as outlined in this manual and/or service bulletins supplied with replacement parts.

⚠WARNING Replacement parts must be Braun authorized replacements.

⚠WARNING Do not attempt to interface aftermarket control systems without authorization from The Braun Corporation.

⚠WARNING Do not use accessory devices not authorized by The Braun Corporation.

⚠WARNING Keep clear of area in which the vehicle kneels (lowers).

⚠WARNING Keep clear of area in which ramp folds and unfolds.

⚠WARNING Never modify (alter) a Braun Corporation Entervan.

⚠WARNING Do not install a raised top on an Entervan.

⚠WARNING Failure to follow these safety precautions may result in serious bodily injury and/or property damage.

Maintenance and Lubrication Schedule

Normal vehicle maintenance must be performed as outlined in the DaimlerChrysler-supplied owner's manual. This maintenance is not the responsibility of The Braun Corporation. Refer to the Warranty section of this manual for details regarding The Braun Corporation Entervan Warranty.

The maintenance and lubrication procedures specified in this schedule **must** be performed by a Braun authorized service representative at the scheduled intervals according to the number of cycles or elapsed time, whichever comes first.

Discontinue Entervan use immediately if maintenance and lubrication procedures are not properly performed, or if there is any sign of improper operation,

damage, wear or any abnormal condition. Contact your sales representative or call The Braun Corporation at 1-800-THE LIFT. One of our national Product Support representatives will direct you to an authorized service technician who will inspect your Entervan.

Lubrication: Entervan ramps are equipped with sealed bearings and Teflon™ bushings that do not require lubrication. Coated ramp and kneel system chains do not require lubrication as well.

Light penetrating oil (30 weight or equivalent) should be applied where *Light Oil is indicated. LPS2 General Purpose Penetrating Oil is recommended by and available from The Braun Corporation. Eleven ounce aerosol

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.

cans can be ordered under part number 15807. Severe conditions (weather, environment, heavy usage, etc.) **may** require more frequent lubrication. When replacing lubed components, be sure to lubricate during installation procedures.

| 4 Weeks or 100 Cycles | | |
|--------------------------------------|---|--|
| | Outboard ramp extension hinge | Clean and lubricate with *Light Oil |
| | Kneel actuator manual release assembly | Apply *Light Oil in T-handle receptacle. |
| | Swing-Out Ramp latch (if equipped) | Clean and lubricate with *Light Oil. Inspect for proper operation, wear or damage. |
| | Lower power slide door track | Inspect for obstructions and clean |
| | Wheelchair and occupant restraint belts | Inspect for any defects such as cuts, fraying or any malfunction of belt, buckle or securement hardware. Replace immediately if defective. |
| | Inspect removable seat bases for proper engagement of latching mechanisms | Replace or correct as needed |
| | Inspect ramp inboard pivot points (mounting bolts and bushings) for positive securement, wear or damage | Tighten, replace or correct as needed |
| | Inspect ramp fold pick-up bearing for positive securement, alignment, wear or other damage | Tighten, replace or correct as needed |
| | Inspect ramp fold arm bearing slot for excessive wear or damage | Replace if needed |

continued

Maintenance and Lubrication Schedule

| | | |
|--|---|---|
| continued 4 Weeks or 100 Cycles | <p>Inspect ramp extension chain for proper alignment, securement or other defects.</p> <p>Inspect ramp floor mounting hardware for securement (loose or missing)</p> <p>Inspect cotter pin securing top pivot (wall mounting) bracket pin</p> | <p>Realign, resecure, replace or otherwise correct as needed.</p> <p>Resecure, replace or correct as needed</p> <p>Resecure, replace or correct as needed</p> |
| 1 Year or 1250 Cycles | <p><i>Perform all procedures listed in previous section also</i></p> <p>Power Ramps: Remove ramp motor cover and inspect:</p> <ul style="list-style-type: none"> • Top pivot (wall mounting) bracket mounting bolts for securement (loose or missing) • Motor mounting bolts for securement (loose or missing) • Ramp fold arm securement (collar and mounting screws) • Microswitches securement and adjustment • Microswitch wires and terminals for securement or damage <p>Manual Ramps: Remove torsion spring cover and inspect:</p> <ul style="list-style-type: none"> • Top pivot (wall mounting) bracket mounting bolts for securement (loose or missing) • Spring housing mounting bolts for securement (loose or missing) • Ramp fold arm securement (collar and mounting screws) • Torsion spring securement external snap ring (loose or missing) <p>Inspect Kneel actuator assembly for:</p> <ul style="list-style-type: none"> • Actuator mounting pins securement (loose or missing hairpin cotter or "R" clip) • Inspect chain for misalignment, wear or damage • Inspect chain cotter pins for securement • Inspect chain aluminum idler (pulley) for securement, wear, damage or misalignment • Inspect electrical harnesses for positive connections, proper routing, wear or other damage • Release cable securement (turnbuckle connection at motor and jam nuts) • Release cable alignment, routing, kinks, wear, or other damage | <p>Resecure, adjust microswitches, replace defective parts or otherwise correct as needed. Note: See Ramp Motor Assembly exploded views on pages 20 and 22.</p> <p>Resecure, replace defective parts or otherwise correct as needed. Note: See Manual Ramp exploded views on pages 24-29.</p> <p>Realign, resecure or replace defective parts or otherwise correct as needed. Note: See Kneel Actuator Assembly exploded view on page 31.</p> |

Maintenance and Lubrication Schedule

| | | |
|--|--|--|
| 1 Year or 1250 Cycles | <p>Inspect power source (Series 01 and 02: OEM battery, 30 ampere circuit breaker and dash-mounted fuse block - Series 03: Floor-mounted fuse block)</p> <p>Swing-Out Ramp system (if equipped) - inspect:</p> <ul style="list-style-type: none"> • Latch for proper operation (apply *Light Oil) • Latch mounting hardware for positive securement (loose or missing mounting hardware) • Swing-Out latch pin (bolt assembly) for positive securement, wear, misalignment, or other damage • Missing or damaged ramp top pivot bracket securement cotter pin (hairpin cotter or "R" clip) • Top and/or bottom ramp pivot points (axles and/or bearing surfaces) for deformation, wear or other damage • Bottom ramp pivot pin (axle) flat washer damaged or missing. • UHMW floor guide (button) damaged or missing. • Release cable for positive securement, alignment, wear, or other damage • Release assembly for positive securement, deformation, or other damage • Does release seat properly in the slotted housing? See Cable Adjustment if release lever seats before positive latching. | <p>Resecure, repair or replace</p> <p>Realign, resecure, tighten, lubricate, replace defective parts or otherwise correct as needed.</p> <p>Cable Adjustment: Remove threshold and lift carpet above latch to access two latch mounting bolts. Cable attachment bracket is equipped with adjustment oval slots. Loosen mounting bolts, adjust cable and bracket as needed and resecure.</p> |
|--|--|--|

Troubleshooting Diagnosis Chart

WARNING

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

If a problem occurs with your Entervan, **discontinue operation immediately! Do not attempt repairs yourself.** Contact your sales representative or call The Braun Corporation at 1-800-THE LIFT. One of our national Product Support representatives will direct you to an authorized service technician who will inspect your Entervan.

The cause of the problem can be determined by locating the function and related symptom in

the Troubleshooting Diagnosis Charts. The specific cause and remedy can then be determined by process of elimination. Electrical Schematics and Wiring Diagrams are provided to aid in troubleshooting.

A Repair Parts section with exploded views and corresponding parts lists is also provided. **Correct the problem if possible. If the problem continues, contact The Braun Corporation.**

| FUNCTION | SYMPTOM | POSSIBLE CAUSE | REMEDY |
|--|--|---|---|
| 1.00 NO OPERATION | 1.10 No Power To Entervan Systems (Circuit Problem) | 1.11 Poor ground connection 1.12 Battery terminals dirty 1.13 Battery defective 1.14 Battery discharged 1.15 12 volt source (check fuses for 12 volts) 1.16 Circuit breaker tripped or faulty | Clean and tighten Clean and tighten Replace Charge battery Check for blown fuse, loose terminals or broken wire or cable Reset or Replace |
| | 1.20 Power to Entervan Systems But No Operation | 1.21 Transmission not in Park 1.22 Loose connection 1.23 Broken wire 1.24 Wire terminal 1.25 Control switch defective 1.26 Braun One-Touch Controller | Engage transmission in Park Clean and tighten Repair or replace Crimp tightly to wire Replace Reset or replace |
| 2.00 KNEEL SYSTEM (LOWER) | 2.10 No Lower Operation | 2.11 See 1.00 2.12 Kneel On-Off feature turned off 2.13 Kneel actuator brake manually released with "T-handle" or other kneel actuator manual release problem. 2.14 Actuator harness disconnected, damaged or otherwise defective 2.15 Actuator defective 2.16 Chain disconnected, damaged or otherwise defective | Turn kneel on. Press and hold driver side dash control switch a minimum of three seconds (Entervan power functions must be in closed mode). Correct or repair as needed Connect, repair or replace Replace Connect, repair or replace |
| | 2.20 Faulty Kneel (Lower) Operation | 2.21 Mechanical binding 2.22 Misalignment or damage to knee system components. Inspect kneel actuator assembly for: <ul style="list-style-type: none">• Actuator mounting pins/hairpin cotter ("R" Clip) securement (loose or missing)• Inspect chain for wear, misalignment, or other damage• Inspect chain aluminum idler for securement, wear, damage or misalignment | Check and correct Connect, replace or otherwise correct as needed |

Troubleshooting Diagnosis Chart

| FUNCTION | SYMPTOM | POSSIBLE CAUSE | REMEDY |
|---|--|---|---|
| 3.00 POWER DOOR (OPEN) | 3.10 No Open Operation (Motor Does Not Run) | 3.11 See 1.00 3.12 Door not fully closed 3.13 Door microswitch(es) defective 3.14 Door operator motor harness disconnected or defective 3.15 Door operator motor defective | Check for obstructions, then manually close door. See DaimlerChrysler Service Center See DaimlerChrysler Service Center See DaimlerChrysler Service Center |
| | 3.20 Motor Runs But Door Does Not Move | 3.21 Misaligned or otherwise damaged motor gear or door gear rack | See DaimlerChrysler Service Center |
| | 3.30 Faulty Open Operation | 3.31 Obstruction in door path 3.32 Mechanical binding | Remove obstruction Check and correct |
| | 3.40 Door Does Not Open Fully | 3.41 Door Opened microswitch out of adjustment or defective 3.42 Door latch not engaging door opened striker 3.43 See 3.30 | See DaimlerChrysler Service Center Check for obstructions and/or damaged components |
| 4.00 RAMP UNFOLD | 4.10 No Unfold Operation | 4.11 See 1.00 4.12 Door Opened microswitch defective 4.13 Ramp motor harness disconnected or defective 4.14 Loose, damaged or missing fold arm securement collar and/or screws 4.15 Ramp Unfolded microswitch out of adjustment or defective 4.16 Ramp motor defective | See DaimlerChrysler Service Center Connect, repair or replace Tighten, replace or otherwise correct as needed Adjust or replace Replace motor |
| | 4.20 Ramp Contacts Door | 4.21 Door not fully open 4.22 Swing-Out Ramp latch (if equipped) not fully engaged (ramp not latched) 4.23 Misalignment of slide door striker | See DaimlerChrysler Service Center Engage latch fully or repair Swing-Out Ramp latch system Adjust or replace |
| | 4.30 Faulty Unfold Operation | 4.31 Ramp Unfolded microswitch harness disconnected or defective 4.32 Ramp Unfolded microswitch out of adjustment or defective 4.33 Misalignment or damage to: <ul style="list-style-type: none">• Ramp fold bearing• Ramp fold arm• Ramp fold arm bearing slot• Ramp pivot points or hinge(s) 4.34 Mechanical binding | Connect, repair or replace Adjust or replace Realign, tighten, replace defective parts or otherwise correct as needed Check and correct |

[continued]

[continued]

Troubleshooting Diagnosis Chart

| FUNCTION | SYMPTOM | POSSIBLE CAUSE | REMEDY |
|--|---|---|--|
| 4.00 RAMP UNFOLD | <i>continued</i> 4.30 Faulty Unfold Operation | 4.35 See 4.15 | |
| | 4.40 Faulty Ramp Extension Unfold | 4.41 Ramp extension chain broken, detached, misaligned or otherwise defective 4.42 Lack of lubrication | Replace, attach, realign or otherwise correct Lubricate - See Maintenance and Lubrication Schedule |
| 5.00 RAMP FOLD | 5.10 No Fold Operation | 5.11 See 1.00 5.12 Ramp Folded microswitch out of adjustment or defective 5.13 See 4.12, 4.13, 4.14 and 4.16 | Adjust or replace |
| | 5.20 Faulty Fold Operation | 5.21 Ramp Folded microswitch harness disconnected or defective 5.22 Fold arm support/stop out of adjustment 5.23 See 4.14, 4.15, 4.33, 4.34, and 4.42 | Connect, repair or replace Adjust support/stop for more travel |
| 6.00 POWER DOOR (CLOSE) | 6.10 No Close Operation | 6.11 See 1.00 and 3.10 6.12 Ramp motor harness disconnected or defective 6.13 Ramp folded microswitch out of adjustment or defective 6.14 Door not fully open 6.15 Door microswitch(es) defective | Connect, repair or replace Adjust or replace Open door fully to engage striker with door opened latch See DaimlerChrysler Service Center |
| | 6.20 Motor Runs - Door Does Not Move | 6.21 See 3.20 | |
| | 6.30 Faulty Operation | 6.31 See 3.30 | |
| | 6.40 Door Does Not Close Fully | 6.41 See 3.30 | |
| | 6.50 Door Contacts Ramp When Closing | 6.51 Outboard ramp extension hinge not properly lubricated, obstructed or otherwise damaged 6.52 See 5.22 and 6.13 | Clean and lubricate with *Light Oil, remove obstruction or otherwise correct |

Troubleshooting Diagnosis Chart

| FUNCTION | SYMPTOM | POSSIBLE CAUSE | REMEDY |
|--|--|---|--|
| 7.00 KNEEL SYSTEM (RAISE) | 7.10 No Raise Operation | 7.11 See 1.00, 2.14, 2.15, 2.16 and 2.20 | |
| | 7.20 Faulty Operation | 7.21 See 2.13 and 2.20 | |
| 8.00 REMOTE CONTROL | 8.10 No Operation | 8.11 See DaimlerChrysler vehicle owner's manual | |
| 9.00 KNEEL ACTUATOR MANUAL RELEASE | 9.10 No Operation | 9.11 Manual release T-handle missing 9.12 Release cable broken, disconnected, or otherwise defective 9.13 Kneel actuator brake defective | Replace Connect, repair or replace Replace actuator |
| | 9.20 Faulty Operation | 9.21 Lack of lubrication 9.22 Release cable out of adjustment, out of alignment, routing obstruction, kinked, worn or otherwise damaged 9.23 Manual release T-handle threads stripped or otherwise damaged | Apply *Light Oil in T-handle receptacle. Adjust, align, reroute, remove kinks, otherwise repair or replace Replace |
| 10.00 SWING OUT RAMP SYSTEM (if equipped) | 10.10 No Release Operation | 10.11 Release cable broken, disconnected or otherwise defective 10.12 Faulty Swing-Out Ramp latch (will not disengage) | Connect or replace cable Replace latch |
| | 10.20 Faulty Release Operation | 10.21 Loose, worn or otherwise damaged Swing-Out Ramp latch 10.22 Missing, loose, worn, bent, misaligned or otherwise damaged Swing-Out Ramp latch pin (bolt assembly) 10.23 Mechanical binding 10.24 Lack of lubrication to latch | Tighten, replace or otherwise correct as needed Tighten, replace or otherwise correct as needed Correct as needed Lubricate with *Light Oil |
| | 10.30 Faulty Rotation Operation | 10.31 Missing PVC washer at bottom pivot point (axle) 10.32 Misalignment, deformation, wear or other damage to top and/or bottom pivot points (axles and/or bearing surfaces) 10.33 Misalignment, deformation, looseness, wear or other damage to inboard ramp support weldment, or floor and lower slide door track assembly | Replace washer Correct as needed Correct as needed |

continued

continued

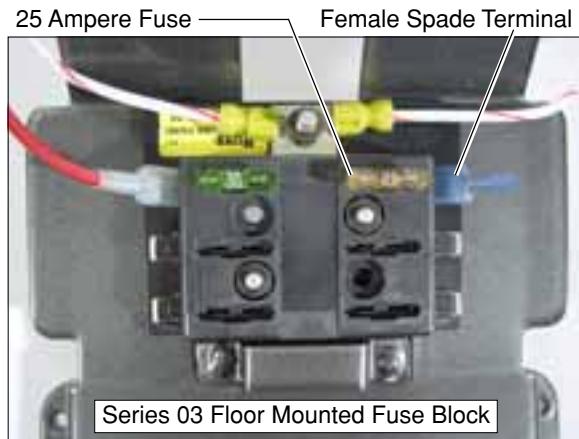
Troubleshooting Diagnosis Chart

| FUNCTION | SYMPTOM | POSSIBLE CAUSE | REMEDY |
|--|--|--|--|
| 10.00 SWING OUT RAMP SYSTEM (if equipped) | continued | continued | |
| | 10.30 Faulty Rotation Operation | 10.34 UHMW floor guide (button) damaged or missing. 10.35 Mechanical binding | Replace guide Correct as needed |
| | 10.40 No Latching Operation | 10.41 Faulty Swing-Out Ramp latch (will not engage) 10.42 See 10.20 | Replace latch |
| | 10.50 Faulty Latching Operation | 10.51 Release does not seat properly in slotted housing preventing latch from returning to spring-loaded latch position 10.52 See 10.11, 10.20, 10.33 and 10.41 | Replace release assembly or adjust cable at latch. Cable Adjustment: Remove threshold and lift carpet above latch to access two latch mounting bolts. Cable attachment bracket is equipped with adjustment oval slots. Loosen mounting bolts, adjust cable and bracket as needed and resecure. |

Auxiliary Power Supply

CAUTION

Do not connect auxiliary devices to vehicle battery. Doing so may result in damage to electrical system and/or electronic components.



Do not connect auxiliary devices directly to the vehicle battery. Doing so **may result in damage to electrical system and/or electronic components.**

A fuse block that can accommodate up to five additional ATO® type fuses is provided as an auxiliary power source. This power source is available for installation of a dealer-installed power seat, an electric tie-down or other auxiliary electrical device(s).

The fuse block is located behind the dash below the steering column in Series 01 and Series 02 Entervans. The fuse block is located on the floor below the dash center console in Series 03 Entervans (shown in photo). Remove the plastic cover to access the fuse block.

The installer is responsible for supplying the correct gauge wire and fuse for the particular device to be attached to the fuse block (as specified by the manufacturer of the device). The maximum load must not exceed 25 amperes.

Wires with female fully-insulated terminals can simply be connected to one of five available terminals on the fuse block. A female terminal and 25 ampere fuse are provided at top right fuse position for this purpose (as shown).

Note: A 30 ampere fuse is factory installed in the top left receptacle for protection of the One-Touch electronic control module. Fuses installed in all other fuse positions must not exceed 25 amperes.

Note: If installing an auxiliary electrical device that requires more than a 25 ampere power source, an alternative power source must be provided. Refer to the Electrical Schematics and Wiring Diagrams contained in this manual.

WARNING



Risk of electrical fire! Install and electrically terminate Auxiliary electrical device as specified by device manufacturer.

Below-Floor Obstructions

Below-Floor Obstructions

When installing an electrical tie-down, power seat or other auxiliary electrical device in an Entervan, obstructions below the floor must be avoided. Obstructions include wiring, fuel system, brake lines, etc. Installers must be aware of these obstructions.

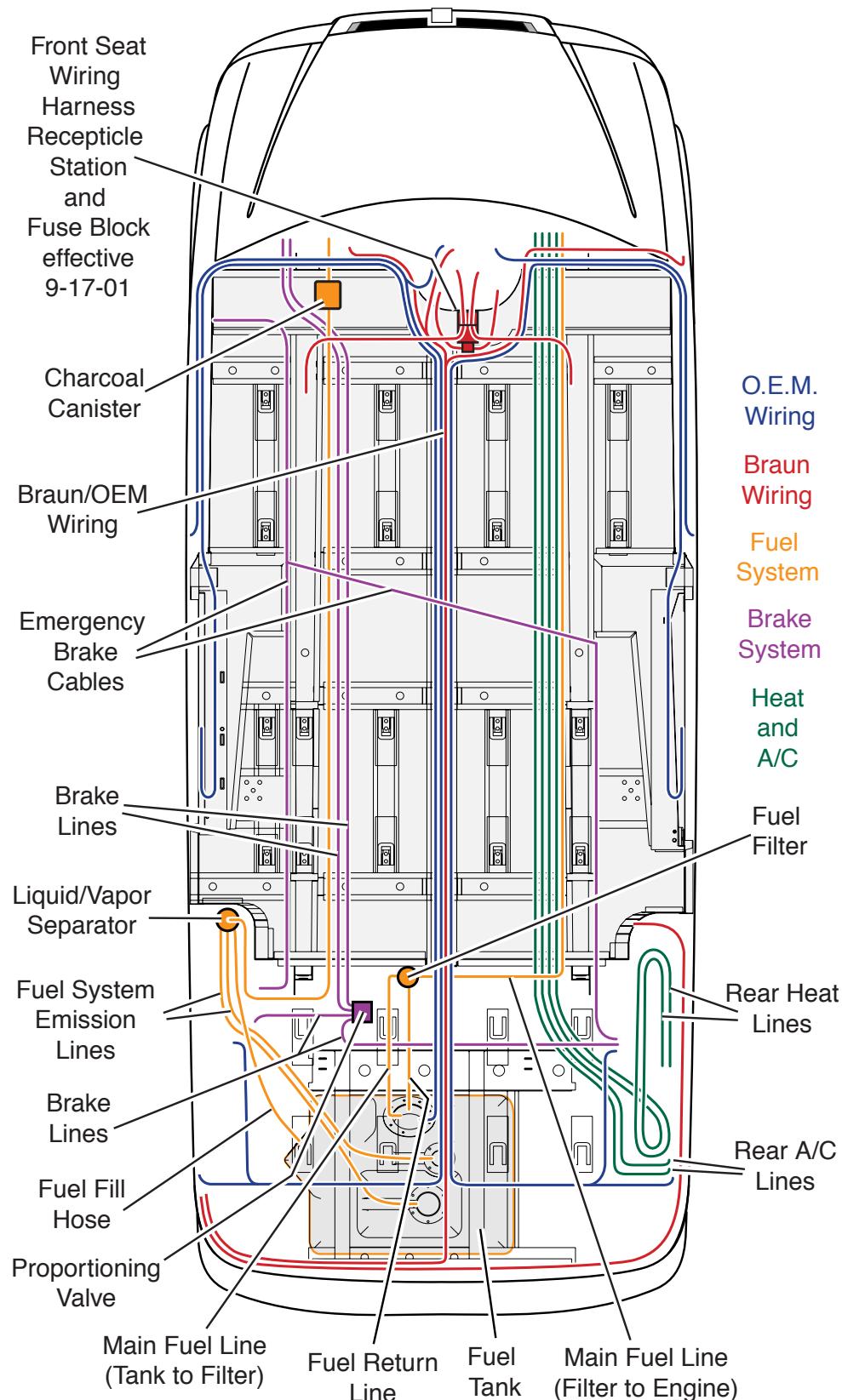
WARNING

Check for obstructions such as wires, gas lines, exhaust, etc. before drilling or cutting through floor. Failure to do so may result in serious bodily injury and/or property damage.

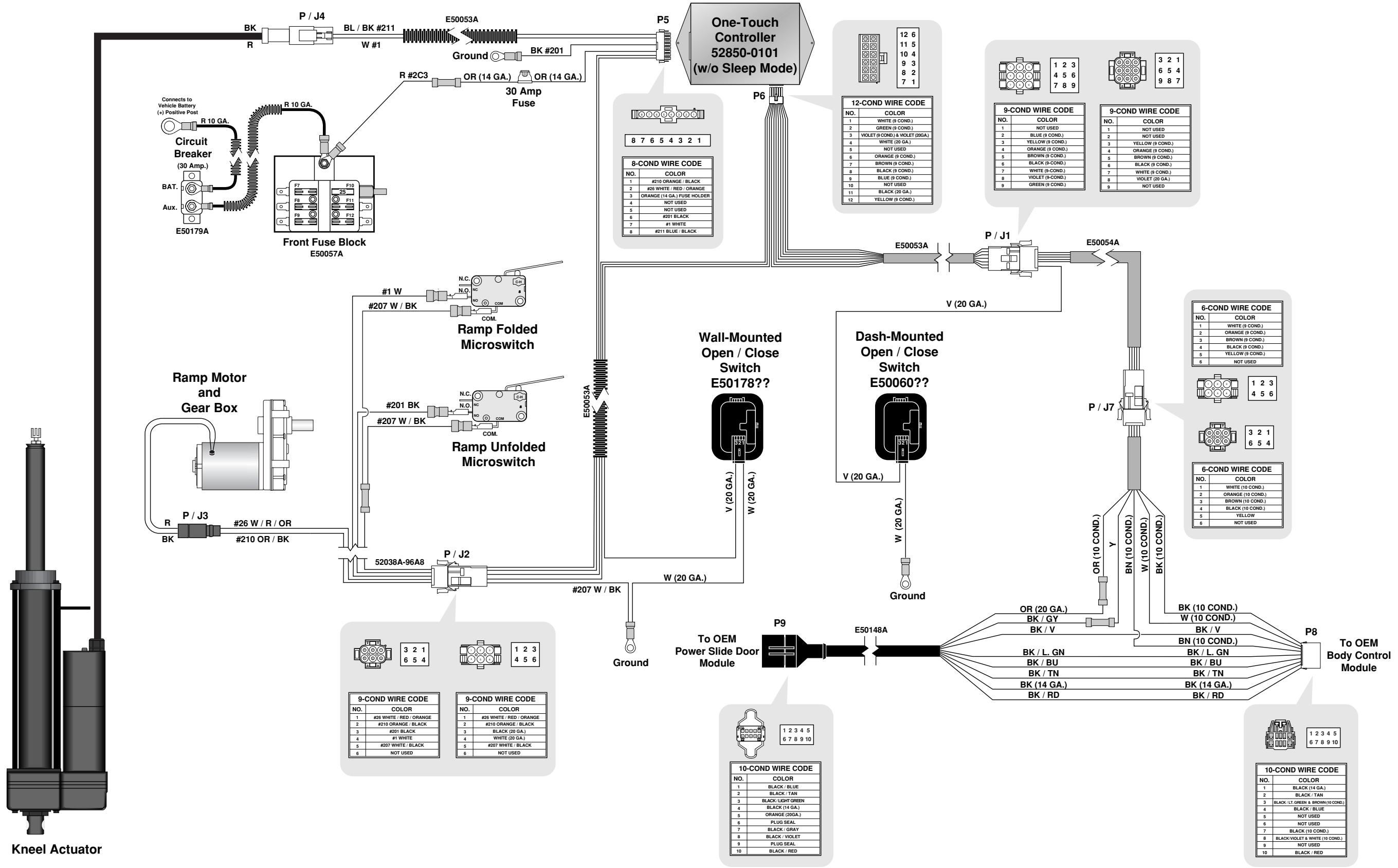
Refer to the illustration when installing aftermarket equipment to avoid contacting or damaging vital components under the floor. Drilling or cutting into such obstructions may result in potential hazards as well as property damage.

Note: Some wiring harnesses shown may not be present. Avoid all harness locations.

Note: Series 03 Entervan depicted.

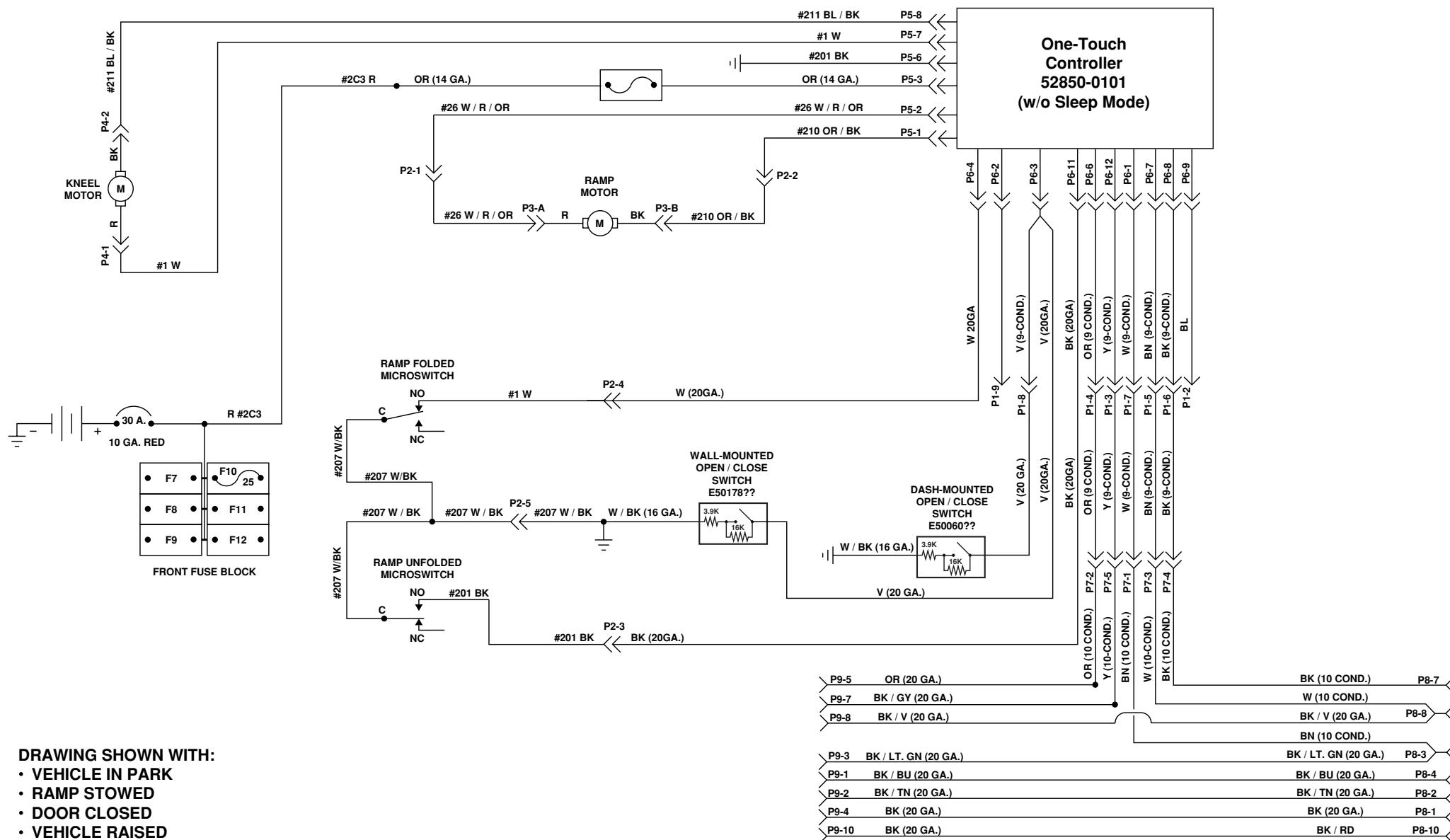


Series 01 Wiring Diagram



Unfold for: Series 01 Wiring Diagram

Series 01 Electric Schematic

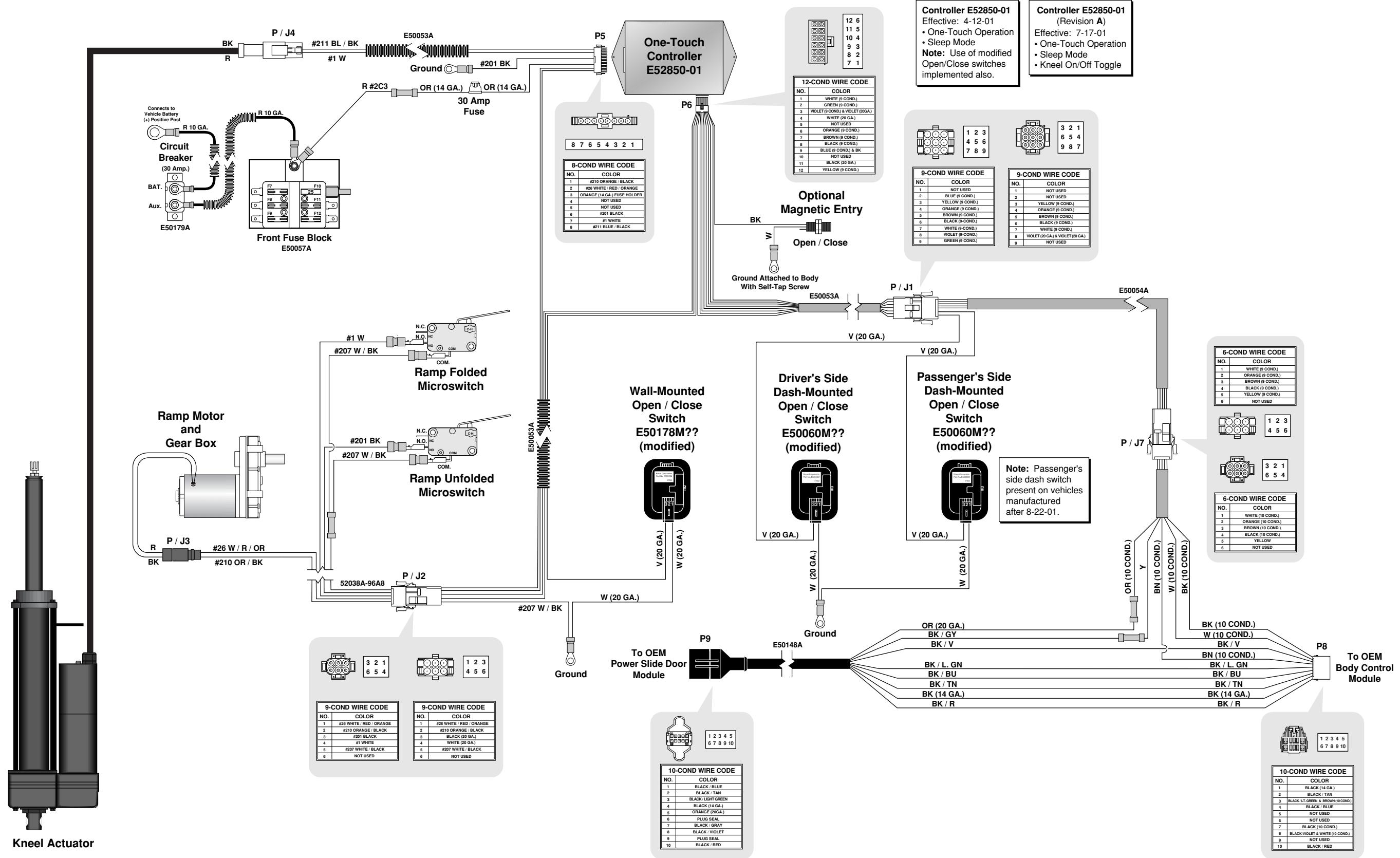


| DESCRIPTION | SYMBOL |
|--------------------|---------------|
| BATTERY | |
| CHASSIS GROUND | |
| CIRCUIT BREAKER | |
| CONNECTORS | |
| FUSE | |
| JUNCTION | |
| MOTOR | |
| SWITCH | |
| MICROSWITCH | |

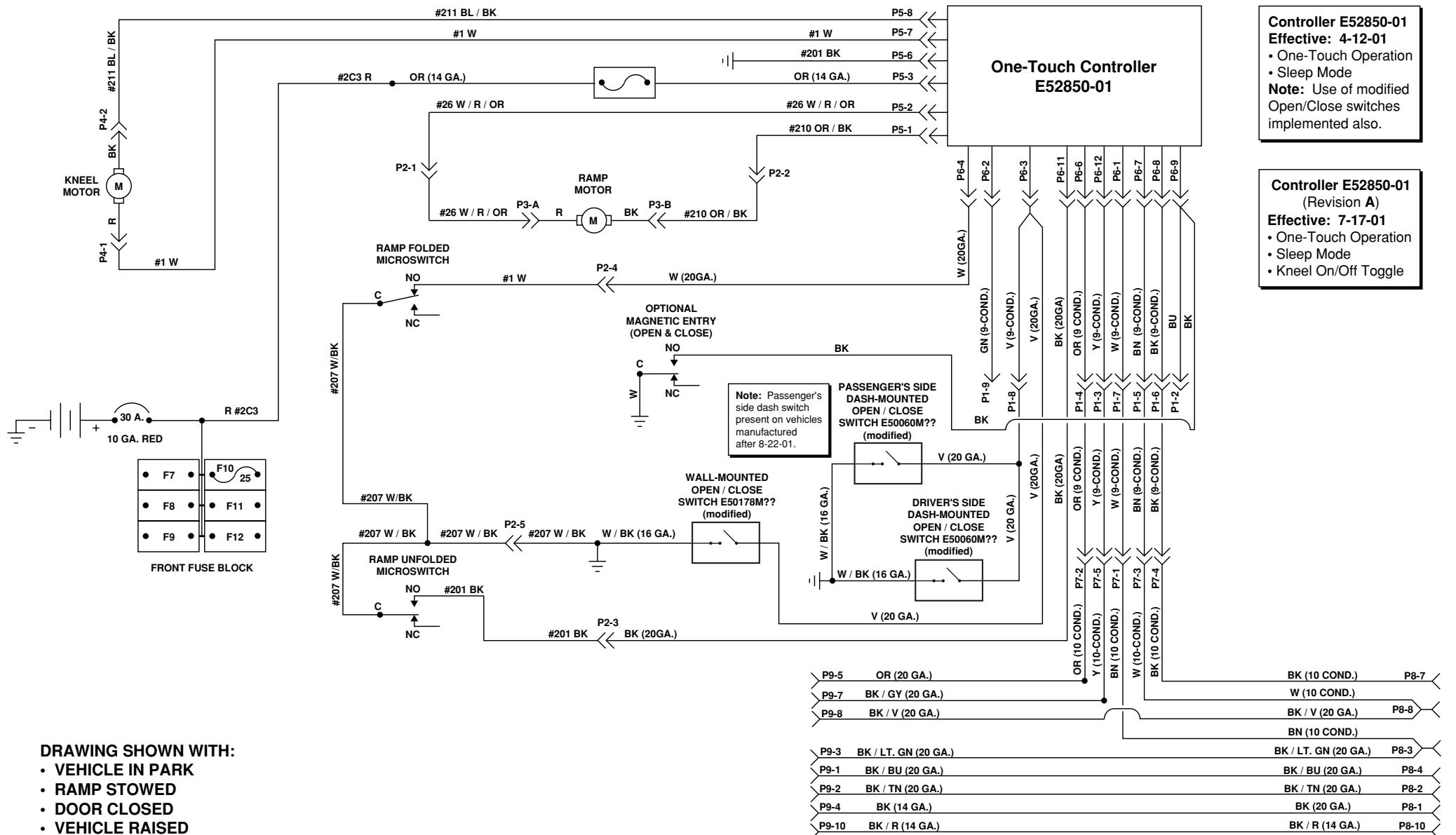
DRAWING SHOWN WITH:

- VEHICLE IN PARK
 - RAMP STOWED
 - DOOR CLOSED
 - VEHICLE RAISED

Series 02 Wiring Diagram



Series 02 Electric Schematic



Controller E52850-01
Effective: 4-12-01

- One-Touch Operation
- Sleep Mode

Note: Use of modified Open/Close switches implemented also.

Controller E52850-01
(Revision A)
Effective: 7-17-01

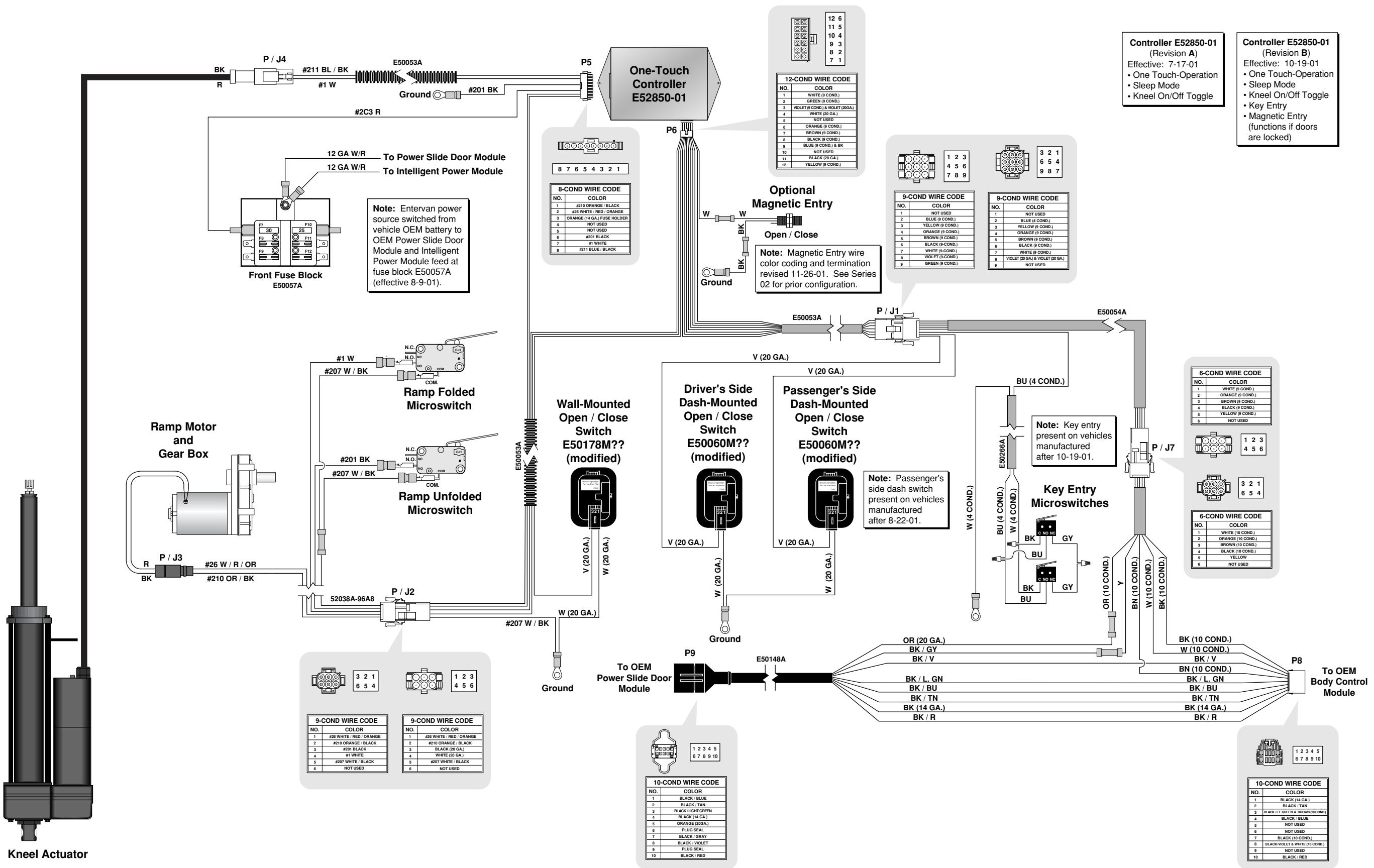
- One-Touch Operation
- Sleep Mode
- Kneel On/Off Toggle

| DESCRIPTION | SYMBOL |
|-----------------|--------|
| BATTERY | |
| CHASSIS GROUND | |
| CIRCUIT BREAKER | |
| CONNECTORS | |
| FUSE | |
| JUNCTION | |
| MOTOR | |
| SWITCH | |
| MICROSWITCH | |

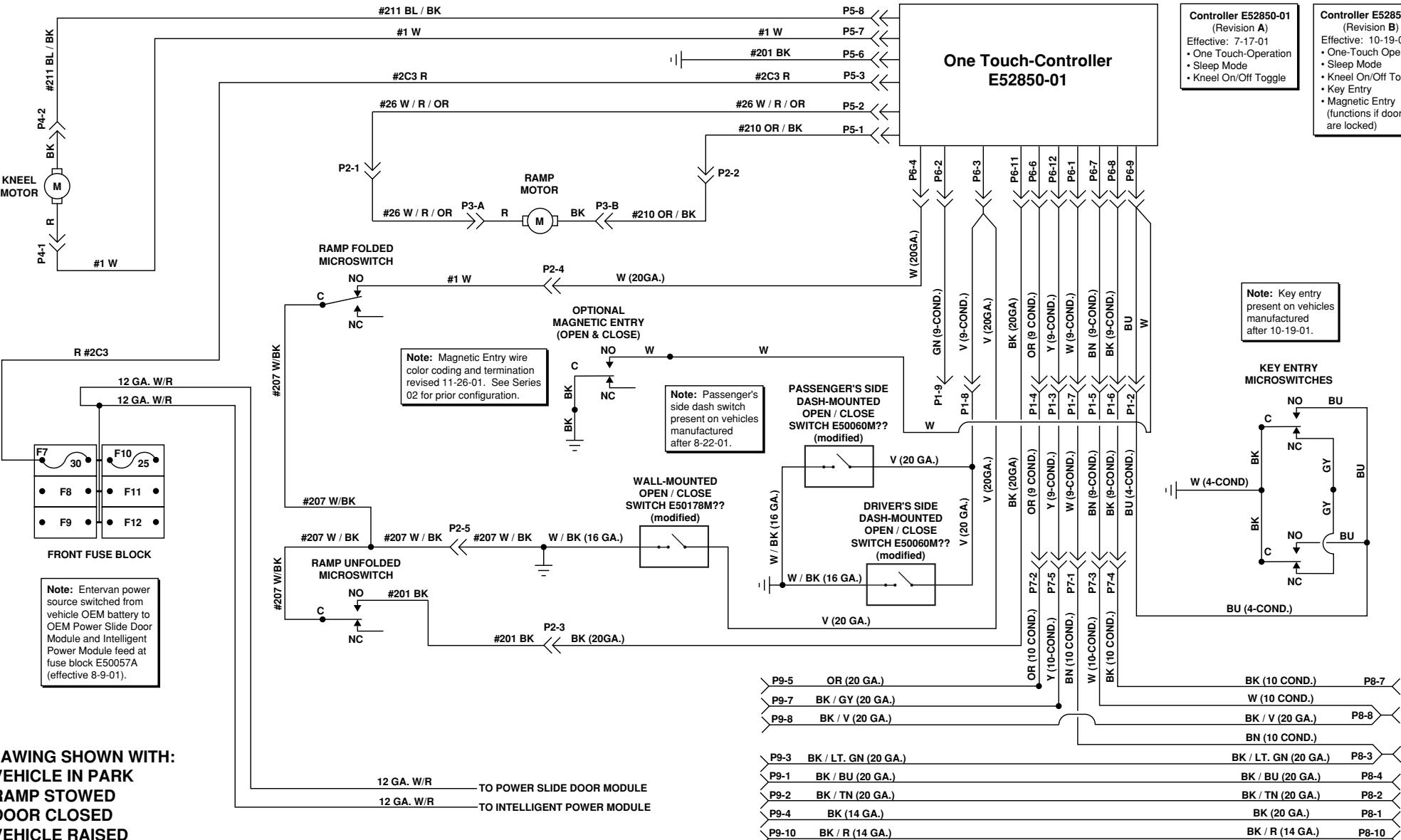
DRAWING SHOWN WITH:

- VEHICLE IN PARK
- RAMP STOWED
- DOOR CLOSED
- VEHICLE RAISED

Series 03 Wiring Diagram

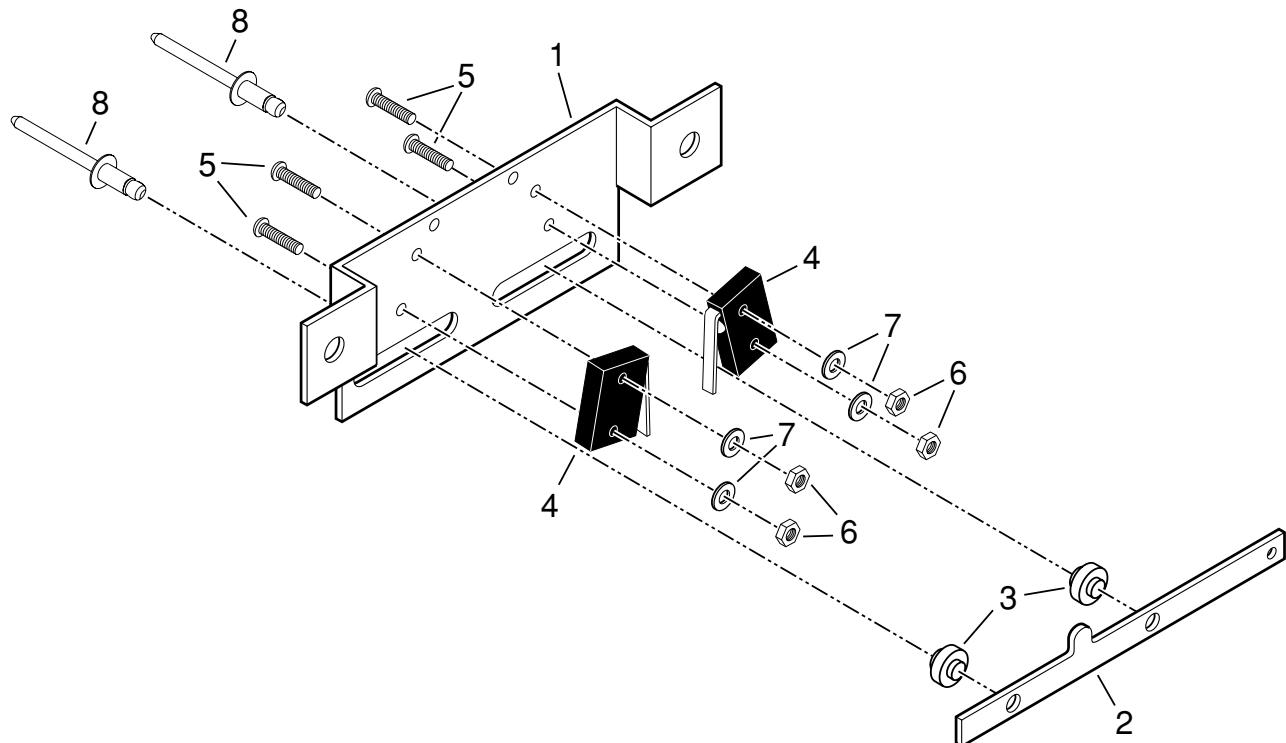


Series 03 Electric Schematic



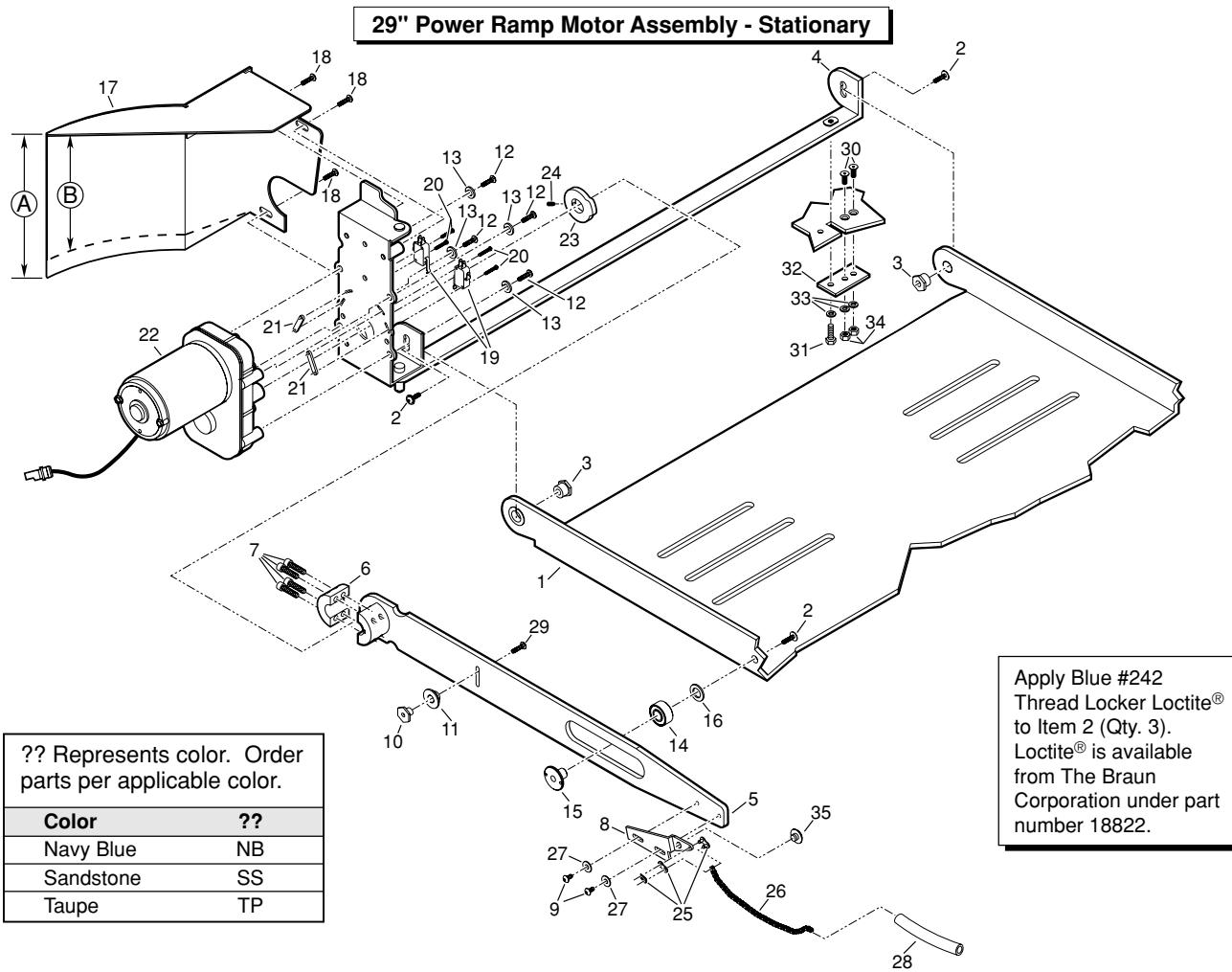
Repair Parts

Outside Key Entry Assembly



| Item | Qty. | Description | Part No. |
|------|------|-------------------------------------|----------|
| 1 | 1 | Plate, Microswitch Mount, Key Entry | 52501 |
| 2 | 1 | Slide Lever, Key Entry | 52502 |
| 3 | 2 | Bushing Spacer | 52503 |
| 4 | 2 | Microswitch, SPDT Cherry, WTRPRF | 17952 |
| 5 | 4 | Screw, #2-56 x 1/2" Round Head | 17961 |
| 6 | 4 | Nut, #2-56, Hex | 17962 |
| 7 | 4 | Washer, #2, Flat | 21801 |
| 8 | 2 | Pop Rivet, SD64BS | 11513 |

Repair Parts



29" Power Ramp Motor Assembly (Non-Swing) Parts List

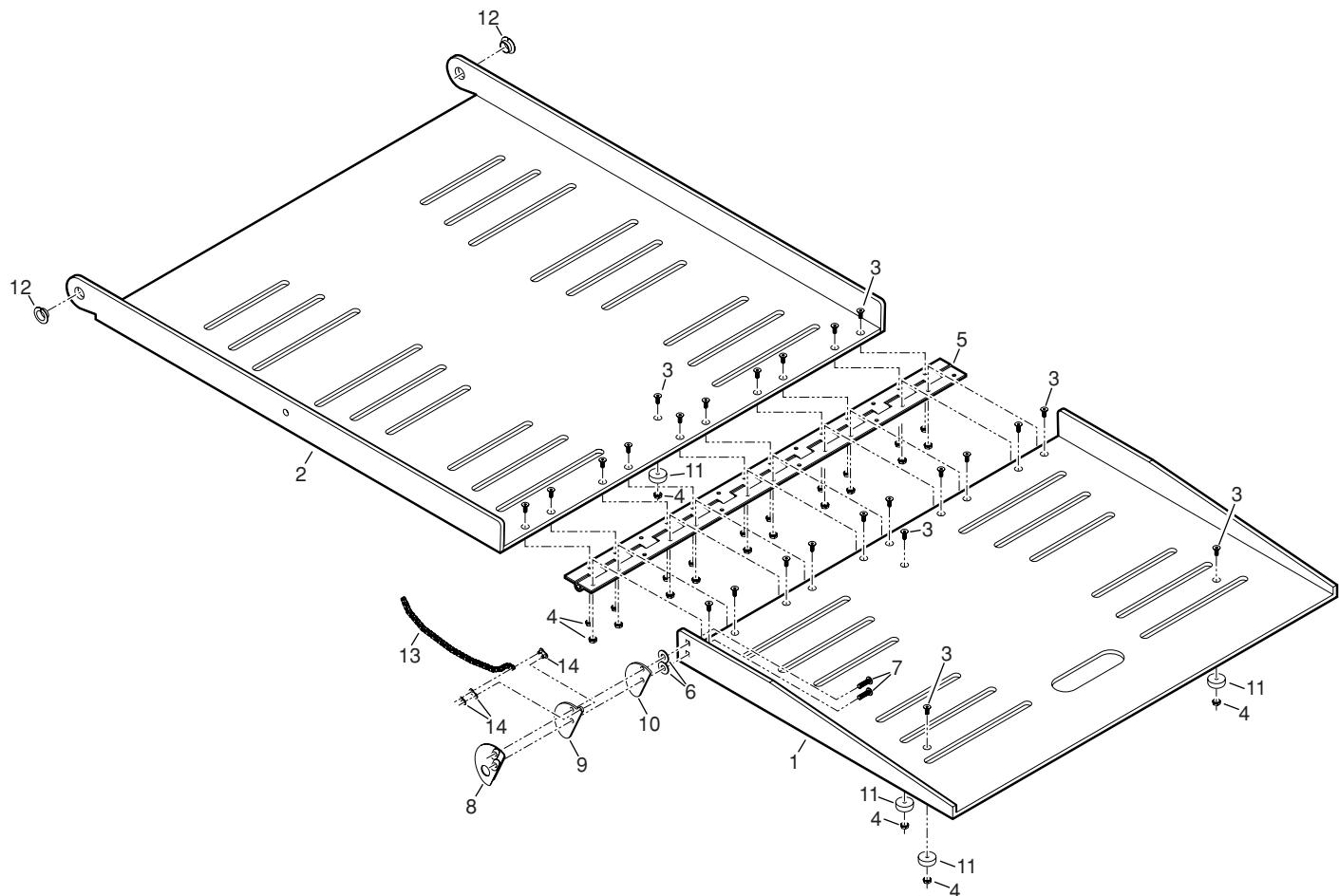
| Item | Qty. | Description | Part No. |
|------|------|--|---------------|
| 1 | 1 | Ramp Assembly, Power, 29", Series 05 | E50264A?? |
| 2 | 3 | Bolt, 3/8"-16 x 3/4" FLBHSCS-GD8 | 25171 |
| 3 | 2 | Pivot Pin, Bushing, EV Ramp, 2905 | 52571-2905 |
| 4 | 1 | Support Weldment, Power Ramp, 29" | 51515W-2905?? |
| 5 | 1 | Drive Arm Weldment | 51504W2905?? |
| 6 | 1 | Collar, Split, 3/4", Shaft, Ramp | 52565-2905?? |
| 7 | 4 | Screw, 1/4"-20 x 1" Socket Head, Cap | 24221 |
| 8 | 1 | Bracket, Cable Tensioner, Outer | 52568-2905?? |
| 9 | 2 | Screw, #10-32 x 1/2" But. Hd., Hex, Soc. | 17193 |
| 10 | 1 | Latch Bolt, Support, 29" Ramp | 51541-2905 |
| 11 | 1 | Pin, Ramp Support, 29" Ramp | 51815-2905 |
| 12 | 4 | Bolt, 5/16-18 x 3/4", BHCS, Black | 24440 |
| 13 | 4 | Washer, 5/16", Lock | 10068 |
| 14 | 1 | Retainer, Bearing | 21451 |
| 15 | 1 | Bearing, 1/2" ID x 1-1/8" OD, Ball | 21371 |
| 16 | 1 | Washer, .519" ID x .876" OD x .074" | 12621 |
| 17 | 1 | Cover, Motor, Side Shield Weldment | Per Series |
| | | A. Series 01 and 02 (8.417") | E50146 |
| | | B. Series 03 (7.417") | E5014603 |

| Item | Qty. | Description | Part No. |
|------|------|---|--------------|
| 18 | 3 | Bolt, 1/4"-20 x 1/2", But. Head, Soc. | 15733 |
| 19 | 2 | Microswitch | 23184 |
| 20 | 4 | Screw, #4-40 x 3/4", Round Head | 11483 |
| 21 | 2 | Plate, Tapped #4-40, Microswitch | 24998 |
| 22 | 1 | Motor, Ramp Assembly, Klauber | 51654AK2907 |
| 23 | 1 | Cam, Microswitch Adjustment | 52573-2905 |
| 24 | 1 | Screw, #10-32 x 5/16", Set | 11562 |
| 25 | 1 | Link, Chain, #25 Plated | 25156 |
| 26 | 1 | Chain, #25, Roller, Plated | 25155R009.25 |
| 27 | 2 | Washer, #10 Flat | 11541 |
| 28* | 1 | Hose, 7/16" x 1/16" Wall, Clear Vinyl | 26102R (5") |
| 29 | 1 | Bolt, Carriage, 1/4"-20 x 3/4" | 13434 |
| 30 | 2 | Bolt, 1/4-20 x 3/4", Flat, Socket Head, Cap | 18708 |
| 31 | 1 | Bolt, 1/4-20 x 3/4", Hex, Black | 10970 |
| 32 | 1 | Plate, Non-Swing, Auto | 52533-3005 |
| 33 | 3 | Washer, 1/4", Lock, Black | 10067 |
| 34 | 2 | Nut, 1/4-20, Hex | 10057 |
| 35 | 1 | Button, Guide, .328" Dia., UHMW, Black | 52576-2905 |

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

Repair Parts

29" Power Ramp Assembly - Stationary



?? Represents color. Order parts per applicable color.

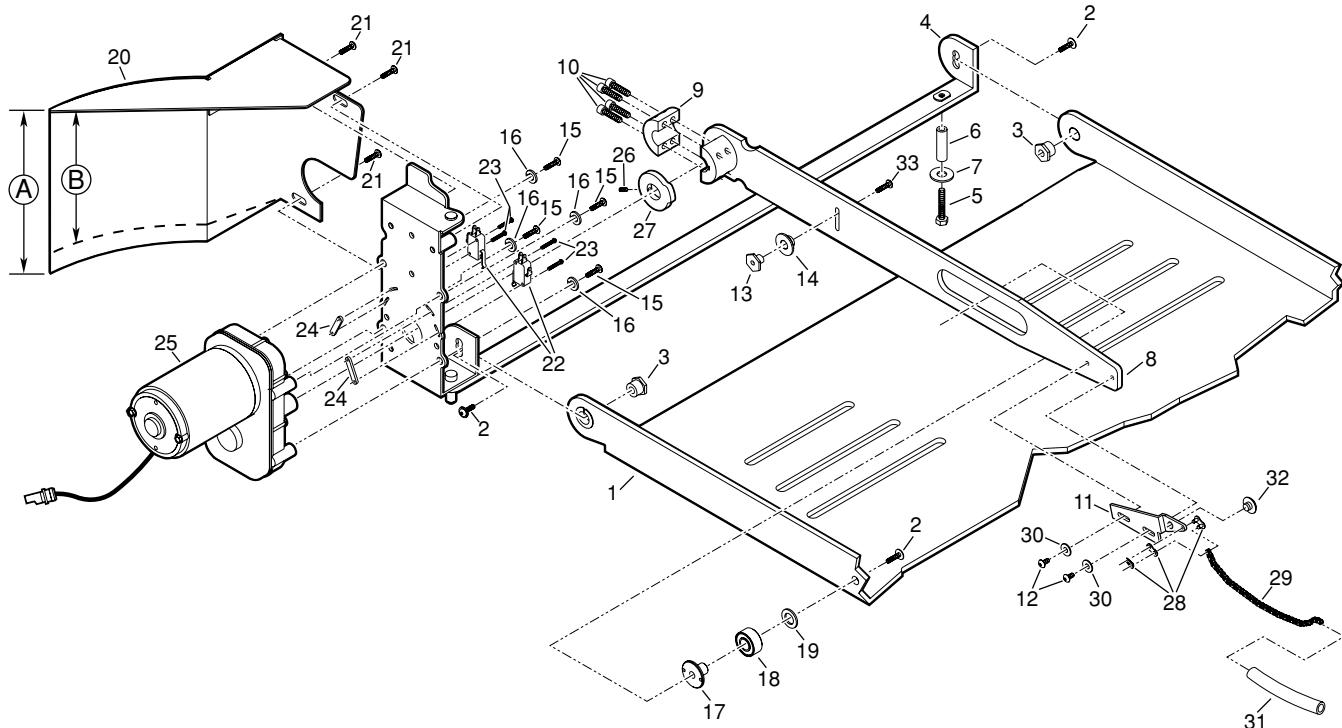
| Color | ?? |
|-----------|----|
| Navy Blue | NB |
| Sandstone | SS |
| Taupe | TP |

29" Power Ramp Assembly (Non-Swing) Parts List

| Item | Qty. | Description | Part No. |
|------|------|--|--------------|
| 1 | 1 | Ramp, Extension, 29" | E50262?? |
| 2 | 1 | Ramp, 29", Series 05 | E50263?? |
| 3 | 24 | Screw, #10-32 x 1/2", FL HD-HX SKT/BLK ZNC | 17192P |
| 4 | 24 | Nut, #10-32 with Lockwasher, Zinc, Bk. | 18349 |
| 5 | 1 | Hinge, 2" x 1/4" x 29", Stainless | 18619W029 |
| 6 | 2 | Washer, 1/4" Flat | 10062 |
| 7 | 2 | Bolt, 1/4"-20 x 3/4" BHCS NLYK/BKZN | 25371 |
| Item | Qty. | Description | Part No. |
| 8 | 1 | Cam, Fold, Wmt., Ramp Ext. Outside | 52570W2905 |
| 9 | 1 | Cam, Fold, Ramp Ext., Center | 52569-2905 |
| 10 | 1 | Cam, Fold, Ramp Ext., Inside | 52567-2905NC |
| 11 | 4 | Bumper, Rubber, Recess, 31/32" OD | 10950 |
| 12 | 2 | Bearing, Flange, 5/8" x 3/8", 10FDU06 | 26046 |
| 13 | 1 | Chain, #25, Roller, Plated | 25155R009.25 |
| 14 | 1 | Link, Chain, #25, Plated | 25156 |

Repair Parts

29" Power Ramp Motor Assembly - Swing



?? Represents color. Order parts per applicable color.

| Color | ?? |
|--------------|-----------|
| Navy Blue | NB |
| Sandstone | SS |
| Taupe | TP |

Apply Blue #242 Thread Locker Loctite® to Item 2 (Qty. 3) and Item 5 (Qty. 1). Loctite® is available from The Braun Corporation under part number 18822.

29" Power Ramp Motor Assembly (Swing) Parts List

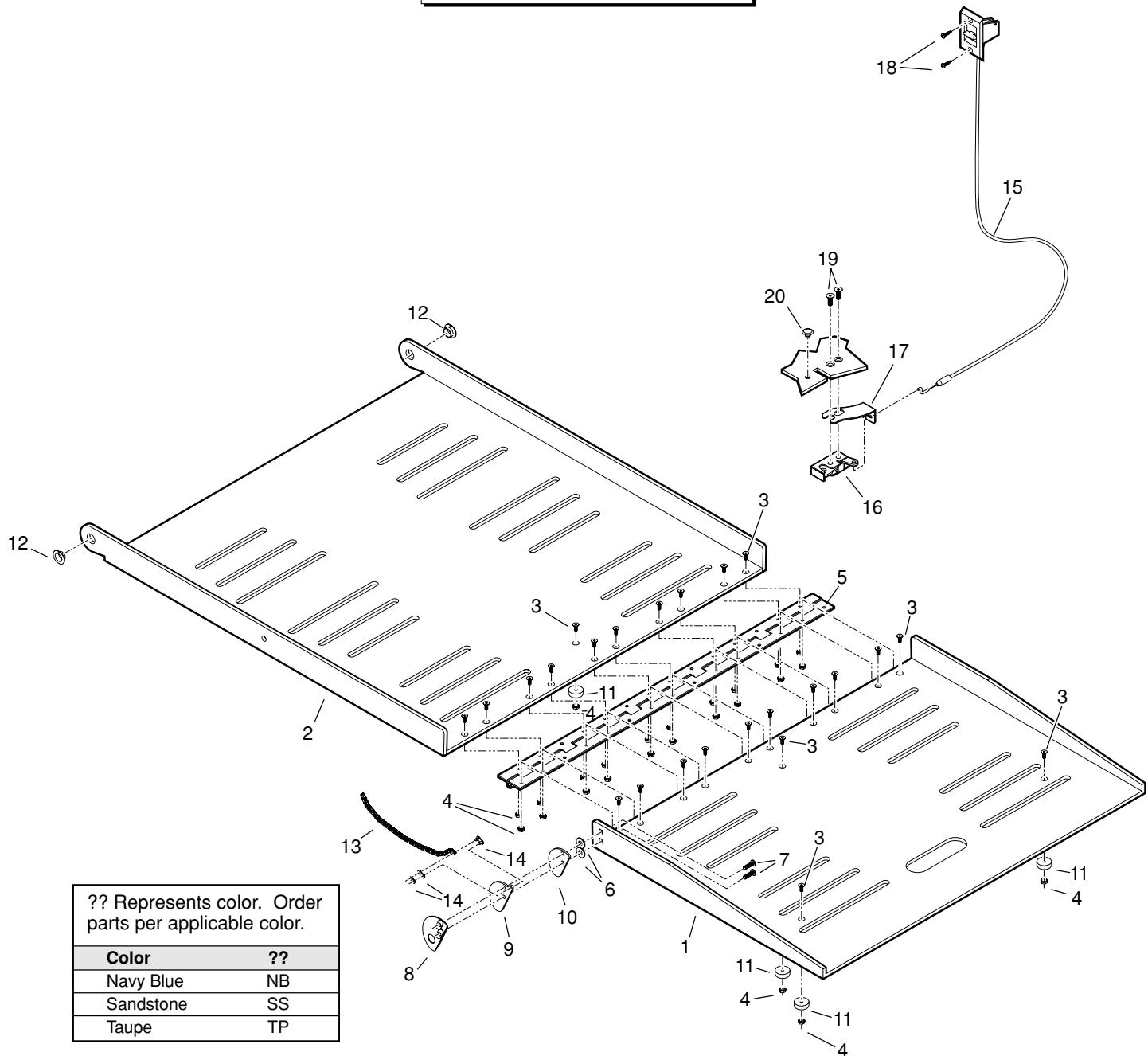
| Item | Qty. | Description | Part No. |
|------|------|--|---------------|
| 1 | 1 | Ramp Assembly, Power, 29", Series 05 | E50264A?? |
| 2 | 3 | Bolt, 3/8"-16 x 3/4" FLBHSCS-GD8 | 25171 |
| 3 | 2 | Pivot Pin, Bushing, EV Ramp, 2905 | 52571-2905 |
| 4 | 1 | Support Weldment, Power Ramp, 29" | 51515W-2905?? |
| 5 | 1 | Bolt, 1/4"-20 x 1-1/2" Hex | 10002 |
| 6 | 1 | Hose, 7/16" x 1/16" Wall, Clear Vinyl | 26102R001.25 |
| 7 | 1 | Washer, 1/4" Flat | 10062 |
| 8 | 1 | Drive Arm Weldment | 51504W2905?? |
| 9 | 1 | Collar, Split, 3/4", Shaft, Ramp | 52565-2905?? |
| 10 | 4 | Screw, 1/4"-20 x 1" Socket Head, Cap | 24221 |
| 11 | 1 | Bracket, Cable Tensioner, Outer | 52568-2905?? |
| 12 | 2 | Screw, #10-32 x 1/2" But. Hd., Hex, Soc. | 17193 |
| 13 | 1 | Latch Bolt, Support, 29" Ramp | 51541-2905 |
| 14 | 1 | Pin, Ramp Support, 29" Ramp | 51815-2905 |
| 15 | 4 | Bolt, 5/16-18 x 3/4", BHCS, Black | 24440 |
| 16 | 4 | Washer, 5/16", Lock | 10068 |
| 17 | 1 | Retainer, Bearing | 21451 |

| Item | Qty. | Description | Part No. |
|------|------|---------------------------------------|--------------|
| 18 | 1 | Bearing, 1/2" ID x 1-1/8" OD, Ball | 21371 |
| 19 | 1 | Washer, .519" ID x .876" OD x .074" | 12621 |
| 20 | 1 | Cover, Motor, Side Shield Weldment | Per Series |
| | | A. Series 01 and 02 (8.417") | E50146 |
| | | B. Series 03 (7.417") | E5014603 |
| 21 | 3 | Bolt, 1/4"-20 x 1/2", But. Head, Soc. | 15733 |
| 22 | 2 | Microswitch | 23184 |
| 23 | 4 | Screw, #4-40 x 3/4", Round Head | 11483 |
| 24 | 2 | Plate, Tapped #4-40, Microswitch | 24998 |
| 25 | 1 | Motor, Ramp Assembly, Klauber | 51654AK2907 |
| 26 | 1 | Cam, Microswitch Adjustment | 52573-2905 |
| 27 | 1 | Screw, #10-32 x 5/16", Set | 11562 |
| 28 | 1 | Link, Chain, #25 Plated | 25156 |
| 29 | 1 | Chain, #25, Roller, Plated | 25155R009.25 |
| 30 | 2 | Washer, #10 Flat | 11541 |
| 31* | 1 | Hose, 7/16" x 1/16" Wall, Clear Vinyl | 26102R (5") |
| 32 | 1 | Button, Guide .328 Dia., UHMW, Black | 52576-2905 |

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

Repair Parts

29" Power Ramp Assembly - Swing



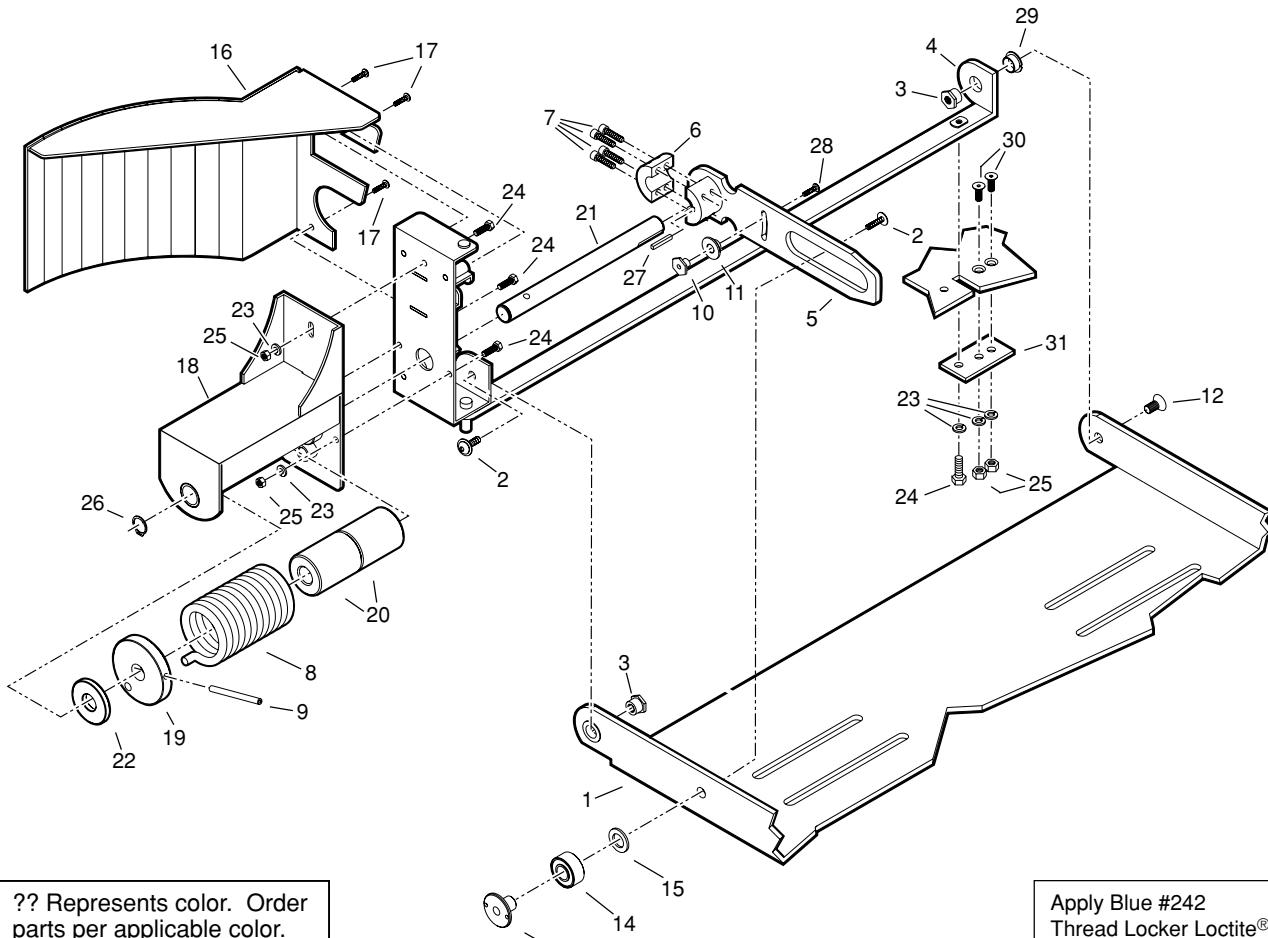
29" Power Ramp Assembly (Swing) Parts List

| Item | Qty. | Description | Part No. |
|------|------|--|--------------|
| 1 | 1 | Ramp, Extension, 29" | E50262?? |
| 2 | 1 | Ramp, 29", Series 05 | E50263?? |
| 3 | 24 | Screw, #10-32 x 1/2", FL HD-HX SKT/BLK ZNC | 17192P |
| 4 | 24 | Nut, #10-32 with Lockwasher, Zinc, Bk. | 18349 |
| 5 | 1 | Hinge, 2" x 1/4" x 29", Stainless | 18619W029 |
| 6 | 2 | Washer, 1/4" Flat | 10062 |
| 7 | 2 | Bolt, 1/4"-20 x 3/4" BHCS NLYK/BKZN | 25371 |
| 8 | 1 | Cam, Fold, Wmt., Ramp Ext. Outside | 52570W2905 |
| 9 | 1 | Cam, Fold, Ramp Ext., Center | 52569-2905 |
| 10 | 1 | Cam, Fold, Ramp Ext., Inside | 52567-2905NC |

| Item | Qty. | Description | Part No. |
|------|------|--|--------------|
| 11 | 4 | Bumper, Rubber, Recess, 31/32" OD | 10950 |
| 12 | 2 | Bearing, Flange, 5/8" x 3/8", 10FDU06 | 26046 |
| 13 | 1 | Chain, #25, Roller, Plated | 25155R009.25 |
| 14 | 1 | Link, Chain, #25, Plated | 25156 |
| 15 | 1 | Cable, Latch, Swing-Out Ramp | 51662 |
| 16 | 1 | Latch, Ramp, 29" Swing-Out | 51652 |
| 17 | 1 | Bracket, Cable, Swing-Out Ramp, 2905 | E50252 |
| 18 | 2 | Screw, #6 x 1/2", Oval, Phillips, Zinc | 24136 |
| 19 | 2 | Bolt, 1/4"-20 x 3/4", Flat, Socket, Cap Head | 18708 |
| 20 | 1 | Button, Guide, .328" Dia., UHMW, Black | 52576-2905 |

Repair Parts

29" Manual Ramp Assembly - Stationary



?? Represents color. Order parts per applicable color.

| Color | ?? |
|-----------|----|
| Navy Blue | NB |
| Sandstone | SS |
| Taupe | TP |

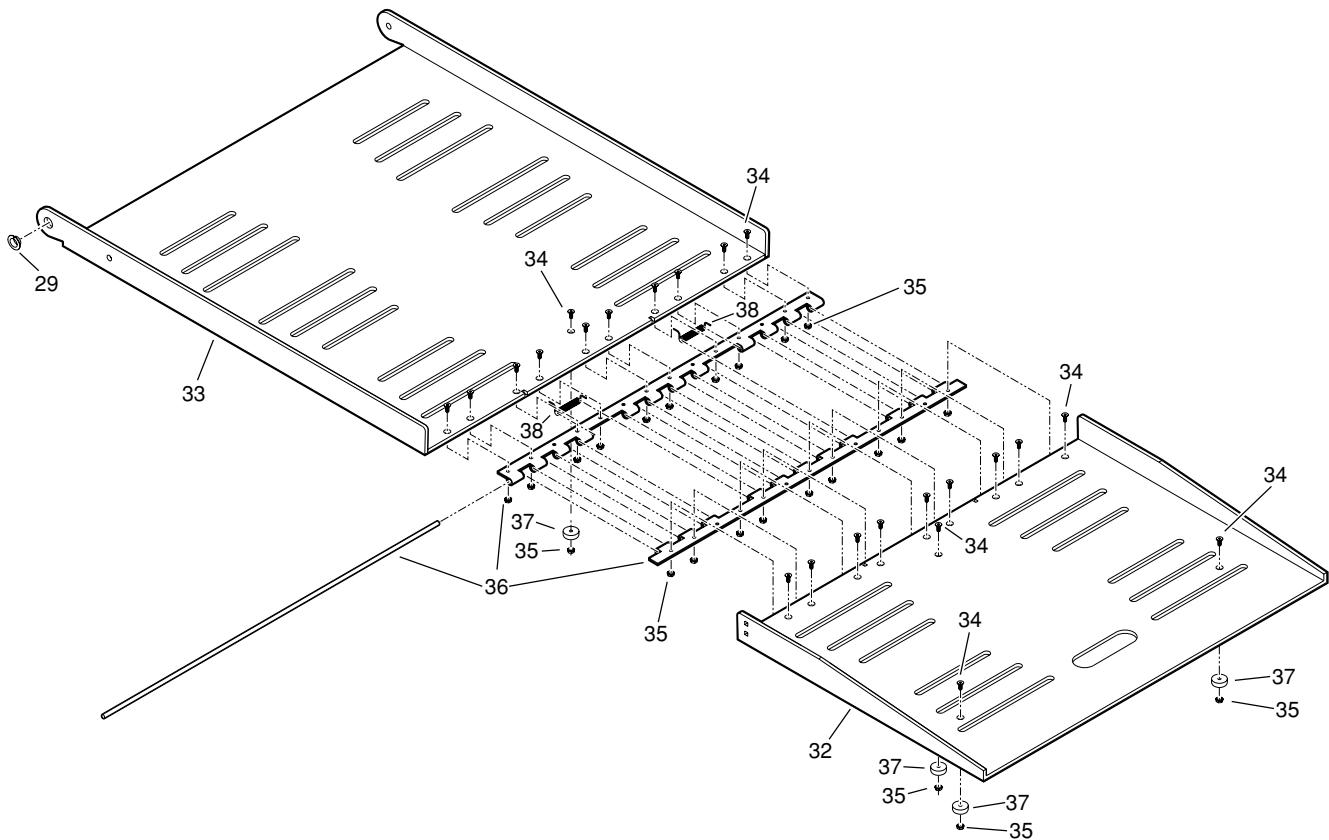
Apply Blue #242 Thread Locker Loctite® to Item 2 (Qty. 2) and Item 12 (Qty. 1). Loctite® is available from The Braun Corporation under part number 18822.

| Item | Qty. | Description | Part No. |
|------|------|--|---------------|
| 1 | 1 | Ramp Assembly, Man., Torsion Spring Assist | E50321A?? |
| 2 | 2 | Bolt, 3/8"-16 x 3/4" FLBHSCS-GD8 | 25171 |
| 3 | 2 | Pivot Pin, Bushing, EV Ramp, 2905 | 52571-2905 |
| 4 | 1 | Support Weldment, Ramp | 51515W-2906?? |
| 5 | 1 | Drive Arm Weldment | 51504W3005?? |
| 6 | 1 | Collar, Split, 3/4", Shaft | 52565-2905?? |
| 7 | 4 | Screw, 1/4"-20 x 1" Socket Head Cap | 24221 |
| 8 | 1 | Spring, Torsion | 51569 |
| 9 | 1 | Pin, Roll, 1/4" x 3" | 26188 |
| 10 | 1 | Latch Bolt, Support, Ramp | 51541-2905 |
| 11 | 1 | Pin, Ramp Support | 51815-2905 |
| 12 | 1 | Screw, 3/8"-16 x 3/4" FHSC, Black | 26214 |
| 13 | 1 | Retainer, Bearing | 21451 |
| 14 | 1 | Bearing, 1/2" ID x 1-1/8" OD, Ball | 21371 |
| 15 | 1 | Washer, .519" ID x .876" OD x .074" | 12621 |
| 16 | 1 | Cover, Spring, Side Shield Weldment | E50146W03 |

| Item | Qty. | Description | Part No. |
|------|------|--|-------------|
| 17 | 3 | Bolt, 1/4"-20 x 1/2", Button Head, Socket | 15733 |
| 18 | 1 | Housing Weldment, Manual Ramp | 51552W-3005 |
| 19 | 1 | Collar, Ramp, Manual | 51553-3005 |
| 20 | 2 | Spacer, 1.88" OD x .75" ID x 2.38", Black UHMW | 51555-3005 |
| 21 | 1 | Shaft, Ramp, Manual | 51556-3005 |
| 22 | 1 | Spacer, 2" OD x .75" ID x .25", Black UHMW | 51571-3005 |
| 23 | 6 | Washer, 1/4" Lock | 10067 |
| 24 | 4 | Bolt, 1/4"-20 x 3/4", Hex | 10970 |
| 25 | 5 | Nut, 1/4"-20, Hex | 10057 |
| 26 | 1 | Ring, 3/4", External Snap | 18657 |
| 27 | 1 | Key, 3/16" x 3/16" x 1-1/4" | 11002 |
| 28 | 1 | Bolt, Carriage, 1/4"-20 x 3/4" | 13434 |
| 29 | 2 | Bearing, Flange, 5/8" x 3/8", 10FDU06 | 26046 |
| 30 | 2 | Bolt, 1/4"-20 x 3/4", Flat, Socket Hd, Cap | 18708 |
| 31 | 1 | Plate, Non-Swing, Auto | 52533-3005 |

Repair Parts

29" Manual Ramp Assembly - Stationary



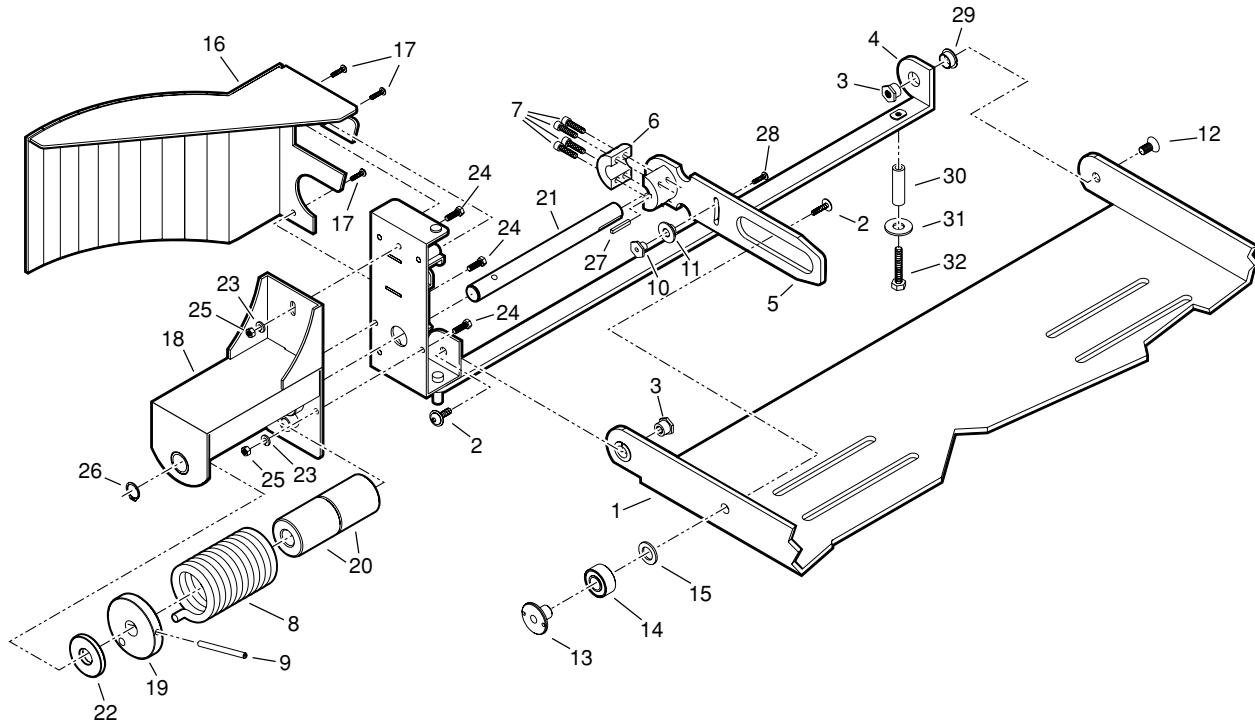
| Item | Qty. | Description | Part No. |
|------|------|---|------------|
| 32 | 1 | Ramp, Extension | E50320?? |
| 33 | 1 | Ramp | E50319?? |
| 34 | 23 | Screw, #10-32 x 1/2" FL HD, Hex Soc./BKZN | 17192 |
| 35 | 23 | Nut, #10-32 with Lockwasher, Zinc, Black | 18349 |
| 36 | 1 | Hinge | 51554-2906 |
| 37 | 4 | Bumper, Rubber, Recess, 31/32" OD | 10950 |
| 38 | 2 | Spring, Torsion, .406" OD x .065" x 1.85" | 51570 |

?? Represents color. Order parts per applicable color.

| Color | ?? |
|-----------|----|
| Navy Blue | NB |
| Sandstone | SS |
| Taupe | TP |

Repair Parts

29" Manual Ramp Assembly - Swing



?? Represents color. Order parts per applicable color.

| Color | ?? |
|-----------|----|
| Navy Blue | NB |
| Sandstone | SS |
| Taupe | TP |

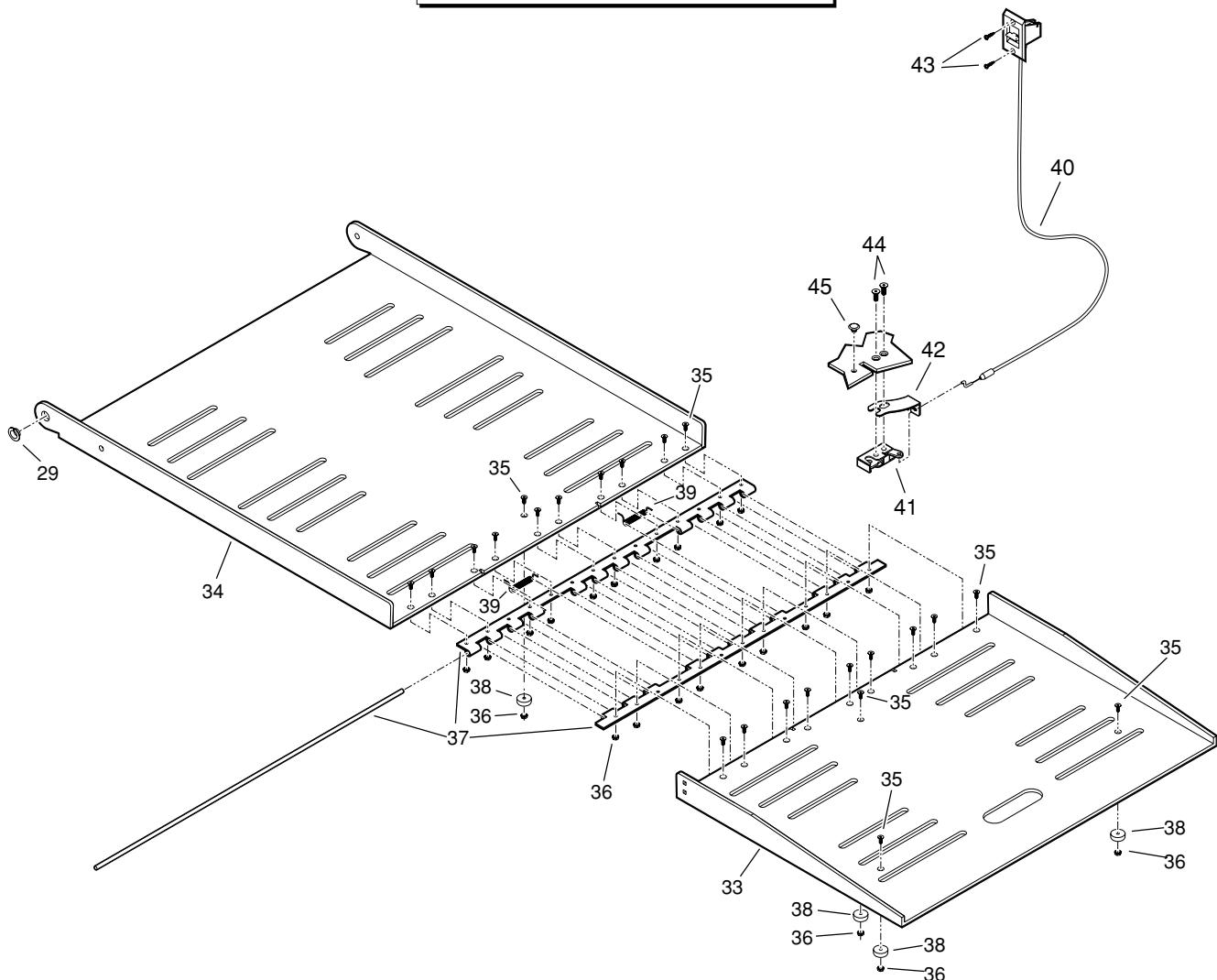
Apply Blue #242 Thread Locker Loctite® to Item 2 (Qty. 2), Item 12 (Qty. 1) and Item 32 (Qty. 1). Loctite® is available from The Braun Corporation under part number 18822.

| Item | Qty. | Description | Part No. |
|------|------|--|---------------|
| 1 | 1 | Ramp Assembly, Man., Torsion Spring Assist | E50321A?? |
| 2 | 2 | Bolt, 3/8"-16 x 3/4" FLBHSCS-GD8 | 25171 |
| 3 | 2 | Pivot Pin, Bushing, EV Ramp, 2905 | 52571-2905 |
| 4 | 1 | Support Weldment, Ramp | 51515W-2906?? |
| 5 | 1 | Drive Arm Weldment | 51504W3005?? |
| 6 | 1 | Collar, Split, 3/4", Shaft | 52565-2905?? |
| 7 | 4 | Screw, 1/4"-20 x 1" Socket Head Cap | 24221 |
| 8 | 1 | Spring, Torsion | 51569 |
| 9 | 1 | Pin, Roll, 1/4" x 3" | 26188 |
| 10 | 1 | Latch Bolt, Support, Ramp | 51541-2905 |
| 11 | 1 | Pin, Ramp Support | 51815-2905 |
| 12 | 1 | Screw, 3/8"-16 x 3/4" FHSC, Black | 26214 |
| 13 | 1 | Retainer, Bearing | 21451 |
| 14 | 1 | Bearing, 1/2" ID x 1-1/8" OD, Ball | 21371 |
| 15 | 1 | Washer, .519" ID x .876" OD x .074" | 12621 |
| 16 | 1 | Cover, Spring, Side Shield Weldment | E50146W03 |

| Item | Qty. | Description | Part No. |
|------|------|--|--------------|
| 17 | 3 | Bolt, 1/4"-20 x 1/2", Button Head, Socket | 15733 |
| 18 | 1 | Housing Weldment, Manual Ramp | 51552W-3005 |
| 19 | 1 | Collar, Ramp, Manual | 51553-3005 |
| 20 | 2 | Spacer, 1.88" OD x .75" ID x 2.38", Black UHMW | 51555-3005 |
| 21 | 1 | Shaft, Ramp, Manual | 51556-3005 |
| 22 | 1 | Spacer, 2" OD x .75" ID x .25", Black UHMW | 51571-3005 |
| 23 | 3 | Washer, 1/4" Lock | 10067 |
| 24 | 3 | Bolt, 1/4"-20 x 3/4", Hex | 10970 |
| 25 | 3 | Nut, 1/4"-20, Hex | 10057 |
| 26 | 1 | Ring, 3/4", External Snap | 18657 |
| 27 | 1 | Key, 3/16" x 3/16" x 1-1/4" | 11002 |
| 28 | 1 | Bolt, Carriage, 1/4"-20 x 3/4" | 13434 |
| 29 | 2 | Bearing, Flange, 5/8" x 3/8", 10FDU06 | 26046 |
| 30 | 1 | Hose, 7/16" x 1/16" Wall, Clear Vinyl | 26102R001.25 |
| 31 | 1 | Washer, 1/4" Flat | 10062 |
| 32 | 1 | Bolt, 1"-20 x 1-1/2" Hex | 10002 |

Repair Parts

29" Manual Ramp Assembly - Swing



?? Represents color. Order parts per applicable color.

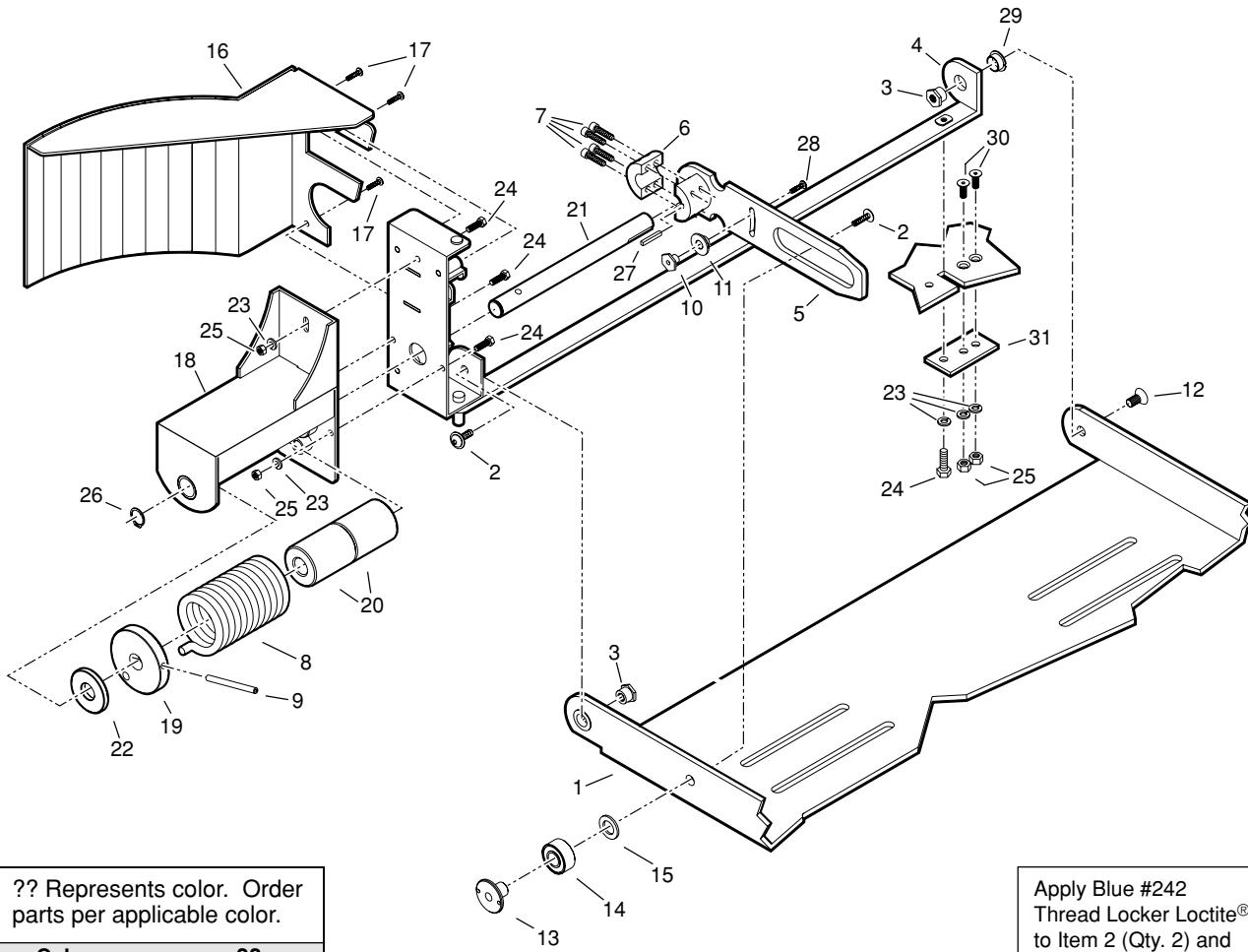
| Color | ?? |
|-----------|----|
| Navy Blue | NB |
| Sandstone | SS |
| Taupe | TP |

| Item | Qty. | Description | Part No. |
|------|------|---|------------|
| 33 | 1 | Ramp, Extension | E50320?? |
| 34 | 1 | Ramp | E50319?? |
| 35 | 23 | Screw, #10-32 x 1/2" FL HD, Hex Soc./BKZN | 17192 |
| 36 | 23 | Nut, #10-32 with Lockwasher, Zinc, Black | 18349 |
| 37 | 1 | Hinge | 51554-2906 |
| 38 | 4 | Bumper, Rubber, Recess, 31/32" OD | 10950 |
| 39 | 2 | Spring, Torsion, .406" OD x.065" x 1.85" | 51570 |

| Item | Qty. | Description | Part No. |
|------|------|--|------------|
| 40 | 1 | Cable, Latch, Swing-Out Ramp | 51662 |
| 41 | 1 | Latch, Ramp, Swing-Out | 51652 |
| 42 | 1 | Bracket, Cable, Swing-Out Ramp, 2905 | E50252 |
| 43 | 2 | Screw, #6 x 1/2", Oval, Phillips, Zinc | 24136 |
| 44 | 2 | Bolt, 1/4"-20 x 3/4", Flat, Socket, Cap Head | 18708 |
| 45 | 1 | Button, Guide, .328" Dia., UHMW, Black | 52576-2905 |
| | | | |

Repair Parts

30" Manual Ramp Assembly - Stationary



?? Represents color. Order parts per applicable color.

| Color | ?? |
|-----------|----|
| Navy Blue | NB |
| Sandstone | SS |
| Taupe | TP |

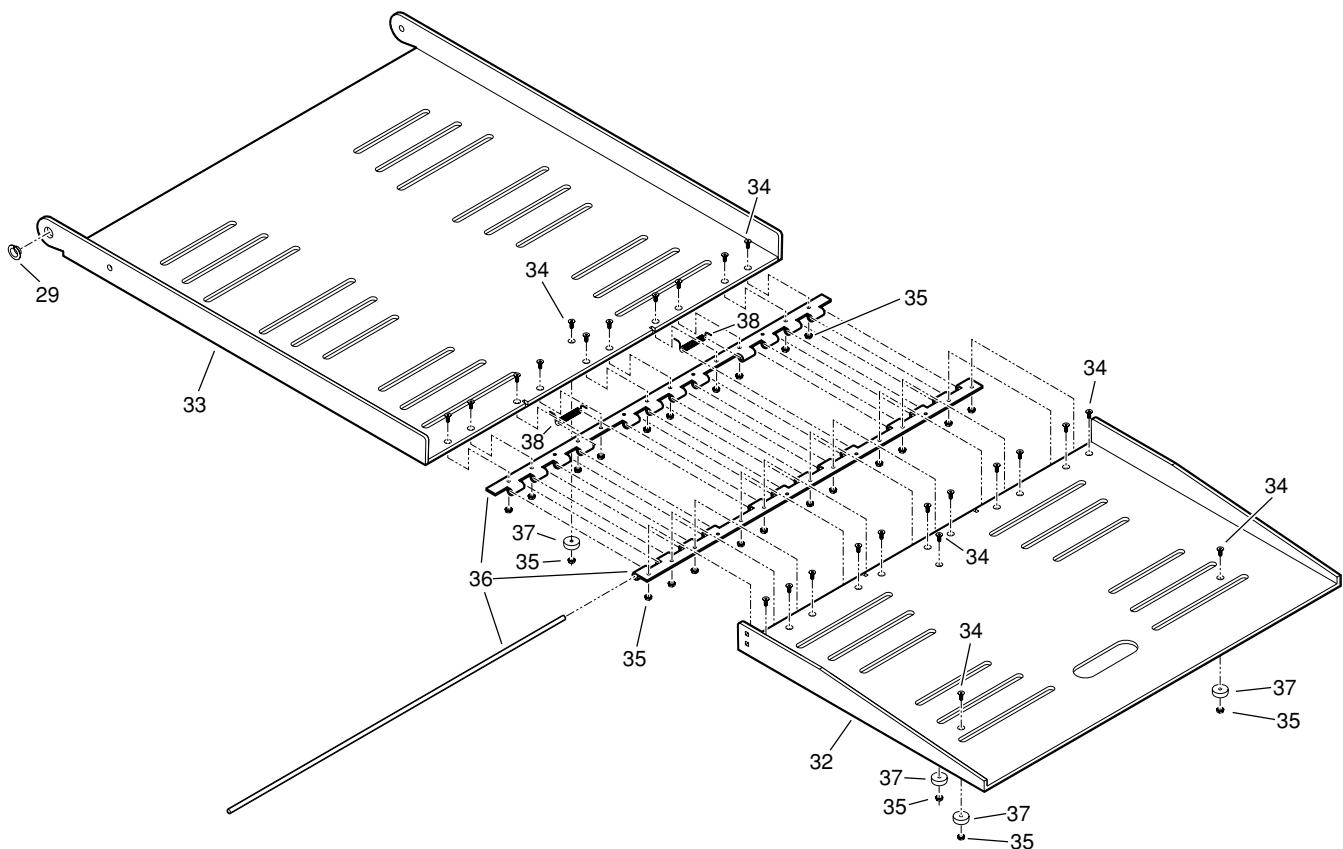
Apply Blue #242 Thread Locker Loctite® to Item 2 (Qty. 2) and Item 12 (Qty. 1). Loctite® is available from The Braun Corporation under part number 18822.

| Item | Qty. | Description | Part No. |
|------|------|--|---------------|
| 1 | 1 | Ramp Assembly, Man., Torsion Spring Assist | E50322A?? |
| 2 | 2 | Bolt, 3/8"-16 x 3/4" FLBHSCS-GD8 | 25171 |
| 3 | 2 | Pivot Pin, Bushing, EV Ramp, 2905 | 52571-2905 |
| 4 | 1 | Support Weldment, Ramp | 51515W-3003?? |
| 5 | 1 | Drive Arm Weldment | 51504W3005?? |
| 6 | 1 | Collar, Split, 3/4", Shaft | 52565-2905?? |
| 7 | 4 | Screw, 1/4"-20 x 1" Socket Head Cap | 24221 |
| 8 | 1 | Spring, Torsion | 51569 |
| 9 | 1 | Pin, Roll, 1/4" x 3" | 26188 |
| 10 | 1 | Latch Bolt, Support, Ramp | 51541-2905 |
| 11 | 1 | Pin, Ramp Support | 51815-2905 |
| 12 | 1 | Screw, 3/8"-16 x 3/4" FHSC, Black | 26214 |
| 13 | 1 | Retainer, Bearing | 21451 |
| 14 | 1 | Bearing, 1/2" ID x 1-1/8" OD, Ball | 21371 |
| 15 | 1 | Washer, .519" ID x .876" OD x .074" | 12621 |
| 16 | 1 | Cover, Spring, Side Shield Weldment | E50146W03 |

| Item | Qty. | Description | Part No. |
|------|------|--|-------------|
| 17 | 3 | Bolt, 1/4"-20 x 1/2", Button Head, Socket | 15733 |
| 18 | 1 | Housing Weldment, Manual Ramp | 51552W-3005 |
| 19 | 1 | Collar, Ramp, Manual | 51553-3005 |
| 20 | 2 | Spacer, 1.88" OD x .75" ID x 2.38", Black UHMW | 51555-3005 |
| 21 | 1 | Shaft, Ramp, Manual | 51556-3005 |
| 22 | 1 | Spacer, 2" OD x .75" ID x .25", Black UHMW | 51571-3005 |
| 23 | 6 | Washer, 1/4" Lock | 10067 |
| 24 | 4 | Bolt, 1/4"-20 x 3/4", Hex | 10970 |
| 25 | 5 | Nut, 1/4"-20, Hex | 10057 |
| 26 | 1 | Ring, 3/4", External Snap | 18657 |
| 27 | 1 | Key, 3/16" x 3/16" x 1-1/4" | 11002 |
| 28 | 1 | Bolt, Carriage, 1/4"-20 x 3/4" | 13434 |
| 29 | 2 | Bearing, Flange, 5/8" x 3/8", 10FDU06 | 26046 |
| 30 | 2 | Bolt, 1/4"-20 x 3/4", Flat, Socket Hd, Cap | 18708 |
| 31 | 1 | Plate, Non-Swing, Auto | 52533-3005 |

Repair Parts

30" Manual Ramp Assembly - Stationary



| Item | Qty. | Description | Part No. |
|------|------|---|----------|
| 32 | 1 | Ramp, Extension | E50324?? |
| 33 | 1 | Ramp | E50323?? |
| 34 | 25 | Screw, #10-32 x 1/2" FL HD, Hex Soc./BKZN | 17192 |
| 35 | 25 | Nut, #10-32 with Lockwasher, Zinc, Black | 18349 |
| 36 | 1 | Hinge | 51554 |
| 37 | 4 | Bumper, Rubber, Recess, 31/32" OD | 10950 |
| 38 | 2 | Spring, Torsion, .406" OD x .065" x 1.85" | 51570 |

?? Represents color. Order parts per applicable color.

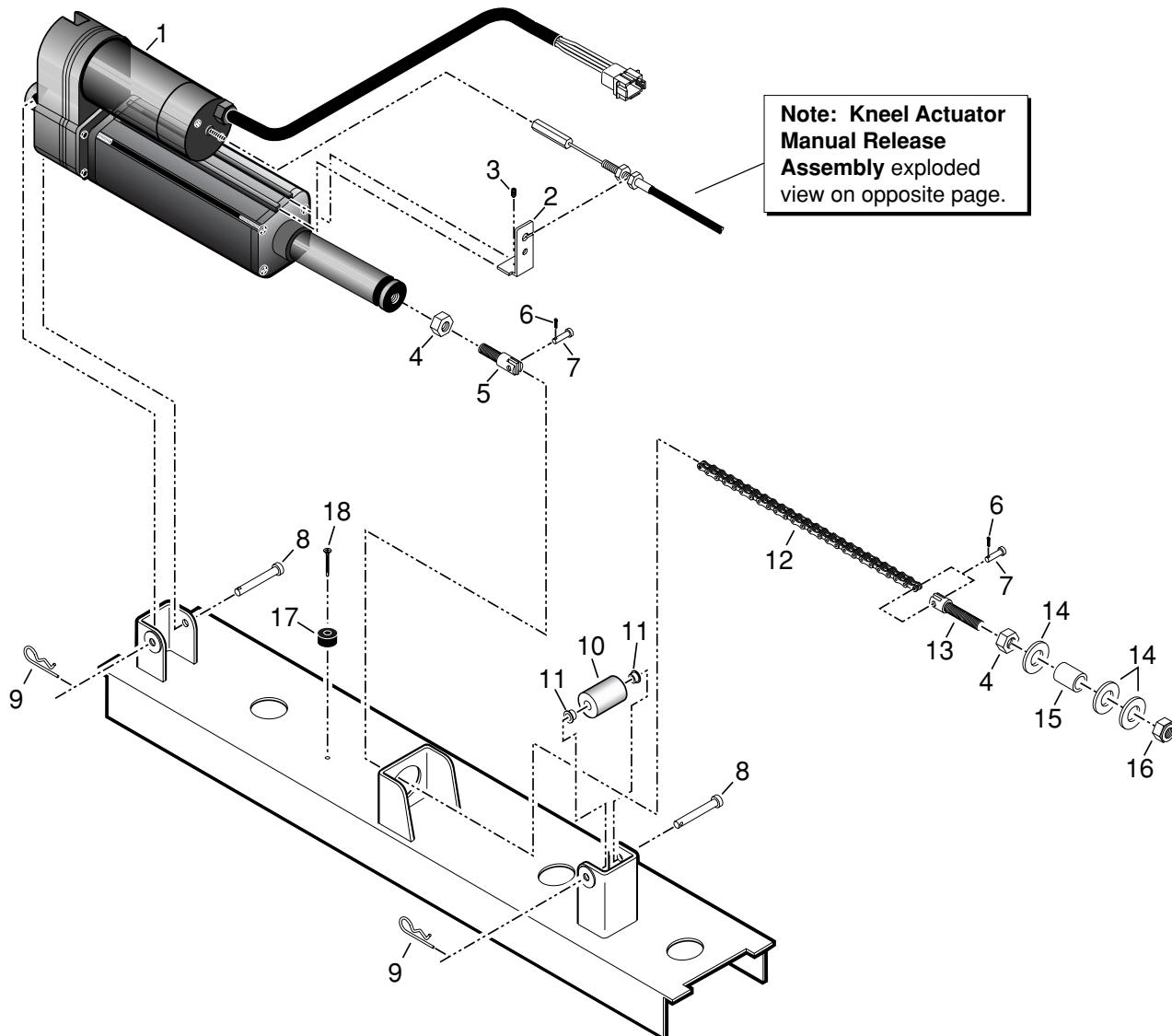
| Color | ?? |
|-----------|----|
| Navy Blue | NB |
| Sandstone | SS |
| Taupe | TP |

Repair Parts

| Item | Qty. | Description | Part No. |
|------|------|--------------------------------------|-----------|
| 1 | 1 | Actuator, Kneel | E51410-01 |
| 2 | 1 | Bracket, Emergency Release Cable | E50113 |
| 3 | 1 | Screw, 10-32 x 1/2", Set | 26613 |
| 4 | 2 | Nut, 7/16-14, Hex, Jam | 14414 |
| 5 | 1 | Bolt, Chain, 4 x 4, 7/16-14 x 1 1/2" | 27538 |
| 6 | 2 | Pin, Cottered, 4 x 4, Leaf Chain | 21759 |
| 7 | 2 | Pin Cotter, 1/32" x 1/2" (4 x 4) | 23173 |
| 8 | 2 | Pin, Clevis, 1/2" x 2 1/4" | 10908 |
| 9 | 2 | Cotter, Hairpin | 12531 |

| Item | Qty. | Description | Part No. |
|------|------|--|-----------|
| 10 | 1 | Pulley, Chain, 1 7/8" O.D. x .594" I.D. x 1.156" | E50040 |
| 11 | 2 | Bearing, 1/2" x 1/2", Flange | 27362 |
| 12 | 1 | Chain, Leaf, 4 x 4 - .5 Pitch, Coated | 27201R013 |
| 13 | 1 | Bolt, Chain, 4 x 4, 7/16-14 x 2 3/8" | 22868 |
| 14 | 3 | Washer, 1/2", Flat | 10065 |
| 15 | 1 | Tubing, 3/4" O.D. x .510" I.D. x 1" | 13135R001 |
| 16 | 1 | Nut, 7/16-14 , Hex, Nylock | 12895 |
| 17 | 1 | Bumper, Rubber, 70 DUR | 19512 |
| 18 | 1 | Screw, #10-16 x 1/2", WH/PHL SD | 18659 |

Kneel Actuator Assembly

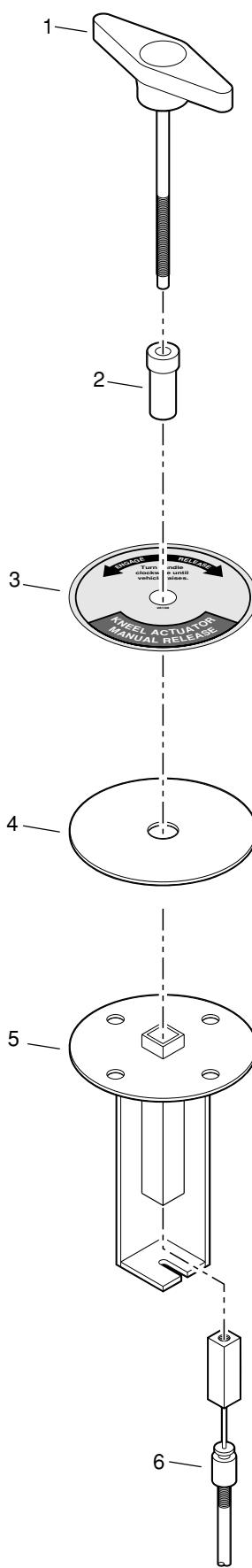


Repair Parts

Kneel Actuator Manual Release Assembly

| Item | Qty. | Description | Part No. |
|------|------|----------------------------------|------------|
| 1 | 1 | T-Handle, Manual Release | 51864 |
| 2 | 1 | Guide, Release Cable, UHMW | 52518 |
| 3 | 1 | Decal, Kneel Act. Man. Rel. | 26108 |
| 4 | 1 | Plate, Decal Mounting | 52520 |
| 5 | 1 | Weldment Bracket, Manual Release | 52515W |
| 6 | 1 | Cable Assembly | 52003-9606 |

Note: Kneel Actuator Assembly exploded view on opposite page.



Specifications

The following specifications are basic to the Chrysler Entervan II conversion (as equipped).

- Weight:
 - Overall Weight of Stock Van (depends on type of van): Approximately 4050 pounds
 - Conversion Add-On Weight (depends on type and options): Approximately 332 pounds
- Power source is 12 VDC battery with negative ground.
- Electromechanical Kneeling System (option) incorporating:
 - Factory (OEM) DaimlerChrysler leaf springs
 - Heavy-duty weatherproof linear actuator with electric brake
 - Industrial four-leaf roller chain
 - On/Off (toggled by remote control)
 - Manual release (mechanical brake override)
- Electronic System Controller for power door, power ramp and kneel.
 - Obstruction Sensing

The performance data contained within the **Operations Cycle Times Chart** provides general performance criteria. This information is compiled from tests conducted on **standard** Entervan II conversions equipped with optional power features meeting the following **constant** operational specifications.

Operational Specifications:

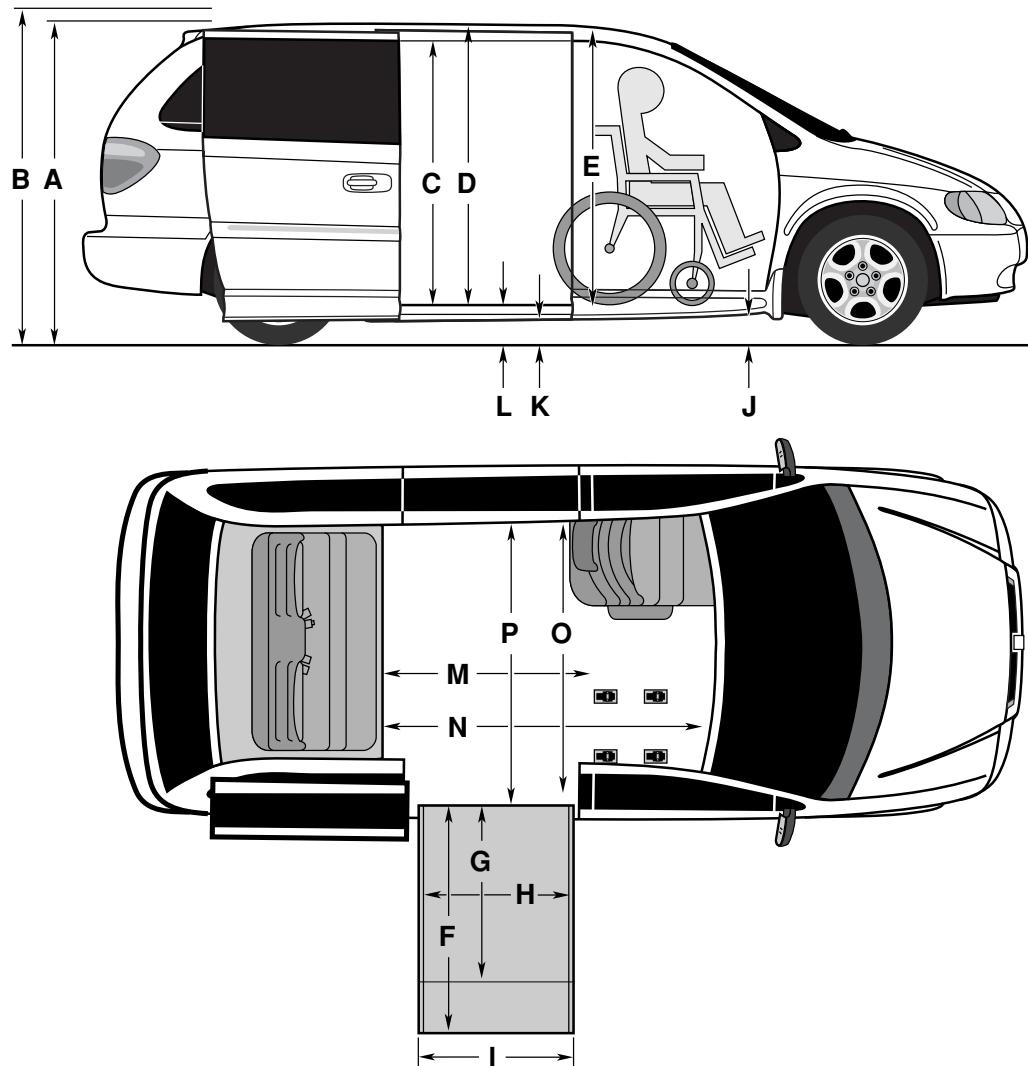
- Environmental temperature of 72° F. Extremely low temperatures can moderately affect cycle time.
- Fully charged 12 volt DC power source. Low voltage will moderately affect test results.
- Door and ramp cycles timed with vehicle in kneeled (lowered) position.

| Operations Cycle Times | | |
|------------------------|----------------------------|--------------------------|
| Operation | | Duration (Min. to Max.) |
| Kneel (Down) | Actuator Run Time | 11.25 sec. to 11.94 sec. |
| | Lower Time only | 6.32 sec. to 7.39 sec. |
| Door Open | | 5.80 sec. to 6.28 sec. |
| Ramp Unfold | Motor Run Time only | 5.62 sec. to 6.34 sec. |
| | Fully Deployed | 9.66 sec. to 10.30 sec. |
| Ramp Fold | | 11.52 sec. to 11.68 sec. |
| Door Close | | 8.34 sec. to 8.54 sec. |
| Kneel (Up) | Actuator Run Time | 9.58 sec. to 10.26 sec. |
| | Raise Time only | 5.13 sec. to 5.84 sec. |

Dimensions

| | | |
|---|----------|--------------------------------------|
| Overall Height of Van | A | 68-7/8" |
| Overall Height of Van with Luggage Rack | B | 71-1/8" |
| Door Opening Usable Height (Slide Doors) | C | 53" |
| Interior Height at Center of Van | D | 57-1/2" |
| Interior Height at Driver and Passenger Positions | E | 56-1/2" |
| Ramp Length | F | 52-5/8" |
| Ramp Length (First Section Only) | G | 31-3/8" |
| Ramp Width (Usable Clear Opening) | H | 29-1/4" |
| Ramp Width | I | 29-3/4" |
| Ground Clearance at Frame | J | 5-3/8" |
| Ground Clearance at Slide Doors | K | 5" Raised 3-5/8" Lowered |
| Height at Floor | L | 10-1/4" Raised 7-3/4" Lowered |
| Interior Floor Length (Flat Ramp Area) | M | 54" |
| Overall Interior Floor Length | N | 83" |
| Interior Width Behind Driver Seat | O | 59-1/2" |
| Interior Width at Middle of Ramp | P | 65-1/2" |

Due to manufacturing tolerances both with the OEM vehicle and the conversion components, all dimensions may vary slightly from those shown.



Warranty

In accordance with the Chrysler 7 year/100,000 mile corrosion warranty, The Braun Corporation warrants to the purchaser of its Entervan conversion that the metal fabrication on or of the frame, floor and lowered door extension are free from defects in material and factory workmanship for a period of 7 years or 100,000 miles on the odometer, whichever occurs first. The Braun Corporation further warrants to the purchaser that the remainder of the modifica-

tions and alterations for associated parts are free from defects in material and workmanship for a period of 36 months or 36,000 miles, whichever comes first. For clarification purposes, the following chart outlines The Braun Corporation Entervan warranty coverage. Refer to your Chrysler warranty information booklet for all Chrysler OEM (factory) limited warranty details.

| Years/Miles in Service | Specific Area Covered |
|--|---|
| 36 Months or 36,000 Miles (whichever comes first) | Entervan frame and floor structural components Entervan ramp, door and associated structural components Entervan electrical components including but not limited to switches, relays, connectors and solenoids Entervan electromechanical kneel systems including but not limited to electric actuator, chain, pulleys and associated hardware Entervan appearance items including but not limited to interior floor covering and slide door lowered extension assemblies. |
| 7 Year or 100,000 Miles (whichever comes first) Corrosion Warranty see *Exceptions at right | <p>Corrosion Warranty:</p> <p>Entervan frame, floor and lower door modification metal fabrication corrosion applies to perforation only. Entervan lower slide door modification corrosion applies to outer-body sheet metal and paint. Perforation is a rust-through condition such as an actual hole in the metal.</p> <p>* Exceptions: Cosmetic or surface corrosion (resulting from stone chips for example) would not be covered or repaired under this coverage. If corrosion does not cause holes, and is not the result of usage and/or environmental conditions, repair coverage lasts for 3 years or 36,000 miles, whichever comes first.</p> |

Both the 7 year/100,000 mile corrosion and the 3 year/36,000 mile warranties described above commence on the date the conversion is put into service, providing the warranty registration card is completed and received by The Braun Corporation within thirty days of the purchase.

The Braun Corporation agrees to repair or replace any of its Entervan factory-installed parts found to be defective within the appropriate warranty

period or mileage. This warranty also covers the cost of labor for the repair or replacement of said parts for one year provided that the repair is authorized by The Braun Corporation and carried out by an authorized service establishment (a Braun labor schedule determines the cost allowance for repairs). The Braun Corporation will not honor any warranty claim for repairs or replacement of parts unless the claim is submitted with the appropriate factory warranty authorization data and the repairs or

Warranty

replacement of the parts are completed by a factory-authorized repairman. The factory authorization data, together with the name and location of the factory-authorized repairman, can be obtained by either written or telephone contact with The Braun Corporation at the addresses appearing in this manual.

- The return authorization procedure must be adhered to in order to process any warranty and repair claims (details below).
- The Braun Corporation reserves the right to designate where any warranty work is to be performed.
- The Braun Corporation also reserves the right to examine any defective workmanship or part prior to any authorization of necessary repairs. This Entervan warranty is not intended to replace or substitute any other warranties issued by the original manufacturer of the vehicle or other suppliers of components. This warranty shall not apply to any part or workmanship that may become defective due to misuse, neglect, accident or other casualty, modifications or alterations or unauthorized repairs. Further, this warranty shall not extend to parts or workmanship that may become defective because

of the failure of anyone to operate the same in accordance with the printed instructions of The Braun Corporation or because of operation of the same beyond its capacity.

- This warranty does not cover normal maintenance, service, or periodic adjustments necessitated by use or wear.
- Second buyers of a Braun Entervan conversion may transfer the remaining warranty, if any, by obtaining a transfer of warranty application from The Braun Corporation. This application must be returned to The Braun Corporation within thirty days from the date you purchase the vehicle and proof of the date of purchasing must be supplied with the transfer of warranty application. There will be a minimum warranty transfer fee.
- The Braun Corporation shall not be liable for any incidental or consequential damages resulting from any breach of warranty.
- The Braun Corporation shall not be liable for towing charges, travel and lodging, or any other expense incurred due to the loss of use of vehicle or other reason.

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 last eight digits of the vehicle identification number (VIN) are provided on the Entervan warranty cards (posted on the vehicle also). Record the VIN in the space provided on the inside front cover of this manual for future reference. This information must be provided when filing a warranty claim or ordering parts.

Last Eight Digits of
Vehicle Identification Number

| | |
|---|-----------------------|
| OWNER'S WARRANTY REGISTRATION | |
| Y B 7 3 9 4 8 7 | |
| PURCHASED FROM _____ | |
| OWNER | DATE INSTALLED |
| NAME _____ | |
| ADDRESS _____ | |
| CITY _____ | |
| TELEPHONE _____ | STATE _____ ZIP _____ |
| TO VALIDATE WARRANTY REGISTRATION CARDS MUST BE RETURNED TO THE BRAUN CORPORATION. | |

Sample Warranty Registration Card

"Providing Access to the World"



**Over 300 Braun Dealers
and Distributors Worldwide**

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



International Corporate Hdqrs: P.O. Box 310 Winamac, IN 46996 USA
1-800-THE LIFT (219) 946-6153 FAX: (219) 946-4670

2001



Braun Chrysler Entervan® Limited Warranty

The Braun Corporation agrees to repair or replace any of its Entervan factory-installed parts found to be defective within the appropriate warranty period or mileage. This warranty also covers the cost of labor for the repair or replacement of said parts for one year provided that the repair is authorized by Braun and carried out by an authorized service establishment (a Braun labor schedule determines the cost allowance for repairs). The Braun Corporation will not honor any warranty claim for repairs or replacement of parts unless the claim is submitted with the appropriate factory warranty authorization data and the repairs or replacement of the parts are completed by a factory-authorized repairman. The factory authorization data, together with the name and location of the factory-authorized repairman, can be obtained by either written or telephone contact with The Braun Corporation at the address listed below.

The return authorization procedure must be adhered to in order to process any warranty and repair claims.

The Braun Corporation reserves the right to designate where any warranty work is to be performed.

The Braun Corporation also reserves the right to examine any defective workmanship or part prior to any authorization of necessary repairs. This Entervan warranty isn't intended to replace or substitute any other warranties issued by the original manufacturer of the vehicle or other suppliers or components. This warranty shall not apply to any part or workmanship that may become defective due to misuse, neglect, accident or other casualty, modifications or alterations or unauthorized repairs. Further, this warranty shall not extend to parts or workmanship that may become defective because of the failure of anyone to operate the same in accordance with the printed instructions of The Braun Corporation or because of operation of the same beyond its capacity.

This warranty does not cover normal maintenance, service, or periodic adjustments necessitated by use or wear.

Second buyers of a Braun Entervan conversion may transfer the remaining warranty, if any, by obtaining a transfer of warranty application from The Braun Corporation. This application must be returned to The Braun Corporation within thirty days from the date you purchase the vehicle and proof of the date of purchasing must be supplied with the transfer of warranty application. There will be a minimum warranty transfer fee.

The Braun Corporation shall not be liable for any incidental or consequential damages resulting from any breach of warranty.

The Braun Corporation shall not be liable for towing charges, travel and lodging, or any other expense incurred due to the loss of use of vehicle or other reason.

Note: See Warranty section within manual for detailed warranty coverage chart.

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November 2001



**THE BRAUN
CORPORATION®**

"Providing Access to the World"

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