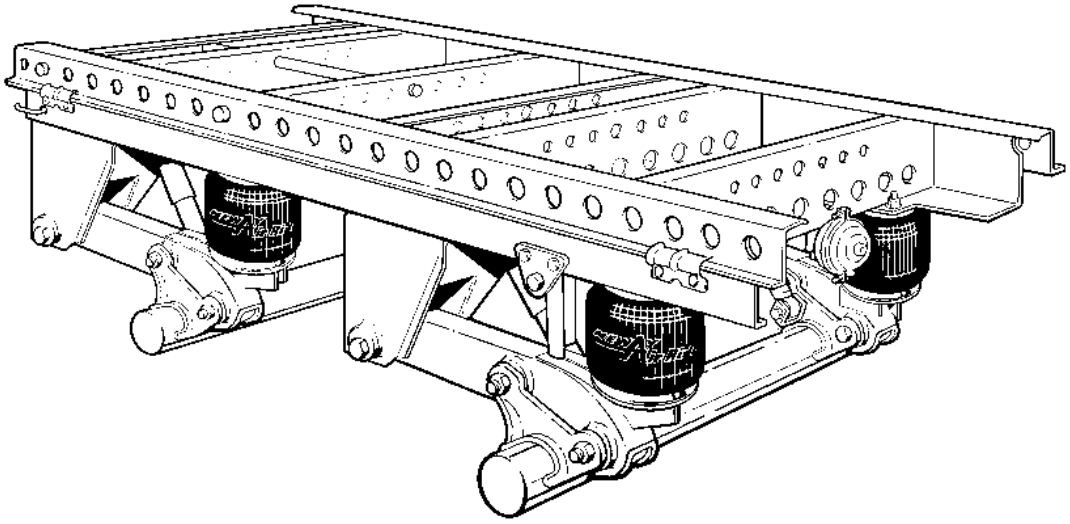
NEWLite®

MAINTENANCE MANUAL

TRAILER AIR NS SERIES

NS Series Suspension/Slider

Maintenance Manual



XL-AR415-01
Supercedes Part No. 941 00 855
Release Date: July 1999

For Parts List Information refer to Parts List Manual Form No. 2063; Part No. 941 00 854.

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Holland NEWAY®

This manual provides the information necessary for the CARE, MAINTENANCE, INSPECTION, and SAFE OPERATION of Neway's NS Series of Trailer Slider Air Suspensions. The Neway Trailer Air Suspension is designed and engineered to provide many miles of trouble-free service. In the event of a minor breakdown, such as a shock absorber or an air system failure, there are safety features designed into the suspension that will allow the trailer to be pulled CAUTIOUSLY, at a slow speed to the nearest place of repair. Check to be sure that vehicle and suspension have no other problem before towing. This suspension uses air drawn from the tractor air system to pressurize the air springs. A single height control valve system regulates the air pressure required for varying loads. This suspension can provide a cushioned ride throughout the designed load range, from empty to fully loaded. The suspension also provides excellent side-to-side and axle-to-axle loading which helps equalize and control braking.

Throughout this manual, you will notice the terms **"NOTE," "IMPORTANT,"** and **"CAUTION"** followed by important product information. So that you may better understand the manual, those terms are defined below.

NOTE: Is used as a reminder of an instruction where the concern deals with product integrity and has to do with installation, operation, maintenance or service and care of the product.

IMPORTANT: Is used as a reminder of an instruction where the concerns deal with product integrity and have to do with installation, operation, maintenance or service and care of the product. It is in-tended to show that vehicle breakdown and/or expensive repair could result if the instruction is not followed.

CAUTION: Is used with an instruction for the purpose of showing that a safe practice must be adhered to or that an unsafe practice must be avoided, and that if proper precautions are not taken, personal injury could result.

Serial Number Tag Location

The NS Series Suspension Serial Tag is located on the rear crossmember *(Fig. 1)*.

NOTE: This manual applies to the suspension series or models shown on front cover. However, we urge you to determine your specific model number, write that information below and refer to it when obtaining information or replacement parts.

NOTE: Refer to serial number tag attached to the slider rear crossmember for information.

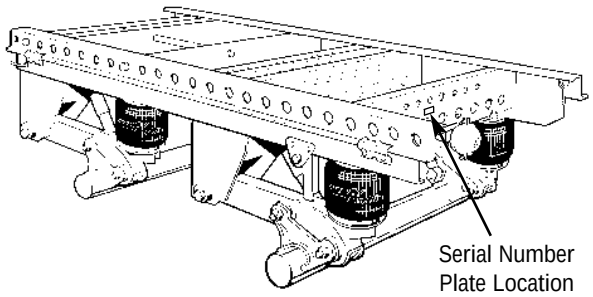
MODEL NUMBER: _____

SERIAL NUMBER: _____

PARTS LISTS NUMBER: _____

IN SERVICE DATE: _____

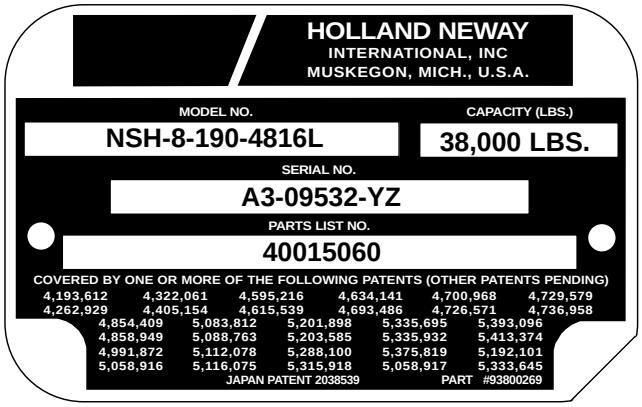
Figure 1. Serial Number Tag Location



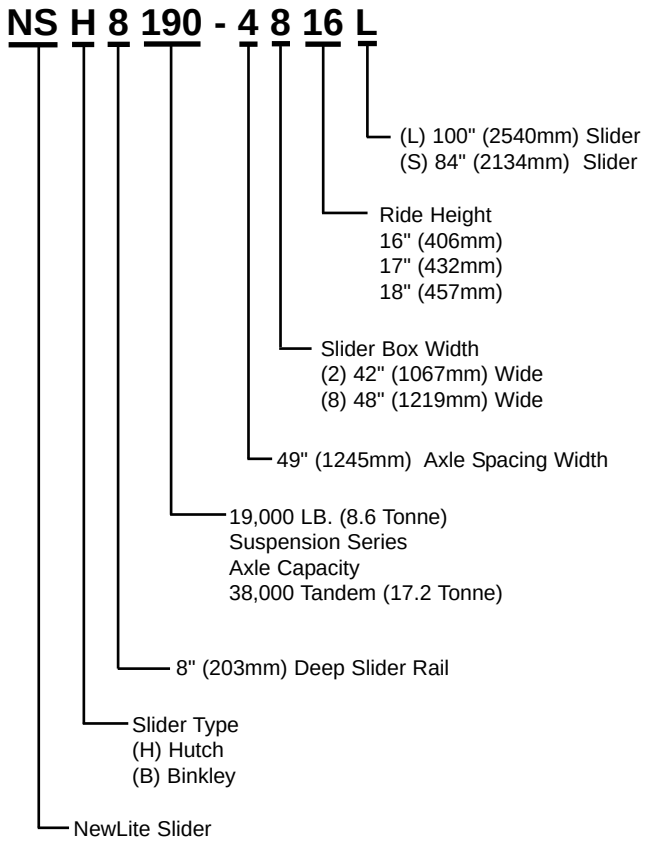
Serial Number Tag Description

The sample tag shown below will help you interpret the information on the Neway Serial Tag. The model number is on the first line along with the suspension capacity. The second line contains the serial number and the third line has the parts list numbers *(Fig. 2)*. This information will aid you when calling Neway.

Figure 2. Neway Serial Number Tag Example



Model Number Description



Prior to placing unit in service, check the following items:

CAUTION: Always block wheels to prevent rollaway when working under the vehicle.

1. Build air pressure above 75 P.S.I.G. (5 Bar). With vehicle shut off, check for air leaks.

2. With vehicle on level surface and air supply pressure in excess of 75 (5 Bar), check air springs for equal firmness.

3. Check Shock Absorbers for proper installation. Torque bolts to 150 lb. ft. (203 Nm) on bolts (*Fig. 3).*

4. Check for 1 3/4" (45mm) minimum clearance around air springs with vehicle loaded (*Fig. 3).*

5. Torque the 1 1/8" axle connection nuts to 800 lb. ft. (1083 Nm) (*Fig. 3).*

6. Ride height should be within 1/8" (3mm) measured from bottom of frame to centerline of axle *(Fig. 3).* Refer to your specific model for proper ride height.

7. Visually check welding of all axle adapters to axles, 1/2" (13mm) minimum fillet weld required *(Fig. 3).*

8. Torque 1 1/8" EZ Align pivot nut to 800 lb. ft. (1083 Nm) *(Fig. 3).*

IMPORTANT: Do NOT weld bushing halves, the EZ Align design maintains proper alignment under correct torque without welding (Fig. 4).

NOTE: Torque requirements are to be measured with clean and lubricated threads.

NOTE: EZ Align pivot connections (non-welded) are on roadside and fixed alignment pivot connections (welded) are curbside. However, some manufacturers use EZ Align on both sides.

9. Visually check welding of all fixed alignment pivot connections on both sides of frame bracket *(Fig. 5).*

10. If your vehicle is equipped with an EDL (External Dock Lock) device refer to *Fig. 6.*

Figure 3. NS Series Slider with Pre-Operational Checklist Items

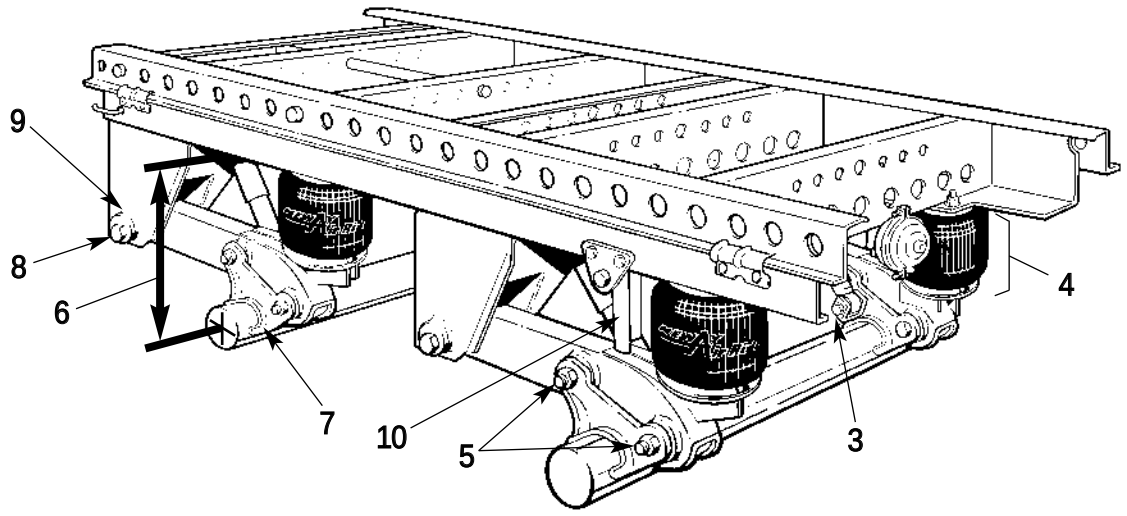
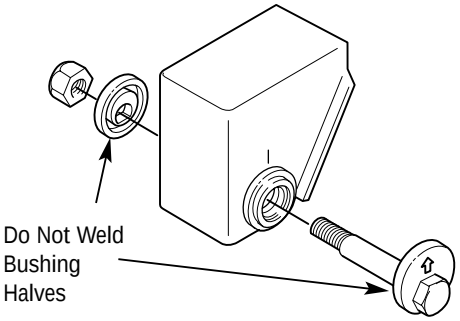


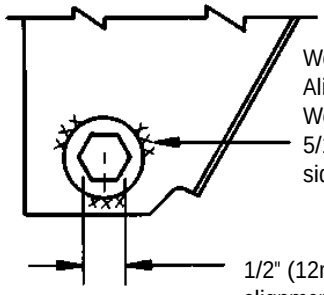
Figure 4. EZ Align (Non-welded) Axle Alignment



NOTE: *This design maintains proper alignment under correct torque without welding*

Figure 5. Fixed (welded) Axle Alignment Types

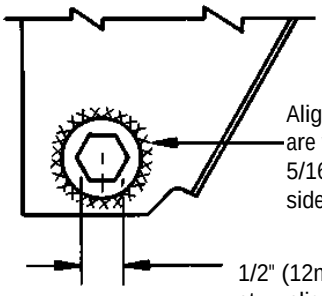
STANDARD WELD



Welded Style From Factory – Alignment Bushings Welded 3 Places - 5/16" (8mm) weld both sides of frame bracket

1/2" (12mm) Adjustment at alignment bushing equals 1" (25mm) total alignment adjustment at axle track.

OPTIONAL WELD



Alignment Bushings are welded all around - 5/16" (8mm) weld both sides of frame bracket

1/2" (12mm) Adjustment at alignment bushing equals 1" (25mm) total alignment adjustment at axle track.

WELDED STYLE FRONT VIEW

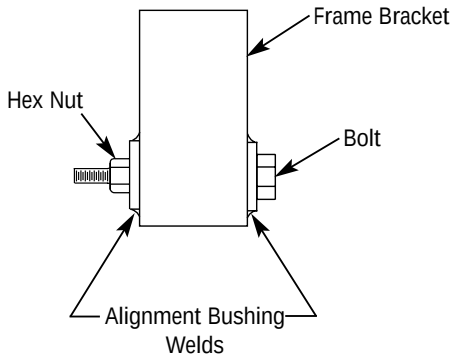
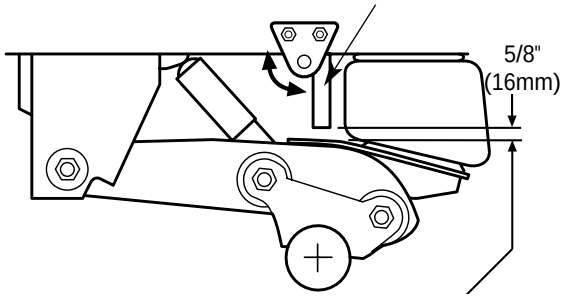


Figure 6. EDL Flip Plate Pre-Operation Check

IMPORTANT: EDL Flip Plate Assembly should rotate freely without binding.



NOTE: *Under normal operating conditions a min. gap of 5/8" (16mm) must be maintained between EDL flipper plates and the suspension beams.*

The NS Series Trailer Air Suspension Slider package models covered in this manual are controlled by a single height control valve (standard air control system). When properly adjusted, the height control valve will maintain a constant ride height by controlling the air pressure in the air springs to support the load being carried.

The trailer air pressure must be maintained in excess of 75 PSIG (5 BARS) before operation. The 75 PSIG (5 BARS) is required to open the Air Pressure Protection Valve, which maintains safe air brake pressure in the event of an air loss in the suspension system.

In the event that an air loss should occur, it is recommended the Height Control Valve Linkage be disconnected to assure all air springs are completely deflated. The trailer can be temporarily operated on the air spring's internal rubber bumpers, which carry the load if there is tire clearance. In the event of inadequate air pressure, operate the trailer CAUTIOUSLY, at a slow speed, to the nearest place of repair. To deflate the air suspension, refer to page 23, *Air Suspension Exhausting Procedure*.

CAUTION: Be sure tires are not rubbing the underside of trailer or any other object.

Recommended Inspections

Initial 5,000 Mile (8,000 Km) Inspection

After initial 5,000 (8,000 Km) miles of operation check all bolts and nuts at the pivot and axle connections to assure they are properly torqued. Check all other nuts and bolts for proper torque, re-torque as necessary.

Torque Chart

Size	Torque Lb. Ft.	Torque NM
3/4"	150	203
1"	150	203
1 1/8"	800	1083
1/2" - Air Spring	35	47
3/4" - Air Spring	35	47

NOTE: Torque requirements listed are for clean and lubricated threads.

Bolt Size	Socket Size
1/2"	3/4"
3/4"	1 1/8"
1"	1 1/2"
1 1/8"	*1 11/16"

*Deep Well Socket

Routine Physical Inspections

Every 100,000 Miles (160,000 Km) or 1 year whichever comes first.

When servicing vehicle brake system, inspect suspension components per pre-operational inspection. Also check all other suspension components for any sign of damage, looseness, torque loss, wear or cracks. Repair, tighten or replace damaged part(s) to prevent failure or equipment breakdown.

Visual Inspection Procedure

IMPORTANT: A schedule for physical and visual inspections should be established by the operator based on severity of operation.

IMPORTANT: During each pre-trip and safety inspection of the vehicle, a visual inspection of the suspension should be done.

Visually Check for:

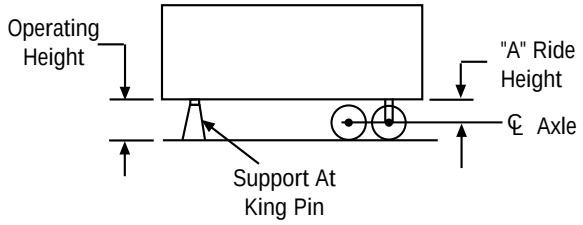
Bolt movement - loose dirt, rust or metal wear around bolt head and nut.
Air Springs - wear damage and proper inflation.
Shock absorbers - leaking or damaged.
Cracked parts or welds.

Height Control Valve Adjustment

Adjustment Procedure for a ONE HCV System with External Dock Lock Device

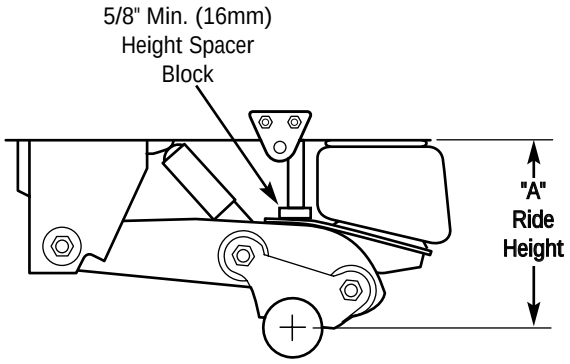
1. Prior to adjustment, the vehicle must be in an unladen condition on a level floor and supported on a king pin stand or coupled to a tractor (*Fig. 7).*

Figure 7. Trailer Supported at Fifth Wheel Height



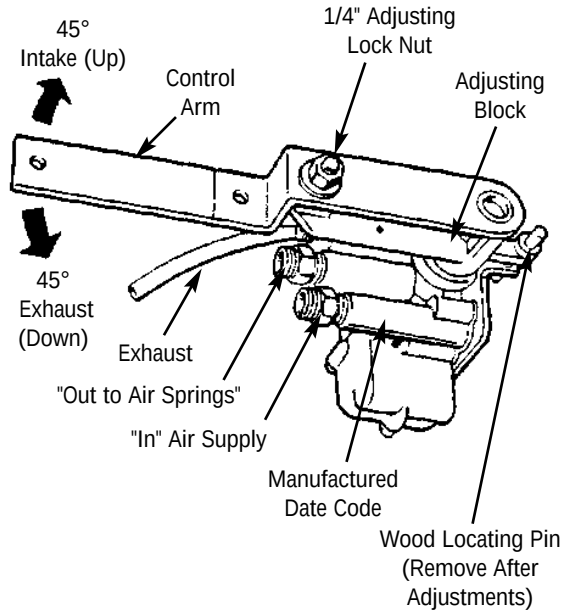
CAUTION: 5/8" (16mm) spacer block or jack stands must be of sufficient strength to support vehicle.

Figure 8. Obtaining Proper Ride Height



2. Disconnect height control valve linkage(s) to lower mounting bracket *(Fig. 11, page 11)*, move control arm up to a 45° position and hold for 10-15 seconds to raise vehicle. Place 5/8" (16mm) spacer block between the EDL flip plate and beam pad on both sides of suspension *(Fig. 8).* Return control arm to center (neutral) position.

Figure 9. Height Control Valve



3. With 5/8" (16mm) spacer blocks in position move control arm to a 45° “down” position and hold until system air exhausts completely lowering flip plates onto spacer blocks. Return control arm to center (neutral) position and check for proper “A” ride height *(Fig. 8).*

4. Insert the wood locating pin into the adjusting block and bracket on the height control valve. *(Fig. 9)* Loosen the 1/4" adjusting lock nut located on the adjusting block *(Fig. 9).* This will allow the control arm to move up and down approximately 1" (25mm). Replace lower link bolt back into lower link and bracket. Do Not Fasten.

5. Tighten adjusting lock nut at the adjusting block to 24-48 ft. lbs. (33-65 Nm) and remove wood locating pin inserted in Step 4.

6. Remove lower link bolt and raise control arm up 45° and hold for 10-15 seconds. This will raise the vehicle *(Fig. 9).* Remove spacer blocks and bring the control arm back to center (neutral) position.

7. Move control arm down 45° and hold until system air exhausts completely. Return arm to center position and reconnect the lower linkage. Do Not tighten. The suspension will return to proper ride height. Recheck suspension for proper "A" ride height and 5/8" (16mm) clearance between flip plates and beams *(Fig. 8)*. With proper dimensions achieved, tighten lower link connections to 24-48 lb.

NOTE: Under normal operating conditions a min. clearance gap of 5/8" (16mm) must be maintained between EDL flipper plates and the suspension beams (Fig. 8).

NOTE: The air system must have sufficient air so the suspension will return to its design ride height. There should be a minimal gap of 5/8" (16mm) between the EDL flipper plates and suspension beams. If the suspension returns to a dimension less than design ride height, loosen the 1/4" adjusting nut and move the adjusting block up so suspension will always return to its correct ride height. NEVER LESS THAN DESIGN HEIGHT!

Height Control Valve Inspection

IMPORTANT: Do not grease height control valve.

1. Visually inspect the valve on a regular basis for proper clearance around or damage to valve control arm or adjusting block.

2. Dirt or foreign particles in the air line may harm the internal workings of the valve. Even though it contains a protective filter to eliminate foreign matter, normal air brake system maintenance should be practiced - DO NOT grease valve.

3. Drain moisture from air tank periodically. In severe cold weather an air dryer and/or an alcohol evaporator is recommended to avoid valve freezing and damage.

Height Control Valve Performance Check

IMPORTANT: Proper inspection can eliminate unnecessary replacement of height control valve.

1. Apply air system pressure in excess of 75 PSIG (5 BARS).

2. Disconnect lower connection of the link assembly from mounting bracket.

3. Move control arm up to 45° for ten to fifteen seconds - air should flow to air spring(s) *(Fig. 10)*.

4. Move control arm to center (neutral) position - valve should shut off air flow.

5. Move control arm down 45° for ten to fifteen seconds - air should exhaust *(Fig. 10)*.

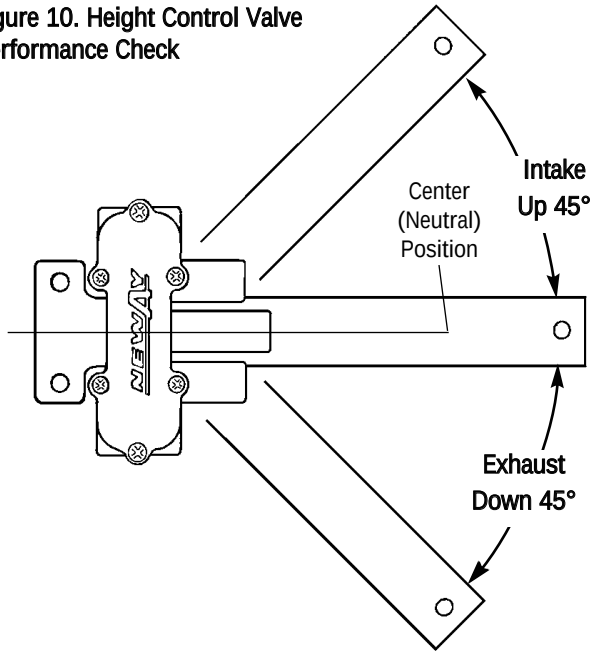
6. Move control arm to center (neutral) position - valve should shut off air flow.

7. Valve is good if performance is as noted.

8. Reconnect lower link assembly to mounting bracket.

NOTE: If valve does not perform correctly, refer to adjustment procedure on page 9.

Figure 10. Height Control Valve Performance Check



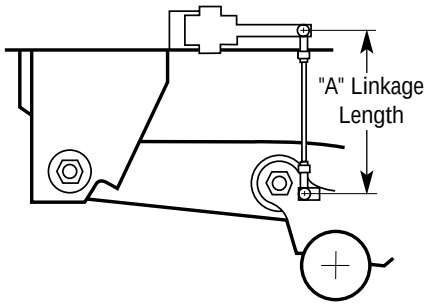
NOTE: If 75 PSIG (5 BARS) air system pressure cannot be achieved, check pressure protection valve and vehicle air compressor to see if they are operating properly. Also check the air lines for obstructions caused by dirt particles, foreign debris, ice, etc.

Height Control Valve Linkage Assembly Procedure

1. Determine length of link assembly required (“A” Dim.). This can be done by measuring the distance from centerline of height control valve arm hole to centerline of lower connection bracket hole *(Fig. 11)*.

NOTE: This measurement must be taken with suspension at proper ride height.

Figure 11. Linkage Length

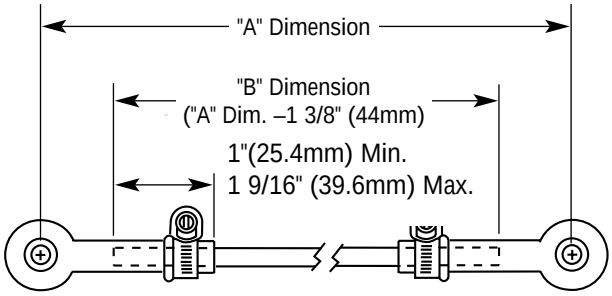


2. Determine length of rod required (“B” Dim.) by subtracting 1 3/8" (35mm) from “A” Dim. *(Fig. 12)*.

   Example:
   13 3/4" (349mm) "A" Dim. minus
   1 3/8" (35mm) = 12 3/8" (314mm)
   "B" Dim., the length of the Rod required.

3. Cut Rod to length required; remove any sharp edges that may cause damage to the rubber link ends during assembly.

Figure 12. Flexible Link Assembly



4. Assemble clamps, link ends and rods as shown. Insert rod into link end equal distance both ends, observing the minimum and maximum tolerance. Be certain the link ends are aligned to each other *(Fig. 12)*.

5. With link ends properly aligned and link assembly at required length, tighten clamps.

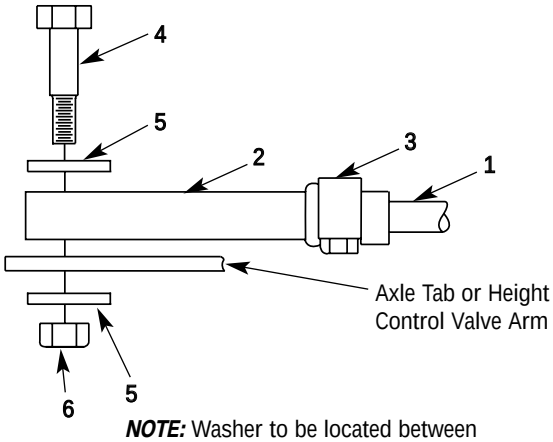
6. Install link assembly.

NOTE: 5/16" washers to be inserted between nut and control arm or bracket, 5/16" washer between bolt head and rubber link. Torque to 24 - 48 lb. in. (33-65 Nm) (Fig. 13).

Service Repair Kit SRK-168 Part No. 481 00 225

Item	Qty.	Description	Part No.
1	1	Rod 18 1/4" long	900 06 396
2	2	Link End	900 54 516
3	2	Hose Clamp	939 00 198
4	1	Shoulder Bolt	939 00 224
5	2	5/16 Washer	936 00 522
6	1	Lock Nut 1/4" - 20	934 00 060

Figure 13. Link End Assembly



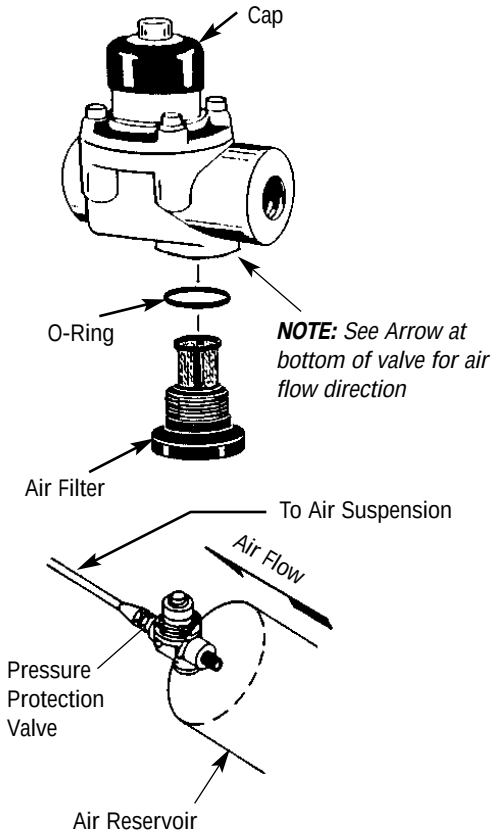
NOTE: Washer to be located between height control valve arm (or axle tab) and lock nut.

Proper Installation

Air pressure protection valve (PPV) should be installed to air reservoir so that arrows on bottom of valve are directed to the air suspension. Also, position valve upright so the cap is up (top) and filter is accessible for ease of replacement *(Fig. 14)*.

Install air lines to the air suspension and support lines where necessary, using clip supports, grommets and bulk head fittings. When installing pressure protection valve use a drop of oil or loctite to lubricate threaded connections. DO NOT USE a pipe compound or teflon tape as they may clog valve. After PPV has been installed, pressurize air system with a constant supply of air in excess of 75 PSIG (5 Bars), and check all connections for air leaks *(Fig. 14)*.

Figure 14. Link Assembly



Periodic Maintenance

IMPORTANT: Air Pressure Protection Valve & Filter maintains safe air brake pressure & cleans air. Set to 65 PSIG (4 Bars) at factory. (Locate valve on air reservoir).

Drain all moisture from air reservoir at regular intervals. Check valve air filter approximately every three months. Replace filter every three months or when air flow is substantially reduced. To remove air filter and "O" ring, turn counter clockwise by hand or if necessary, use an Allen wrench. Install new filter and "O" ring (SRK-143). Hand tighten only.

The PPV must be checked for proper operation during each brake system inspection. The purpose of the valve is to maintain at least brake operating pressure in event of a serious air leak in the suspension system. Refer to the following chart for proper brake operating pressures.

Pressure	Part No.
905 54 107	4 BARS (60 PSIG)
905 54 151	4.9 BARS (70 PSIG)
905 54 174	3.9 BARS (55 PSIG)

To test the PPV, charge the air system to 90+ P.S.I. and disconnect air line supply from downstream (suspension) side of PPV. Air should stop flowing through the PPV before the spring brakes begin to apply or before the following tank pressure is reached:

Part No.	Closing Pressure (min.)	Opening Pressure
905 54 107 (Standard)	4 BARS (65 PSIG)	5 BARS (75 PSIG)
905 54 151 (Metric)	5.2 BARS (75 PSIG)	6.1 BARS (88 PSIG)
905 54 174 (Metric)	4.2 BARS (60 PSIG)	5.2 BARS (75 PSIG)

IMPORTANT: If air does not stop flowing, replace the pressure protection valve.

Ride Height Verification

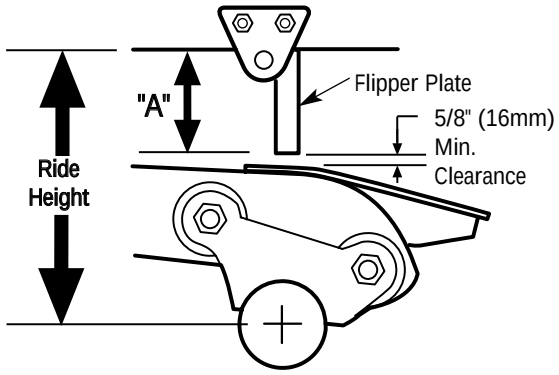
1. Verify ride height by checking serial number tag located on the rear crossmember *(Fig. 1, page 5)*.

NOTE: Example: NS190-4816, last two digits represent 16" (406mm) ride height.

2. Compare ride height to corresponding Flipper Plate Height from chart below.

Model No.	Ride HeightHeight	"A" Flipper Plate
NS-190-16	16" (406mm)	6.5" (165mm)
NS-190-16.5	16.5" (413mm)	5.25" (133mm)
NS-190-17	17" (425mm)	6.25" (159mm)
NS-190-18	18" (457mm)	8.5" (216mm)

Figure 15. Flipper Plate

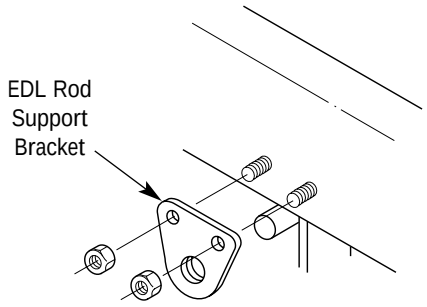


EDL Rod Flipper Plate Installation

IMPORTANT: Be certain the correct flip plate assembly for the suspension ride height is being installed. Various suspension ride heights require different flip plate assemblies. If unsure, refer to Parts List Manual, Form No. 2063, Part No. 941 00 854 for detailed information.

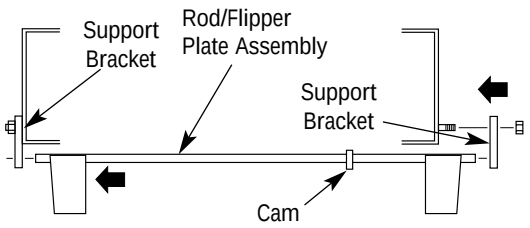
1. Attach one support bracket to studs on frame rail above rear axle, secure with two nuts (provided). DO NOT TIGHTEN *(Fig. 16)*.

Figure 16. Support Bracket



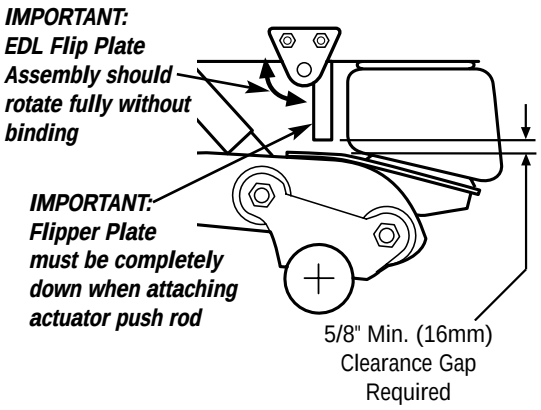
2. Slide one end of Rod/Flipper plate assembly into the hole of the attached support bracket. Then slide the other support bracket onto the opposite end of Rod/Flipper plate assembly and secure with two nuts. Now securely tighten all four nuts *(Fig. 17)*.

Figure 17. EDL Installation



IMPORTANT: EDL Flip Plate Assembly should rotate freely without binding (Fig. 18).

Figure 18. Flipper Plate Installation

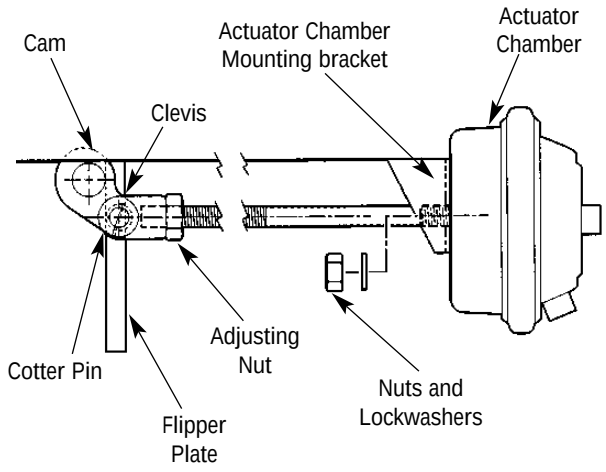


4. Adjust height control valve using the procedures shown on page 9.

EDL Actuator Chamber Installation

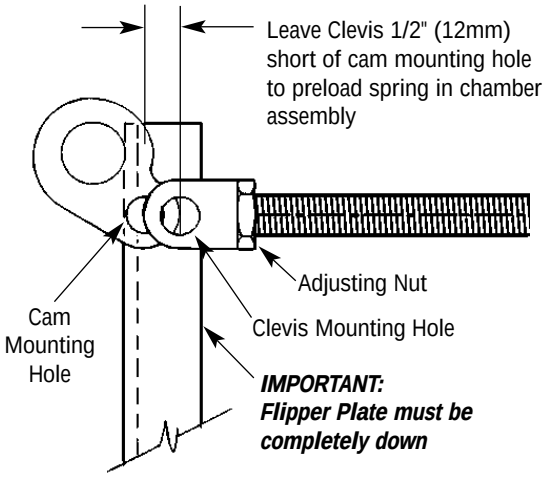
1. Attach actuator chamber to mounting bracket on slider box crossmember. Fasten with two lock washers and nuts. Torque nuts to 30 ft lbs. (41 Nm) *(Fig. 19).*

Figure 19. Actuator Chamber Installation



2. Install the adjusting nut and clevis to the chamber push rod and thread adjusting nut and clevis down the push rod. Be sure to leave clevis 1/2" (12mm) short of cam mounting hole *Fig. 19).*

Figure 20. Clevis Installation



3. Pull push rod out so the hole in the cam aligns with the clevis hole (this creates tension on the actuator spring to help keep the flipper plate completely down). Install clevis pin and secure with cotter pin *(Fig. 20).*

IMPORTANT: Adjust the push rod length to assure flipper plate is completely down (Fig. 20).

IMPORTANT: EDL Flip Plate assembly should rotate freely without binding after attaching actuator push rod (Fig. 18).

Automatic Reset Feature (ARF)

The Automatic Reset Feature (ARF) is designed to ensure that the External Dock Lock (EDL) flipper plates are not trapped down while the trailer is being operated. This is accomplished by the use of two valves. A pilot valve is used to monitor emergency brake pressure to determine if the trailer is parked or in motion. A sensor valve is used to monitor the position of the EDL flipper plates (either up or down) *(Fig. 21)*. When the flipper plates are up, the primary height control valve has full function regardless of the parking brakes being engaged or disengaged. When the flipper plates are down, and the parking brakes are engaged the primary height control valve has full function. When the flipper plates are down, and the parking brakes are disengaged the sensor valve will add air directly to the air springs. Once the air springs have sufficient air pressure to raise the flipper plates up off the load pads, the flipper plates rotate up and out of the way. This disengages the sensor valve and allows the primary height control valve to resume full function *(Fig. 23)*.

NOTE: For further ARF information contact the Neway Service Department.

Figure 21. Sensor Valve Detail

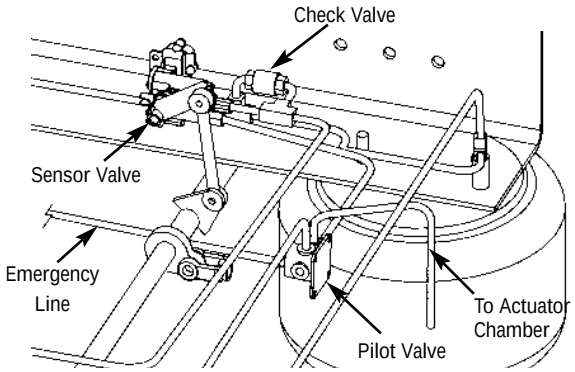


Figure 22. Primary Height Control Valve Detail

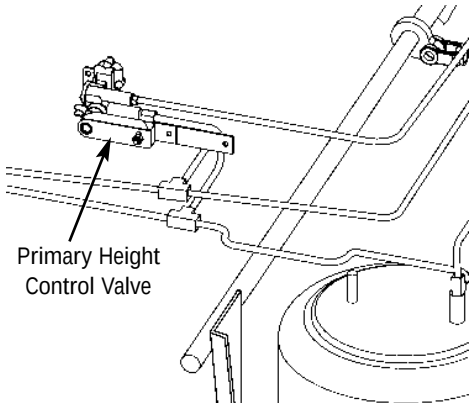
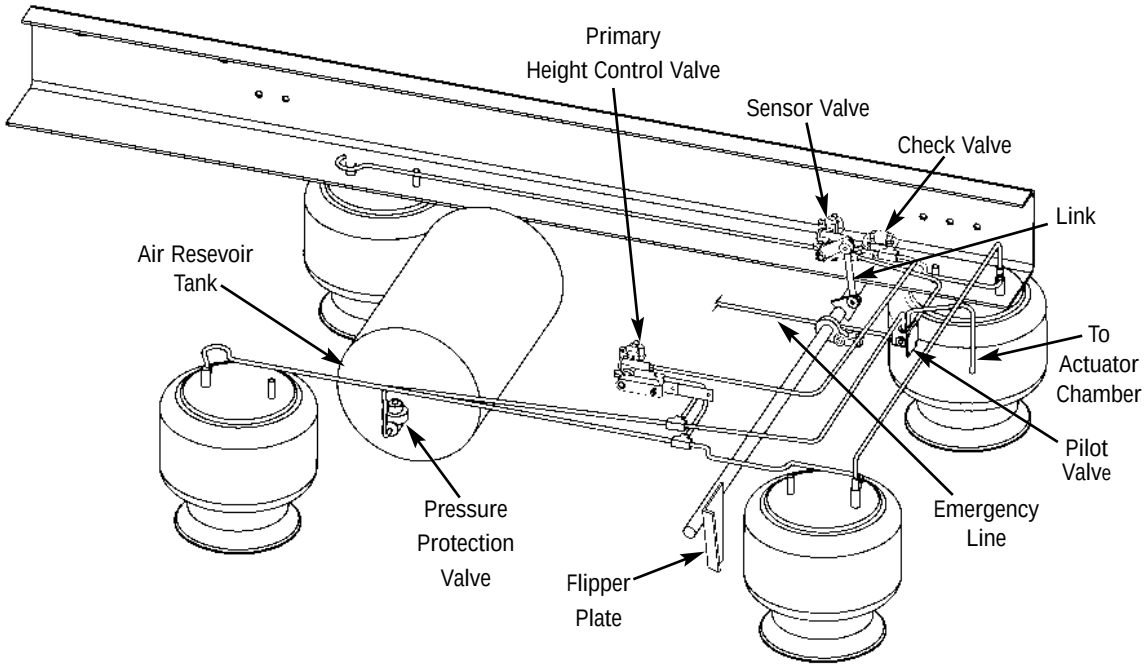


Figure 23. Automatic Reset Feature

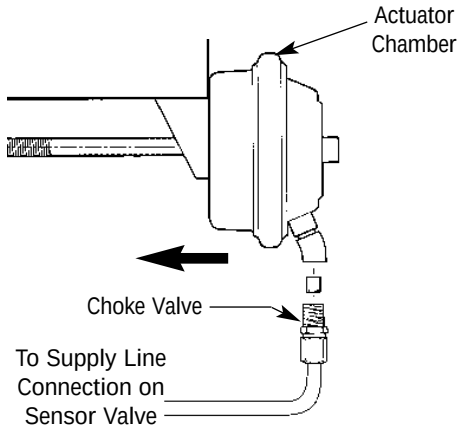


Air System Connection

1. The control for releasing the EDL is the same for releasing the emergency brakes on the trailer. Locate a trailer supply line (usually red) at the point it enters the spring brake valve (supply port).

2. Replace straight connector fitting with a tee and reconnect the supply line and add a length of plastic line for connection to the actuator chamber *(Fig. 24)* and the line that you will install which connects the cylinder port of the pilot valve to the bottom port of the sensor valve. *(Fig. 21)*

Figure 24. Connect Air System



3. At the threaded end of the 1/4 N.P.T. tube fitting insert the choke valve (supplied) and install fitting to actuator. Attach the supply line from the brake valve to a 1/4 N.P.T. tube fitting *(Fig. 24)*.

NOTE: It may be necessary to use a vise to press choke valve into tube fitting or use a hammer and gently tap choke valve into tube fitting.

4. Insert the 1/4 N.P.T. tube fitting into the brake actuator inlet port *(Fig. 24)*.

NOTE: Choke should be flush with bottom of the fitting.

5. From the pressure protection valve, run a line to the bottom port of the primary height control valve *(Fig. 23)*.

6. Connect the top port of the primary height control valve to the center port of the sensor valve *(Fig. 22)*.

7. The center ports of the primary height control valve and sensor valve are connected to the air springs *(Fig. 22)*.

8. The pilot port of the pilot valve is connected to the emergency line *(Fig. 23)*.

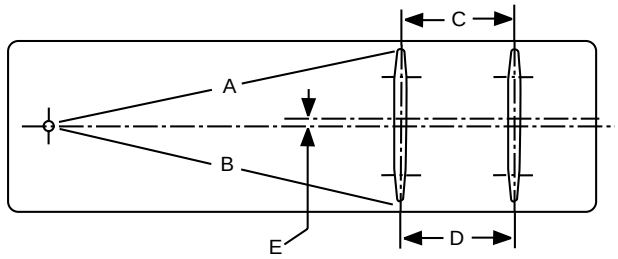
IMPORTANT: It is the responsibility of the installer to secure all supply lines and check for air leaks.

NOTE: Alignment can only be achieved if the lockpin holes are evenly located from the kingpin, left and right. Alignment should always be done while the trailer is empty.

To properly align the suspension attached to your slider, the trailer should be pulled in a straight line for a sufficient distance to insure there are no binds in the suspension. The trailer should then be pulled straight forward with the trailer brakes locked, so the locking pins rest against the rear of the holes in the body rails. This approximates the position of the pins when the trailer is being pulled on the highway, and insures proper trailer tracking. Alignment can be achieved with an optical device designed especially for this purpose or manually in the following manner: Measure the distance from the king pin to the centerline of the spindles on the front axles. It is recommended that spindle extension be utilized. Dimensions A and B must be equal within 1/8" (3mm). Dimension E is the equal to the distance between the trailer centerline and the axle centerline *(Fig. 25)*.

Relocate the slider to the forward position and recheck the king-pin alignment. Variance in A and B dimensions would indicate lock pin hole location discrepancies.

Figure 25. Slider Suspension Alignment



A = B ± 1/8" (3mm)

C = D ± 1/16" (1.5mm)

E ≤ 1/16" (1.5mm)

Sliding Suspension Positioning

1. Set both tractor and trailer brakes.
2. Remove stop bar from behind slider and move to desired location.
3. To release the lock pins, pull operating handle all the way out and lock in place.
4. Release the tractor brakes and carefully drive forward or backward until the sliding suspension is at the desired location.
5. Release operating handle and visually check all lock pins for locking. The main body of each lock pin must extend through the holes in the rails.
6. Lock stop bar in both body rails immediately behind slider.
7. With the trailer brakes applied, gently rock trailer backward and forward to ensure sliding suspension is properly locked and follow procedure set out above before pulling the trailer. The lock pins must be checked at each stop to ensure each is locked.

Axle Realignment

EZ Align (Non-weld) Alignment Bushings

1. Loosen the pivot connection nut *(Fig. 26)*.
2. Rotate the bolt head to achieve axle alignment *(Fig. 26)*.
3. Retorque the pivot connection nut to 800 ft. lbs. (1083 Nm).

Figure 26. EZ Align

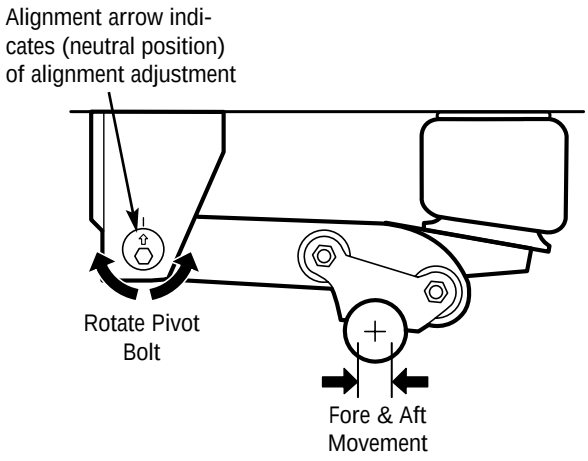
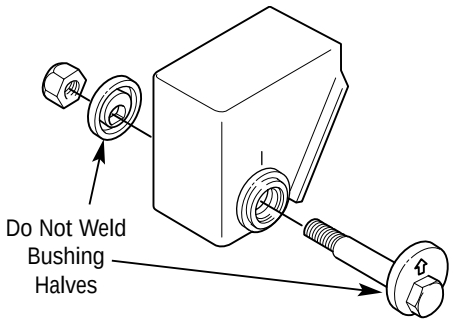


Figure 27. EZ Align Non-Weld Style Assembly



NOTE: *This design maintains proper alignment under correct torque without welding*

Welded Alignment Bushings

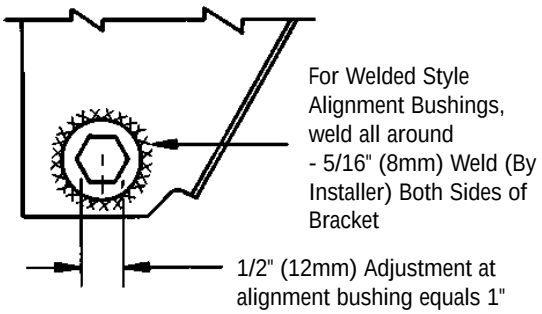
NOTE: Refer to Fig. 4, page 7.

1. Support trailer or tractor frame with adequate jacks or stands.
2. Remove tires on side being adjusted.
3. Remove rod bolts and spacer washers.
4. Carefully air arc the welds connecting alignment bushings to the frame bracket. Use care not to damage frame bracket.
5. Remove alignment bushings and grind the frame bracket smooth.
6. Install new alignment bushings, washers, pivot bolt and nut.
7. Shift axle fore or aft to desired alignment *(Fig. 28)*.

NOTE: 1/2" (12mm) adjustment at alignment bushing equals 1" (25mm) adjustment at axle track.

8. Torque 1 1/8" pivot bolt to 800 ft. lbs (1083 Nm).
9. Weld alignment bushings in-board and out-board of frame bracket using E-8018-C3 or equivalent as shown below. Weld all around with 5/16" (8mm) weld *(Fig. 28)*.
10. After alignment bushings have cooled, retorque pivot bolt to 800 ft. lbs. (1083 Nm).

Figure 28. Realign Welded Alignment Bushings



CAUTION: Check all fastener torques. Tighten loose fasteners and replace damaged fasteners. Loose, damaged, or missing fasteners can cause loss of vehicle control, serious personal injury and damage to components.

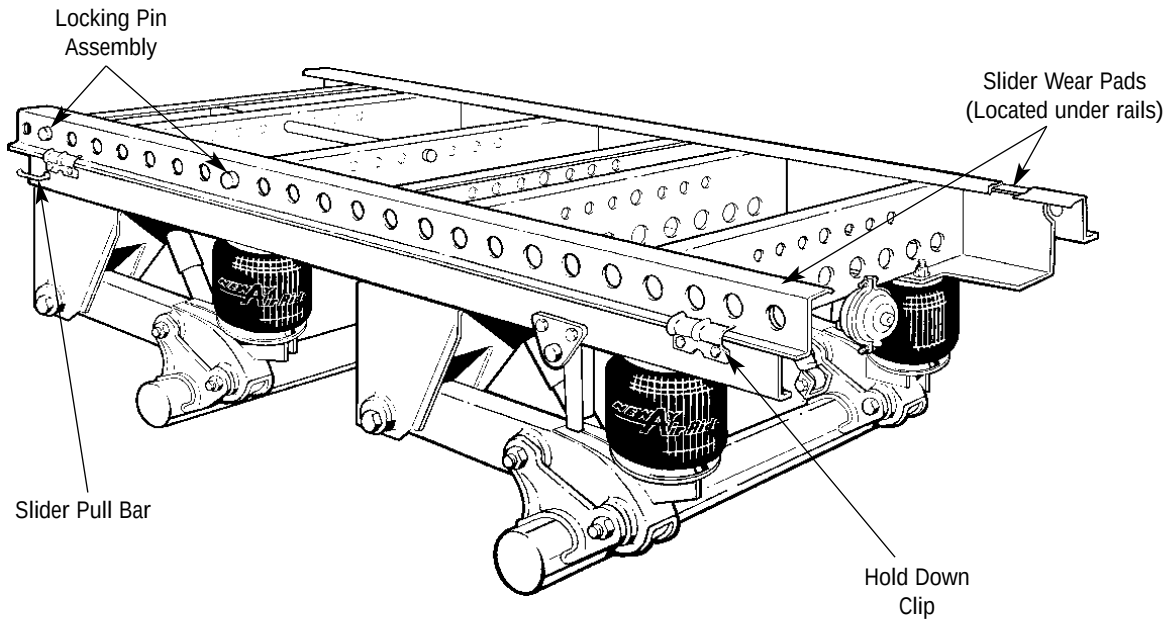
1. Inspect for loose, broken or missing fasteners. Repair or replace as needed.

2. Check the slider locking pins, slider pull-bar mechanism and slider wear pads for signs of excessive wear or binding. Repair or replace as needed *(Fig. 29).*

3. Inspect the structure of the slider box and cross members for damage. Repair as needed *(Fig. 29).*

4. Inspect the front and rear hold down clips to ensure that they are secured correctly around the body rails *(Fig. 29).*

Figure 29. Slider Maintenance



Suspension Air Springs

IMPORTANT: Be sure proper Neway Air Spring replacement is installed.

NOTE: It is recommended that the vehicle be unloaded. Support vehicle frame with adequate jack stands at approximately 2" (51mm) above ride height. The height control valve(s) may be used as an improvised jack, by disconnecting the linkage at the lower bracket(s). Move control arms to “up” position to raise vehicle. Place jack stands at necessary height. Move control arm(s) down to lower vehicle onto jack stands. Completely exhaust air springs.

CAUTION: Not exhausting the air pressure from the system may result in injury.

1. Exhaust air from suspension system.
   Exhaust air by:
   a. Manual control — turn hand control valve handle to deflate position.
   b. Automatic control — height control valve – disconnect link at lower connection, then rotate control arm to exhaust (approx. 45° down) position.
   c. Disconnect air supply line from air spring.

NOTE: If air spring has a leak and is deflated, the EXHAUSTING PROCEDURE still must be performed.

2. Disconnect and remove old air spring assembly *(Fig. 30)*.

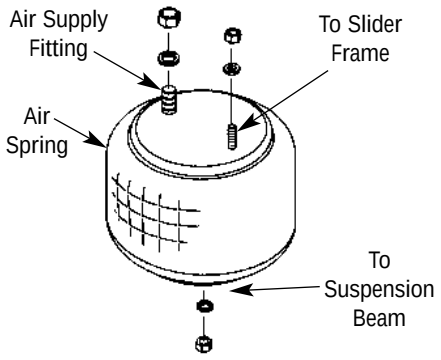
3. Install new air spring assembly and properly torque fasteners. Refer to Torque Chart on page 8.

4. Reconnect air supply line and link connections.

5. Recharge air system in excess of 75 PSIG (5 BARS), and check for leaks.

CAUTION: 100 PSIG is the maximum allowable operating air pressure.

Figure 30. Suspension Air Spring



Shock Absorbers

IMPORTANT: Be sure proper Neway Shock Absorber replacement is installed.

NOTE: It is recommended that the vehicle be unloaded. Support vehicle frame with adequate jack stands at approximate ride height to assure tension is relieved on shocks. The height control valve(s) may be used as an improvised jack, by disconnecting the linkage at the lower bracket(s). Move control arms to "up” position to raise vehicle. Place jack stands at necessary height. Move control arm(s) down to lower vehicle onto jack stands.

1. Vehicle must be at approximate ride height to assure that tension is relieved on shocks.

2. Remove upper and lower mounting bolts and shock absorber.

3. Replace with correct shock absorber and fasteners.

4. Torque nuts to 150 ft. lbs. (203 Nm) lubricated.

5. Remove jack stands. Build system air pressure in excess of 75 PSIG (5 BARS).

Pivot and Axle Connection Rubber Bushings

IMPORTANT: When replacing the rubber bushings at these connections be sure the proper Neway SRK (Service Repair Kit) is used as they contain all necessary parts to service one axle (2 kits per tandem). Refer to Service Repair Kit section of Parts List for proper SRK. It may be advantageous to service both pivot and axle connections at this time.

NOTE: A Neway Bushing Service Tool, Part No. 505 44 012, is available to ease replacing of the bushings. Contact your Neway distributor or Parts List for details.

NOTE: It is recommended that the vehicle be unloaded. Support vehicle frame with adequate jack stands at approximately 2" (51mm) above ride height. The height control valve(s) may be used as an improvised jack, disconnecting the linkage at the lower brackets. Move control arms to “up” position to raise vehicle. Place jack stands at necessary height. Move control arms down to lower vehicle on jack stands. Completely exhausting air springs.

1. Exhaust air from the suspension system.
   a. Manual control — turn hand control valve handle to deflate position.

   b. Automatic control — height control valve - disconnect link at lower connection, then rotate control arm to exhaust (approx. 45° down) position.

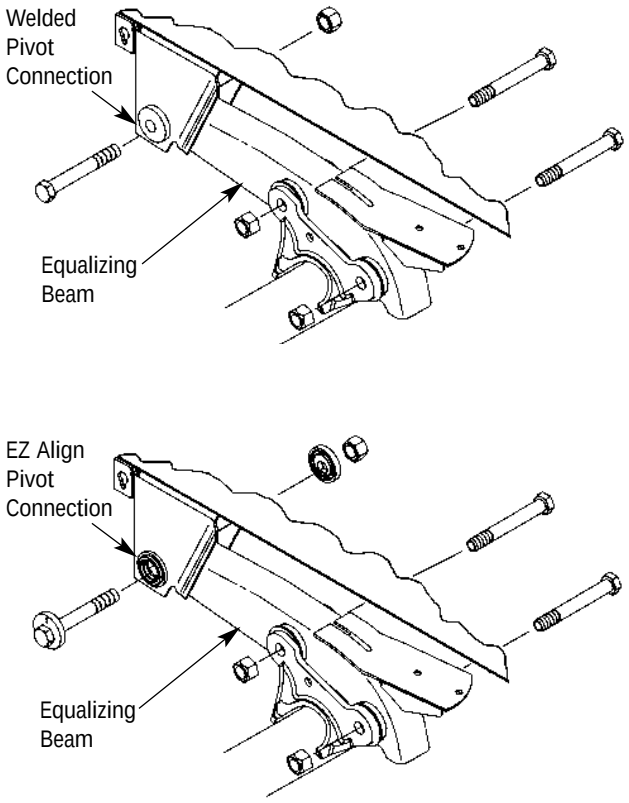
   c. Disconnect air supply line from air spring.

NOTE: If servicing the front bushing only and using the bushing service tool, remove the pivot bolt and lower beam to gain access to bushing.

2. If servicing all bushings, then remove tires and disconnect air springs, shock absorbers and height control valve linkage at the lower connections.

3. Disconnect front pivot and axle connections then remove equalizing beam *(Fig. 31)*.

Figure 31. Pivot and Axle Connections



4. Inspect axle adapters and equalizing beams for wear, cracks and failed welds. Axle adapters should have a 1/2" (12mm) (3 pass) fillet weld, refer to proper Neway specifications for applicable model. Repair or replace all worn or cracked axle adapters.

CAUTION: Do not repair a cracked equalizing beam. If cracks are detected anywhere on the equalizing beam, replace it.

5. Press out old bushing(s) with hydraulic press of 5-ton (4536 Kg) capacity minimum or the Bushing Service Tool, Part No. 505 44 012 and clean out receptacle of all foreign material. Lubricate new bushing(s) with approved lubricant, or a soap and water solution may be used. DO NOT use oil-based lubricant. Press new bushing(s) in beam. Bushing(s) must be centered in beam when pressure is released *(Fig. 32* and *33)*.

Figure 32. Bushing Beam Location

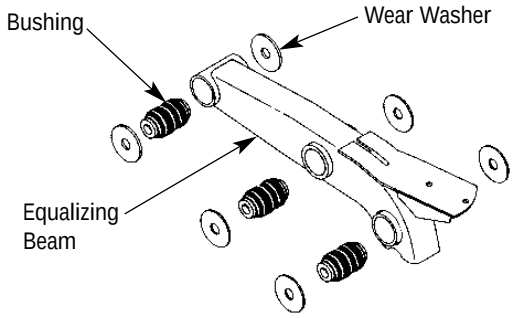


Figure 33. Centering Bushings in Equalizing Beam

TOP VIEW OF BEAM

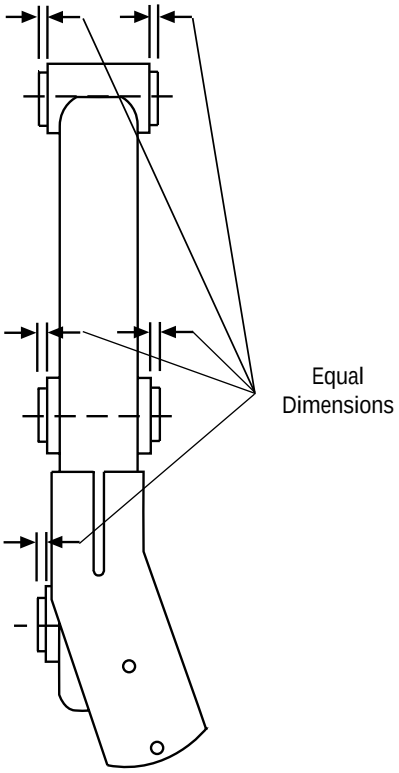
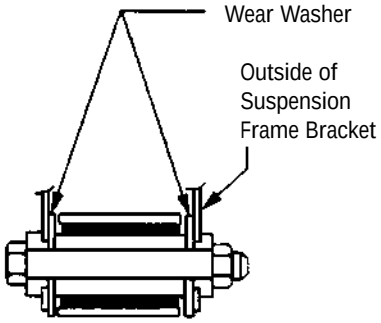
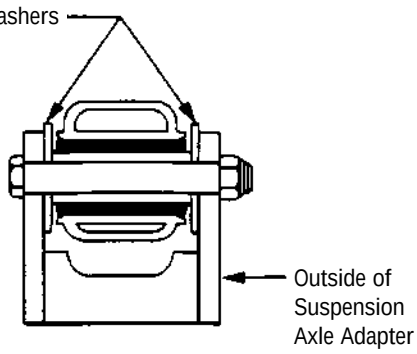


Figure 34. Wear Washer Locations

PIVOT CONNECTION



AXLE CONNECTION



6. Reinstall equalizing beam with new wear washers, bolts and nuts *(Fig. 34)*. Position at ride height and properly torque fasteners. Refer to Torque Chart on page 8.

7. Reconnect air springs, shock absorbers and height control valve linkage. Properly torque fasteners. Reinstall tires.

8. Remove jack stands. Build system air pressure in excess of 75 PSIG (5 BARS) and check for leaks in air system at all connections.

Equalizing Beam

NOTE: It is recommended that the vehicle be unloaded. Support vehicle frame with adequate jack stands at approximately 2" (51mm) above ride height. The height control valve(s) may be used as an improvised jack, disconnecting the linkage at the lower brackets. Move control arms to "up" position to raise vehicle. Place jack stands at necessary height. Move control arms down to lower vehicle on jack stands. Completely exhausting air springs.

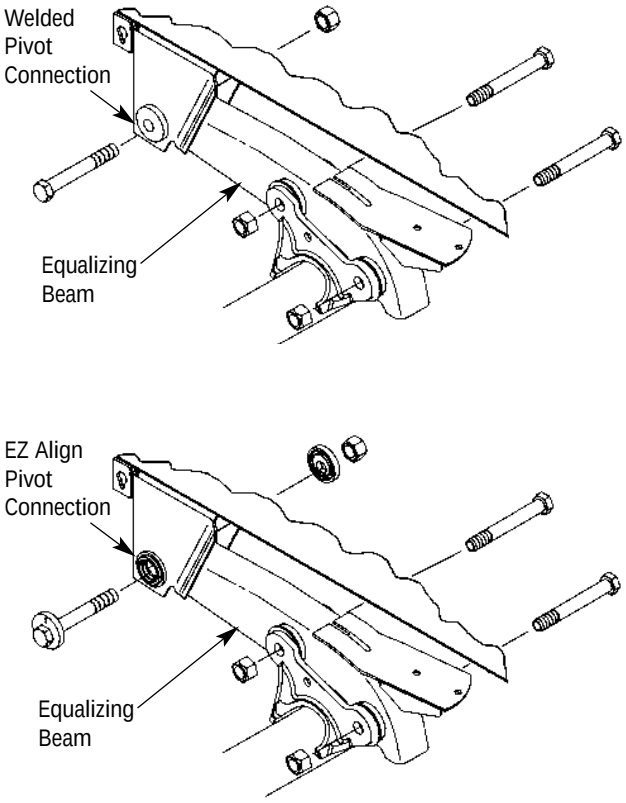
1. To install a new equalizing beam remove load. Raise vehicle 2" (51mm) and support frame with adequate jack stands. Support axle with jacks.

2. Exhaust air from the suspension system. Refer to Exhausting Procedure of Air Suspension.

3. Remove tires and disconnect air springs, shock absorbers and height control valve linkage at the lower connections.

4. Disconnect front pivot and axle connection then remove equalizing beam *(Fig. 35)*.

Figure 35. Pivot and Axle Connections



5. Install new equalizing beam with new washers, bolts and nuts. Position at ride height and properly torque fasteners. Refer to Torque Chart on page 8.

6. Reconnect air springs, shock absorbers and height control valve linkage. Properly torque fasteners. Refer to Torque Chart on page 8. Reinstall tires. Check air system connections, including air springs for leaks.

7. Remove jack stands. Build system air pressure in excess of 75 PSIG (5 Bars).

Air Suspension Exhausting Procedure

Exhaust air by:

Manual control — turn hand control valve handle to deflate position.

Automatic control — height control valve - disconnect link at lower connection, then rotate control arm to exhaust (approx. 45° down).

Disconnect air supply line from air spring.

Frame Bracket Installation and Alignment Bushing Welding Procedures

NOTE: It is recommended if replacing a frame bracket to consult Neway Service Department at 1-800-237-8932.

Air Spring Related Problems

Insufficient air pressure to suspension. Build air pressure in excess of 75 PSIG (5 BARS). Malfunctioning air pressure protection valve - test the valve using instructions on page 12. Replace if necessary. Check air compressor. HCV control valve not working - follow HCV inspection procedure.

Air leak or damaged line. Locate and repair. Air spring punctured or leaking - Replace with proper air spring. Then check for proper clearance around air spring, 1 3/4" (44.5mm) minimum. Also check shock absorbers.

Tire, tire rim or brake component rubbing air spring. Check inside to inside tire dimension. There must be 1 3/4" (44.5mm) minimum clearance around air spring. If not it may be necessary to reinstall suspension. Use tire rim back spacers to provide more clearance.

Air brake chamber rubbing air cell. Relocate chamber or rotate clamp ring for more clearance.

Air spring over-exhaustion. Suspension riding too high - re-adjust height control valve(s) to attain proper vehicle ride height. Refer to page 9. Shock absorbers and/or connections broken - replace. Wrong length shock absorbers - replace. Mislocation of upper shock bracket - relocate. Air spring improperly installed - reinstall with proper installation instructions. Refer to page 20.

Vehicle overheight or has no air in the air springs. If the primary height control valve fails, the vehicle can be overheight or have no air in the air springs. However, the EDL flipper plates will not be trapped down. This is typical of any vehicle that uses a height control valve without an ARF or EDL system. Refer to pages 9 and 10 for adjustment or inspection. Replace height control valve if necessary.

Vehicle overheight. If the sensor valve fails the vehicle can be overheight, but the flip plates will be up. Replace sensor valve if necessary.

Flip plates will not disengage. If the pilot valve fails while the vehicle is in motion the flip plates will not disengage (flip up) due to no air being supplied to the service brake which drives the EDL main rod - Replace pilot valve.

"Temporary Operation." If air loss occurs in the air suspension system and after attempts to repair have failed to correct the problem, it is recommended that the Height Control Valve Linkage be disconnected and all air exhausted from the system. There is an internal rubber bumper built into the air spring which makes it possible to operate the vehicle cautiously at a reduced speed to the nearest place of repair.

CAUTION: Do not overload axles.

Front Pivot or Axle Bushings Worn Prematurely

Pivot alignment bushing(s) not welded or worn. Weld per installation instructions. If alignment bushings are worn, replace and realign axles. Refer to page 7.

Front pivot bolt loose. Connection not properly tightened, refer to page 6 for tightening procedure.

Excessive lateral axle walk. (3/4" (19.4mm) is maximum) Axle connection bolts loose - properly tighten, refer to page 6. Axle adapter welds failed - remove old welds and reweld. Refer to proper Neway specifications for applicable model. Front pivot and/or axle connection bushings worn - replace with proper SRK.

Repeated Shock Absorber Failures

Over-extending shock absorbers. Suspension set at improper ride height - re-adjust height control valve(s). Suspension mounted at wrong ride height - check specification sheet, or refer to page 9 for correct ride height and adjustment procedure. Wrong length or improper replacement shock absorber(s) - replace if necessary, refer to page 20.

Axle Misaligned

Pivot or Axle bushings worn. Replace with proper Service Repair Kit (SRK) and torque to proper specifications. See page 21.

Alignment bushings not welded or out of alignment. Realign and weld to specifications on welded style alignments. Realign and tighten to specifications on EZ Align (non-weld) style alignments.

Axle Off-Track

Alignment bushing(s) not welded or worn. If worn, replace. If not welded properly, weld alignment bushing(s) after axle is aligned.

Loose or worn bushings at pivot or axle connection. If loose, tighten connection. Then check axle alignment and realign if necessary. If worn, replace with proper Service Repair Kit. Refer to Parts List.

Worn bushing tube ends and/or face of washers at axle connections. Contact Neway Service Department.

Suspension not properly installed. Check Trailer manufacturer suspension installation, correct where necessary.

RL, RLU & NS SERIES TRAILER AIR SUSPENSIONS

5 YEAR WARRANTY *
UNITED STATES & CANADA

PRODUCTS WARRANTED
Effective July 1, 1989, Holland Neway International, Inc., Muskegon, Michigan 49443, U.S.A. (hereinafter "NEWAY") provides the following WARRANTY on its RL, RLU, & NS Series Suspension Systems unless otherwise provided in writing by NEWAY which are operated in the U.S.A. and Canada, hereinafter called the "product", to the original purchaser and to any person to whom such product is transferred during the duration of this WARRANTY on product shipped from the NEWAY Factory after July 1, 1989.

WARRANTY: LIMITATION OF LIABILITY
NEWAY warrants the products and materials manufactured by it when properly assembled and installed to be free from defects in materials and workmanship, when under normal use and service, for the period specified under "Coverage Periods and Provisions" after date of manufacturing. If any products or materials manufactured by NEWAY are found to be defective upon inspection after shipment at sender's cost to NEWAY's representative hereinafter described, NEWAY will repair or replace, at its sole option, the defective products or materials, subject to the following conditions:

(a) NEWAY is notified in writing within the applicable warranty period of any product or material defect;
(b) The product or material is returned to NEWAY at sender's expense;
(c) The product or material has not been misused, abused or improperly maintained by the user;
(d) The product or material has not been repaired or altered except by written authorization of NEWAY; and
(e) The defect is not attributable to normal wear and tear.

The limited warranty herein described constitutes the entire obligation of NEWAY, and the maximum liability of NEWAY with respect to any products or materials manufactured by NEWAY is limited to the purchase price of each defective product or material. NO OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, ARE GIVEN AND ALL SUCH OTHER WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED. In no event shall NEWAY be liable for any consequential, indirect, incidental or special damages of any nature whatsoever arising from the sale or use of its products or materials. NEWAY shall have no further liability or obligation whatsoever to any distributor or any other person or entity with respect to NEWAY'S products or materials other than the obligations expressly set forth above. THIS WARRANTY IS NON-TRANSFERRABLE.

COVERAGE PERIODS AND PROVISIONS

Warranty Type	* Months	Mileage	Coverage Period
Major Components	0 - 12	Up to 100,000	Parts & Labor Allowance
Including Bushings	12 - 60	100,000 - 500,000	Parts Only
Air Controls	0 - 12	Up to 100,000	Parts & Labor Allowance
Air Springs	0 - 12	Up to 100,000	Parts & Labor Allowance
	12 - 24	100,000 - 200,000	Parts Only
Other Components	0 - 12	Up to 100,000	Parts and Labor Allowance

MAJOR COMPONENTS WARRANTY
The Major Components Warranty covers any failures of the product's main structural components, which result in normal use and service from defects in material or workmanship. This coverage extends for *FIVE YEARS commencing with the starting date. Examples of such components include, but are not limited to: bushings, frame brackets, equalizing beams, axle adapters, etc.

OTHER COMPONENTS
This warranty covers all Other Components for any failures of these parts which result under normal use and service from defects in material or workmanship; this coverage extends for ONE YEAR commencing with the starting date. Examples of components covered include, but are not limited to: bolts, nuts, shock absorbers, height control valves, etc. This coverage extends for *two years on air springs.

LABOR CONSIDERATION
If NEWAY, in its sole discretion, determines that an authorized NEWAY Distributor, or repair facility, shall perform the warranty work, NEWAY will pay a specified labor amount for repair or replacement as determined and approved by NEWAY Service Department before any such work has started, and in accordance with the coverage periods.

STARTING DATE
The STARTING DATE shall be determined as that date shown as the manufactured date on the Vehicle Certification Label for new vehicles, or the documented in-service date verified by the original vehicle manufacturer; and on used vehicles, that date which can be verified to NEWAY's satisfaction as the product installation date, or if not verified, then the date on which the product was sold by NEWAY to the original purchaser.

ADDITIONAL NEWAY RESPONSIBILITIES

NEWAY will provide, or make available from its Warehouse, such information or instruction as is needed to install, service, operate, and maintain its products.

NEWAY will provide the replacement parts or materials, freight prepaid, and reimburse distributor for freight charges on returned components which are warranted.

NEWAY will make every attempt to respond to warranty claims within sixty (60) days after their receipt.

PRODUCT INSTALLER RESPONSIBILITIES

Installer is responsible for installing the product in accordance with the NEWAY Specifications and Installation Instructions.

Installer is responsible for providing proper vehicle components and attachments as well as required or necessary clearance for suspension components, axles, wheels, tires, and other vehicle components to insure a safe and sound installation and operation. Installer is responsible for obtaining certification and approval, for use with NEWAY products, of all other components such as axles, brakes, wheels, tires, etc.

Installer is responsible for advising the owner of proper use, service and maintenance required by the product and for supplying Service Manuals, Operating and Maintenance Decals, and other instructions as available.

Installer is responsible for giving at least one copy of this Warranty to the product owner for each purchase order from the owner.

Installer is responsible for keeping such records as are necessary to locate the product and determine its installation date and vehicle mileage at time of installation.

Installer is responsible for proper product certification and compliance with all Federal and State laws and Federal Motor Vehicle Safety Standards and Regulations.

PRODUCT OWNER RESPONSIBILITIES

Owner is solely responsible for pre-operation inspection, daily inspections, periodic inspections, maintenance, and use of the products in accordance with governmental requirements and as specified in the particular NEWAY instructions available for the product and in the NEWAY Service Manuals, except as provided in this Warranty, and for maintenance of other vehicle components.

Owner is responsible for communication expenses, meals, lodging, and incidental costs incurred by Owner or employees of Owner as a result of warrantable failure.

Owner is responsible for "Down Time" expenses, cargo damage, and all business costs and losses resulting from a warrantable failure.

Owner must give notice of a warranted failure to a NEWAY Authorized Distributor or to the NEWAY Service Department in Muskegon, Michigan, and deliver the product to a NEWAY Authorized Distributor for repairs. Locations are listed in the NEWAY Distributor Directory.

Owner is responsible to use suspension in ON-HIGHWAY APPLICATIONS ONLY, in accordance with NEWAY's specifications.

ADDITIONAL WARRANTY LIMITATION

NEWAY is not responsible for products which have failed as a result of owner or operator abuse or neglect, such as lack of maintenance, product alteration, overload, excessive speed resulting in loss of vehicle control, accident, or dynamic overload damage, or as a result of use which in any way adversely affects its operation.

NEWAY does not warrant the product when it is used with accessories not approved by NEWAY or when other than genuine NEWAY Replacement Parts have been installed on the product.

NEWAY does not warrant accessories supplied by NEWAY which bear the name of another company, beyond the Warranty provided by that Company.

NEWAY shall not be responsible for expenses due to owner's requirements, inspections, or modification of components, or other handling requirements.

NEWAY shall not be responsible for parts returned without prior authorization or without proper identification, including claimant's name and NEWAY claim number.

WARRANTY CLAIM PROCEDURES

HOW TO MAKE A CLAIM

To make a claim under this WARRANTY, the Owner must take the product to an Authorized NEWAY Distributor, and the Distributor shall write directly to the NEWAY Service & Warranty Department, Post Office Box 425, Muskegon, Michigan, 49443-0425.

Emergency claims can be handled by calling the NEWAY Service & Warranty Department at (231) 773-3271 and providing subsequent written notification.

For a claim to be considered it must contain adequate documentation which states product model, vehicle mileage, starting date, NEWAY serial number as shown on the serial tag installed on the product, where and how used, a NEWAY Warranty Claim Number as well as other detailed information shown on the NEWAY Warranty Application (Form #267).

THESE WARRANTIES ARE THE SOLE WARRANTIES OF HOLLAND NEWAY, INC. THERE ARE NO OTHER WARRANTIES EXPRESS OR IMPLIED.

Holland NEWAY®
P.O. BOX 425, MUSKEGON, MICHIGAN 49443-0425
1153 LORIMAR DR., MISSISSAUGA, ONTARIO, CANADA L5S 1M5

Warranty Form No. 871A 0199 20M Printed in U.S.A.

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