Model 21B & 21½B (Cast & Fab)

On/Off Highway Suspension System

Installation and Maintenance Instructions
COMPANY PROFILE

Reyco Granning Suspensions was formed by the merger and acquisition of two well-known names in the heavy duty vehicle suspension industry—Reyco and Granning.

Reyco grew out of the Reynolds Mfg. Co and was first known as a major supplier of brake drums for heavy duty vehicles and later developed a full line of air and steel-spring suspensions for trucks, buses, trailers and motorhomes.

Granning Air Suspensions was founded in 1949 in Detroit, Michigan as a manufacturer of auxiliary lift axle suspensions. Granning later became an innovator of independent front air suspensions for the motorhome industry.

Reyco Granning manufacturing facilities are certified to the ISO 9001:2008 standards, a globally-recognized assurance that quality standards have been established and are maintained by regular rigorous audits.

Reyco Granning LLC was formed in early 2011 through a partnering of senior managers and MAT Capital, a private investment group headquartered in Long Grove, Illinois.
SAFETY PROCEDURES & INFORMATION

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SAFETY FIRST
Be sure to read and follow all installation and maintenance procedures.

LIFTING
Practice safe lifting procedures. Consider size, shape and weight of assemblies. Obtain help or the assistance of a crane when lifting heavy assemblies. Make sure the path of travel is clear.

PARTS HANDLING
When handling parts, wear appropriate gloves, eyeglasses and other safety equipment to prevent serious injury.

WELDING
When welding, be sure to wear all personal protective equipment for face and eyes, and have adequate ventilation. When welding, protect spring beams and air springs from weld spatter and grinder sparks. Do not attach “ground” connection to springs.

Under normal use, steel presents few health hazards. Prolonged or repeated breathing of iron oxide fumes produced during welding may cause siderosis.

NOTE: DO NOT WELD ADI Components.
OVERLOADING
Overloading is the practice of transporting cargos that surpass the specified vehicle's ratings. Overloading can cause component failure, resulting in accidents and injuries.

TORQUE
Proper tightening of the U-bolt nuts and alignment bolts are high priority items. A fastener system is considered "loose" any time the torque is found below required values. Failure to maintain the specified torque and to replace worn parts can cause component failure resulting in accident with consequent injury.

NOTE: It is extremely important after the first 1,000 to 3,000 loaded miles (1,600 - 4,800 kms) of operation, and with each annual inspection thereafter, that all of the bolt and nut tightening recommendations be followed. Any loose fasteners must be retorqued to comply with warranty requirements and to ensure long, trouble-free performance.
**HANGER INSTALLATION**

Based on your axle spread requirement, determine the hanger center to center dimension, from drawings on pages m.7 to m.16. Then, on the subframe, mark the centerline of the equalizer hanger (item 6) from the king pin. Typical axle spacing shown at right.

Cast hanger drawings (i-5) and Fab hanger drawings (i-6) provide typical detailed requirements for hanger installations. Before proceeding, please refer to these drawings for trouble-free maintenance.

From the equalizer locate the center line of the front (item 1, 2) and rear hangers (item 14, 15). Clamp the hangers in position. If bolt-on design is used, match-drill hole pattern of hangers and install fasteners. If weld-on design is used, tack weld hangers to sub-frame. Be sure the brackets are secure in both the horizontal and vertical planes and that the hangers are square in the frame. Hanger centers should be in line within 1/16". See pages m.7 to m.16 for proper spacing.

When bolting hangers to frame, use grade 8 hardware. When welding hangers to frame use AWS 70S wire or AWS E7018 electrode specifications for proper results see page i.6. Add 1.5" schedule 80 pipe cross tube steel pipe braces to front and center hangers.

**CAUTION:** Specific welding procedures are required for installation.
INSTRUCTIONS FOR WELDING SUSPENSION HARDWARE TO FRAMES AND AXLES

Four methods may be used to weld components per American Welding Society (AWS) specifications.

NOTE: DO NOT WELD ADI Components.

The weld strength must be at 70,000 psi. Higher or lower strengths are not acceptable. The best fusion and strengths will be obtained using the voltage, current, and shielding medium recommended by the electrode manufacturer. If stick method is used, electrodes must be clean and dry, and stored per AWS Section 4.5.2.

AWS Electrode Specification

1. Shielded Metal Arc (stick electrodes) ..........E7018
2. Gas Metal Arc (MIG, solid wire) ..............ER70S-X
3. Gas Tungsten Arc (TIG) ....................ER70S-X
4. Flux Cored Arc (tubular wire) ...............E70T-X

OPTIONAL UNDERFRAME BUMP STOP

An underframe bump stop is available to be welded to the frame. The part number is 24695-01 or as a kit, K700073 for one equalizer and TK4722 for 2 equalizers. See the diagram below for proper installation.

TRI-AXLE

Bump stops for multi-axle suspensions are highly recommended and are available as an option for tandem application.

NOTE: DO NOT WELD ADI Components.
WELDING INSTRUCTIONS
FABRICATED HANGERS

1. Use AWS E7018 rod or equal for all welds.

2. Bracing shown is the minimum requirement. Heavy duty use may require additional bracing. Contact Reyco Granning for more information.

3. Pipe bracing shown is 1 1/2" (nom.) schedule 80 pipe.

4. Use 1/4" material for all gussets

5. If spring center line does not line up with center line of frame I-beam, adjust gussetting so that gussets extend to edges of top plate on all hangers.

6. Pipe brace between rear hangers is not necessary unless suspension is subjected to heavy-duty use.
Axle Seat Installation

Installation Instructions Model 21B

**AXLE ASSEMBLY INSTALLATION**

Position the axle seats (item 20) on the top side of axle at the correct spring center spacing (same as the transverse distance between hanger centerlines as mounted to the sub-frame).

The spring surface of the seats must be parallel to the ground. Clamp the seats in position securely and tack weld front and rear (not on the axle camber line).

Weld the axle seat to the axle. Electrode must meet or exceed the requirements of AWS E7018. Do not weld 1 1/2" (38.1 mm) each side of the axle center line. At this point, the spring beams and u-bolts should not be attached to the seat.

Position spring (item 13) on axle seat. See installation drawings (at end of book) for proper location of spring hook ends. Secure the spring in place with the top plate, u-bolts and nuts (items 5, 29 & 3) provided. Recheck springs for proper spring spacing and alignment. Tighten 3/4" or 7/8" u-bolts to 300-325 FP (410-440 NM) torque.

**NOTE:** Spring liners (additional) needed on the top side only on all 1-, 2- & 3-leaf springs. If axle seat spacers are used they must be welded to axle seat, front and rear.

**CAUTION:** Specific torque requirements are recommended.

**NOTE:** Refer to diagrams on page i.7 for welding detail.

**CAUTION:** Specific torque requirements are recommended.

**BRAKE CAM LOCATION REQUIREMENTS**

Brake camshafts are located to the rear of the axle within 20° of centerline. If camshafts are located differently, assembler must check for adequate clearances. Be sure that the axle seats which are selected provide brake chamber and brake camshaft assembly clearances. Location recommended is on center to 20° below center line.

**Axle Seat** will be mounted on bottom side of axle for **Underslung** applications.

On/Off Highway Suspension System
CONVENTIONAL U-BOLTS
5" (127mm) DIA. AXLE AND 3/4" (19mm) SEAT HT.
WITH WELDING SPEC'S.
SPRING AND AXLE CLAMP ASS'Y.

INVERTED U-BOLTS
5" (127mm) DIA. AXLE AND 3 1/4" (81mm) SEAT HT.
WITH WELDING SPEC'S.
SPRING AND AXLE CLAMP ASS'Y.

STABILIZED
5" (127mm) DIA. AXLE AND 3/4" (19mm) SEAT HT.
WITH WELDING SPEC'S.
SPRING AND AXLE CLAMP ASS'Y.

NOTE: LOW HYDROGEN WELDING ROD E-7016 OR EQUAL IS RECOMMENDED.

On/Off Highway Suspension System
TWO-PIECE TORQUE ARM BUSHING ASSEMBLY PROCEDURE
Place Compression Washer and Rubber Bushing on head of Torque Arm bolt, and insert through openings in Hanger and through Torque Arm end opening. Lubricants ARE NOT recommended, but if absolutely necessary, use soap and water, or just plain water.

Do not use any Petroleum-Based Lubricants.

Place second Bushing, and second Compression Washer on other end of Torque Arm Bolt. Start Nut on Bolt by hand.
Tighten nut, partially, until all air gaps are removed between the two Compression Washers. Roughly center and hold the Torque Arm in the middle of the Hanger gap.

Slowly bring up the torque on the Locknut to approximately 140-160 ft. lbs. (190-220 Nm) until the gap between the compression washer and the hanger or seat casting is 1/16" to 1/8". There should be an even buildup of rubber beads on each side of the Torque arm, and on each side of the Compression Washers. If the rubber is not built up, or if the Torque Arm is not centered, it is recommended to redo the above steps.

Do not keep tightening the nut, once the assembly is completed.

A subsequent check of the torque on the nut will be lower than 140 ft. lbs. (190 Nm), because of rubber settling. Make sure the assembly is snug and that there are no air gaps between washer, hangers and rubber bushings.

Do not retorque the 1" bolts after initial installation.
Position the axle and spring assembly between the hangers. Secure the torque arms (adjustable on road, left side, item 30 or 31) and rigid on curb, right side, item 26 or 27) to the front (item 1 or 2) and center hangers (item 6). Install the spring rollers (item 19) and 1/2" bolts in the equalizer and where required in the rear hanger (item 14, 15).

Check to see that springs are seated, interference-free, on all bearing surfaces. Install bolts to hold torque arms. DO NOT TORQUE at this time.

Install and tighten the 5/8" adjustable torque arm clamp nuts finger tight.

NOTE: Refer to appropriate drawing for axle number and type to identify proper item numbers.

CAUTION: Specific torque requirements are recommended.

Position the frame at the desired mounting height and perform preliminary rough alignment by centering axle laterally, and aligning axles squarely with respect to frame to within 1/4" (6.4 mm) (right and left compared). Torque arm attaching 1" bolts and nuts (supplied with the torque arms item 22 & 23) can now be torqued per instructions on pg. i.10. Do not tighten the adjustable eye end clamp bolts at this time. See next page.
The following steps are recommended and necessary for proper suspension alignment.

Release the brake system and pull the trailer forward while keeping to a straight line to free the suspension from binding. The ground must be level and smooth. The trailer brakes must remain released during alignment.

For best results the use of axle extensions and a “BAZOOKA” type king pin post, or a suitable optical alignment device are recommended. Align the front axle by lengthening or shortening adjustable torque arm (located on left side of trailer) with the king pin as shown in the sketch.

When the front axle is aligned to the kingpin to +/- 1/8” tighten the 5/8” torque arm clamp nuts on the front axle to 125-150 FP (170-205 Nm).

Align the rear axle to the front axle to +/- 1/16”.

NOTE: Left side and right side axle measurements should be equal to within +/- 1/16”. When the axles are aligned, tighten the adjustable torque arm clamp nuts on the rear axle to 125-150 FP (170-205 Nm).

After an initial loaded run-in period of approximately 1,000 miles, (1600 km) the alignment should be rechecked and corrected if necessary.

FP = Foot-Pounds; Nm = Newton-Meters
## Suspension Mounting Height Chart

### Standard Mounting Heights (Inches)

- **21B-W Single axle 00**, **44**, **49**, **54**, **60**
- **72**, **77**, **89**, **109**

### Under-Slung (Springs Mounted Below Axle)

- **NOTE for 42" and 44" Axle Spacings**
  - Use ONLY T7297 SPRING.
  - T7297 SPRING NOT STANDARD FOR OTHER AXLE SPACINGS.

### Control Position # / Price Options Designation

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### Axle Seat Group

- **1 1/4" Axle Seat Group**
- **1 3/4" Axle Seat Group**
- **2 1/4" Axle Seat Group**
- **2 3/4" Axle Seat Group**
- **3 1/4" Axle Seat Group**
- **3 3/4" Axle Seat Group**
- **4 1/4" Axle Seat Group**
- **4 3/4" Axle Seat Group**
- **5/4" Axle Seat Group**
- **6/4" Axle Seat Group**

### Mounting Heights (Inches)

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### Any Other Spring

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### Control Position 15

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### Mounting Height (Under-Slung) (Springs Mounted Below Axle)

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### Any Other Spring

- **Z**
CAST HANGERS MAINTENANCE SCHEDULE
- Maintenance Schedule
- Torque Requirements
- Visual Inspection

FAB HANGERS MAINTENANCE SCHEDULE
- Maintenance Schedule
- Torque Requirements
- Visual Inspection

TROUBLE SHOOTING GUIDE
- Fasteners
- Spring Alignment
- Bushings

NOTES

BILL OF MATERIAL
- 63159-2
- Bill of material

SUSPENSION DRAWINGS
- 98034-2 & 3
- 63296-2 & 66128-2
- 63159-2 & 3
- 98033-2 & 63159-1
- 74117-2 & 70100-2
- 87188-2 & 83006
- 84164 & 87187-2
- 73129-2 & 74021
- 84101 & 83005 & 84166
MODEL 21B MAINTENANCE INSTRUCTIONS (CAST HANGERS)
The ReycoGranning Model 21B Leaf Spring Suspension, by design requires minimum maintenance. Suspensions require periodic checks to assure continued trouble-free performance.

21B RECOMMENDED MAINTENANCE SCHEDULES
1. Pre-service inspection.
2. First service inspection, after 1,000-3,000 miles, (1600-4800 KM).
3. PM Inspections, coincidental with DOT “C” Inspections-Annually.
4. During replacement of any service parts.
5. Upon discovery of any loose components.

TORQUE REQUIREMENTS
Verify with each scheduled inspection.
1. Tighten 3\(\frac{3}{4}\) or 7\(\frac{1}{8}\) U-bolt nuts—300-325 FP, (410-440 Nm).
2. There is no need to retorque the Torque Arm 1” bolts after correct initial installation.
3. Tighten 5\(\frac{1}{8}\) torque arm clamp nuts—125-150 FP, (170-205 Nm).
4. Tighten 1” equalizer capscrews—400-450 FP, (540-610 Nm).
5. Tighten 1\(\frac{1}{2}\)” spring retainer nuts—75-80 FP, (105-110 Nm).

VISUAL INSPECTION
1. Loose or missing fasteners.
2. Cracks in hangers or axle connection brackets.
3. Springs, centered in hangers and equalizers.
4. Inspect torque arm bushings for wear.

If any of the above defects are noted, have vehicle checked by a qualified mechanic. Torque values are specified with clean, lightly oiled fasteners, and should only be verified with a calibrated torque wrench. Failure to follow these instructions could void the warranty and could result in subsequent injury.

FP = Foot-Pounds; Nm = Newton-Meters
MODEL 21B MAINTENANCE INSTRUCTIONS (FAB HANGERS)

The ReycoGranning Model 21B Leaf Spring Suspension, by design requires minimum maintenance. Suspensions require periodic checks to assure continued trouble-free performance.

21B RECOMMENDED MAINTENANCE SCHEDULES
1. Pre-service inspection.
2. First service inspection, after 1,000-3,000 miles, (1600-4800 KM).
3. PM Inspections, coincidental with DOT “C” Inspections-Annually.
4. During replacement of any service parts.
5. Upon discovery of any loose components.

TORQUE REQUIREMENTS
Verify with each scheduled inspection.
2. Tighten 3/4" or 7/8" U-bolt nuts—composite springs—250 FP, (340 Nm).
3. Tighten 11/4" equalizer shaft fastener nuts—575-625 FP, (780-850 Nm).
4. Tighten 21/2" equalizer shaft fastener nuts—F.W.WB 54"-65 1/2" —300-325 FP, (410-440 Nm).
6. There is no need to retorque the Torque Arm 1” bolts after correct initial installation.
7. Tighten 5/8” torque arm clamp nuts—125-150 FP, (170-200 Nm).
8. Tighten 3/4” torque arm clamp nuts—175-200 FP, (236-270 Nm).
9. Tighten 1/2” spring retainer nuts—60-80 FP, (80-110 Nm).

VISUAL INSPECTION
1. Loose or missing fasteners.
2. Cracks in hangers or axle connection brackets.
3. Springs, centered in hangers and equalizers.

If any of the above defects are noted, have vehicle checked by a qualified mechanic. Torque values are specified with clean, lightly oiled fasteners, and should only be verified with a calibrated torque wrench. Failure to follow these instructions could void the warranty and could result in subsequent injury.

FP = Foot Pounds, Nm=Newton/Meters
Maintenance Instructions Model 21B

FASTENERS
Loose fasteners need immediate attention. Check components for wear and be sure holes are not worn or egg shaped. When replacing, be sure threads are clean, lightly oiled and not deformed. Consult the maintenance section for the correct torque specification. To insure an accurate torque reading, the torque tool used for checking torque, must provide a correct measurement.

BUSHINGS
Inspect rubber bushings for large splits, tears and major wear. Rubber is attacked by sun, oils and greases. Replace any bushings which have noted damage.

Use a non-petroleum rubber lubricant, water or soap and water.

MAINTENANCE KIT
The following item numbers will help when maintaining parts for the model 21B suspension.

TK18997 - Torque Arm Rebush Kit - 21B (1) End
TK18998 - Equalizer Rebush Kit - 21B (1) Equalizer
TK24125 - Two Wear Pad Kit (wm hm) - 21B (1) Hanger
**SPRING SELECTION TABLE**

<table>
<thead>
<tr>
<th>PART NO.</th>
<th># LEAF</th>
<th>ARCH</th>
<th>CAPACITY</th>
<th>LENGTH</th>
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<tr>
<td>08376-01</td>
<td>3</td>
<td>Med.</td>
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<td>12609-01</td>
<td>7</td>
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<td>9,000</td>
<td>42 ½</td>
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<td>15636-01</td>
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<td>Med.</td>
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<td>18906-01</td>
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<td>55</td>
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<td>3086</td>
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<td>3564</td>
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<td>42 ½</td>
</tr>
<tr>
<td>5547</td>
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<td>5555</td>
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<td>Med.</td>
<td>11,000</td>
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</tr>
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<td>5592</td>
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<td>High</td>
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<td>42.18</td>
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<tr>
<td>7452</td>
<td>9</td>
<td>Med.</td>
<td>13,000</td>
<td>41 ½</td>
</tr>
</tbody>
</table>

*NOTE: Variables are listed on tables-on page 18.*
On/Off Highway Suspension System

Maintenance Instructions Model 21B

1. Mounting Height Dimension "A" is from top surface of hanger to axle with spring unladen.
2. Mount hangers parallel to ground for equal load distribution.
3. Hanger spacing should be held to tolerance of ±1/16".
4. Tighten U-bolt nuts to torque of 300 ft-lbs.
5. Tighten torque arm bolt nuts to torque of 140-160 ft-lbs.
6. Tighten 5/8" torque arm tube clamp nuts to torque of 125 ft-lbs.
7. Tighten equalizer bolts to torque of 400-450 ft-lbs.
8. Estimated weight 730 lbs. as shown with T3086 springs, 7/8" U-bolts, 3" round axles and 3/4" seats.
9. See drawing 63200 for axle seat weld specifications.
10. See Bill of Material 63150 for parts list.
11. Install springs with hook end to rear.

SINGLE LEAF SPRING

- Installed top of spring should be kept painted.
- Protect from weld spatter.
- Do not attach welding ground to spring.

Notes:
- Use #8x1 1/2" T Capscrews, Huck bolts or chadbolts bolts.

Diagram:
- TOP VIEW HANGERS
- LEFT SIDE
- RIGHT SIDE
- RIGID T.A.
- ADJ. T.A.
- SINGLE LEAF SPRING
- SINGLE LEAF SPRING INSTALLATION
- TYP. INVERTED U-BOLT INSTALLATION

Table:

<table>
<thead>
<tr>
<th>NOM. MTG. HT.&quot;A&quot;</th>
<th>SEAT HT</th>
<th>SPRING CAMBER</th>
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<tr>
<td>19</td>
<td>1 5/8</td>
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Section A-A

1/2 SCALE

Drawing - 63159-2
Maintenance Instructions Model 21B

U-BOLT SELECTION TABLE

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<th>LENGTH</th>
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<th>PART NO.</th>
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<th>PART NO.</th>
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<td>11 1/2&quot;</td>
<td>24213-115</td>
<td>13 1/2&quot;</td>
<td>24213-135</td>
<td>15&quot;</td>
<td>24213-150</td>
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<td>12 1/2&quot;</td>
<td>24213-125</td>
<td>14&quot;</td>
<td>24213-140</td>
<td>16&quot;</td>
<td>24213-160</td>
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<td>13&quot;</td>
<td>24213-130</td>
<td>14 1/2&quot;</td>
<td>24213-145</td>
<td>17 1/2&quot;</td>
<td>24213-175</td>
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</table>

All u-bolts on this table are 34"-14 x Length, with a 5" diameter bend.

ALL OTHER PARTS

Due to the large number of options and variety of specifications, all other parts are itemized in the Reyco Granning Price List. If there are any more questions, refer to Reyco Granning Customer Service 1-800-753-0050.

TYPICAL CLAMP GROUP PARTS TABLE (PARTS MOST USED)

<table>
<thead>
<tr>
<th>U-BOLT CLAMP STYLE</th>
<th>AXLE SIZE</th>
<th>TOP PLATE PART #</th>
<th>AXLE SEAT PART #</th>
<th>SEAT HEIGHT</th>
<th>BOTTOM PLATE PART #</th>
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<tr>
<td>Conventional</td>
<td>5&quot;RD</td>
<td>T7175</td>
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<td>T7175</td>
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<td>N.N.</td>
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<td>Inverted</td>
<td>5&quot;RD</td>
<td>23334-01</td>
<td>0973001</td>
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<td>T5514</td>
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<td>3/4&quot;</td>
<td>T5727</td>
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NOTES: Consult Reyco Granning Customer Service for current options. Spacers are used with above parts to get the various Mounting Heights.

SKETCHES OF U-BOLT CLAMP GROUP STYLES

Conventional U-Bolts

Inverted U-Bolts

Square and Rectangle

NO HOP Stabilized Axle

Underslung
1. Mounting height "H" is dim. from top mounting surface of hangers to cl. of axle without load on unit.
2. Mount hanger brackets parallel to ground for equal load distribution.
3. Tighten U-Bolt nuts to torque of 300-325 ft. lbs.
4. Install equalizer bolts to torque of 140-160 ft. lbs.
5. See B/M 98034 for parts list for each mounting height.
6. See drawing 98034-2 & 3 for additional axles.
7. See B/M 98034 for parts list for each mounting.
8. See drawing 98034 for parts list for each unit.
9. Mount hanger parallel to ground for equal load distribution.
10. See B/M 98034 for parts list for each unit.
11. Mounting height "H" is dim. from top mounting surface of hangers to cl. of axle with no load on unit.
12. Mount hanger brackets parallel to ground for equal load distribution.
13. Tighten U-Bolt nuts to torque of 300-325 ft. lbs.
15. See B/M 98034 for parts list for each mounting.
16. See drawing 98034-2 & 3 for additional axles.
17. See B/M 98034 for parts list for each unit.
18. Mounting height "H" is dim. from top mounting surface of hangers to cl. of axle with no load on unit.
19. Mount hanger brackets parallel to ground for equal load distribution.
20. Tighten U-Bolt nuts to torque of 300-325 ft. lbs.
21. Install equalizer bolts to torque of 140-160 ft. lbs.
22. See B/M 98034 for parts list for each mounting.
23. See drawing 98034-2 & 3 for additional axles.
24. See B/M 98034 for parts list for each unit.
25. Mounting height "H" is dim. from top mounting surface of hangers to cl. of axle with no load on unit.
26. Mount hanger brackets parallel to ground for equal load distribution.
27. Tighten U-Bolt nuts to torque of 300-325 ft. lbs.
28. Install equalizer bolts to torque of 140-160 ft. lbs.
29. See B/M 98034 for parts list for each mounting.
30. See drawing 98034-2 & 3 for additional axles.
31. See B/M 98034 for parts list for each unit.
32. Mounting height "H" is dim. from top mounting surface of hangers to cl. of axle with no load on unit.
33. Mount hanger brackets parallel to ground for equal load distribution.
34. Tighten U-Bolt nuts to torque of 300-325 ft. lbs.
35. Install equalizer bolts to torque of 140-160 ft. lbs.
36. See B/M 98034 for parts list for each mounting.
37. See drawing 98034-2 & 3 for additional axles.
## Maintenance Instructions Model 21B

### Installation

- **On/Off Highway Suspension System**
- **SPRING CAMBER**
- **SEAT HT.**
- **NOM. MTG. HT.**
- **SPRING NO.**
- **T 3086**
- **T 5532**
- **T 7452**
- **T 5597**
- **T 5592**
- **T 3564**
- **T 08376**
- **T 01**
- **T 4/3**
- **T 15636**

### Notes

1. Mounting Height Dimension "A" is from Top Surface of Hanger to C.L. Axle with Springs Installed.
2. Hanger Springs Parallel to Ground for Equal Load Distribution.
3. Spring Springs Should Be Held to Tolerance of +/-1/16".
4. Tighten U-Bolt Nuts to Torque of 300 FT-LBS.
5. Tighten Torque Arm Tube Clamp Nuts to Torque of 125-150 FT-LBS.
6. TIGHTEN 5/8" TORQUE ARM BOLT NUTS TO TORQUE OF 140-160 FT.LBS.
7. TIGHTEN 5/8" TORQUE ARM TUBE CLAMP NUTS TO TORQUE OF 125-150 FT.LBS.
8. ESTIMATED WEIGHT 757 LBS. AS SHOWN WITH T 3086 SPRINGS, 7/8" U-BOLTS, 5" ROUND AXLES AND 3/4" SEATS.
9. SEE DRAWING 63200 FOR AXLE SEAT WELD SPECIFICATIONS.
10. SEE DRAWING 63296-2 & 66128-2 FOR PARTS LIST.
1. Mounting height dimension "A" is from top surface of hanger to - axle with spring unladen.
2. Mount hangers parallel to ground for equal load distribution.
3. Hanger spacing should be held to tolerance of ± 1/16".
4. Tighten u-bolt nuts to torque of 300 ft.lbs.
5. Tighten torque arm bolt nuts to torque of 140-160 ft.lbs.
6. Tighten 5/8" torque arm tube clamp nuts to torque of 125-150 ft.lbs.
7. Tighten equalizer bolts to torque of 450-500 ft.lbs.
8. Estimated weight 1056 lbs. as shown with T 3086 springs, 7/8" u-bolts, 5" round axles and 3/4" seats.
9. See drawing 63200 for axle seat weld specifications.
10. See Bill of Material 63159 for parts list.
11. Install springs with hook end to rear.
SINGLE LEAF SPRING. INSTALLED TOP OF SPRING LINER ITEM #35 TO BE SPRING SHOULD BE KEPT PAINTED. PROTECT FROM WELD SPATTER. DO NOT ATTACH WELDING GROUND TO SPRING.

**NOTES:**
1. MOUNTING HEIGHT DIMENSION "A" IS FROM TOP SURFACE OF HANGER TO + AILE WITH SPRING UNLADEN.
2. MOUNT HANGERS PARALLEL TO GROUND FOR EQUAL LOAD DISTRIBUTION.
3. HANGER SPACING SHOULD BE HELD TO TOLERANCE OF +/- 1/16".
4. TIGHTEN U-BOLT NUTS TO TORQUE OF 300 FT.LBS.
5. TIGHTEN TORQUE ARM BOLT NUTS TO TORQUE OF 140-160 FT.LBS.
6. TIGHTEN 5/8" TORQUE ARM TUBE CLAMP NUTS TO TORQUE OF 125-150 FT.LBS.

<table>
<thead>
<tr>
<th>NO.</th>
<th>MTG. HT.</th>
<th>SEAT HT.</th>
<th>SPRING CAMBER</th>
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<tbody>
<tr>
<td>15</td>
<td>3/4</td>
<td>LOW</td>
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<tr>
<td>14</td>
<td>3/4</td>
<td>MEDIUM</td>
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<td>10</td>
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<td>19</td>
<td>3/4</td>
<td>LOW</td>
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</tr>
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<td>17</td>
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<tr>
<td>14</td>
<td>3/4</td>
<td>SINGLE LEAF SPRING</td>
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</tr>
</tbody>
</table>

Installation:
1. MOUNTING HEIGHT DIMENSION "A" IS FROM TOP SURFACE OF HANGER TO + AILE WITH SPRING UNLADEN.
2. MOUNT HANGERS PARALLEL TO GROUND FOR EQUAL LOAD DISTRIBUTION.
3. HANGER SPACING SHOULD BE HELD TO TOLERANCE OF +/- 1/16".
4. TIGHTEN U-BOLT NUTS TO TORQUE OF 300 FT.LBS.
5. TIGHTEN TORQUE ARM BOLT NUTS TO TORQUE OF 140-160 FT.LBS.
6. TIGHTEN 5/8" TORQUE ARM TUBE CLAMP NUTS TO TORQUE OF 125-150 FT.LBS.
7. ESTIMATED WEIGHT 345 LBS. AS SHOWN WITH T 3086 SPRINGS, 11/16" U-BOLTS, 7/8" ROUND AXLES AND 3/4" SEATS.
8. SEE DRAWING 63200 FOR AXLE SEAT WELD SPECIFICATIONS.
9. SEE BILL OF MATERIAL 63159 FOR PARTS LIST.
10. INSTALL SPRINGS WITH HOOK END TO REAR.
Notes:
1. Mounting height Y’ is from bottom of frame to -
of 5’ Rd. axle with no load on tandem.
2. Mount hanger brackets parallel to ground for equal load distribution.
3. Spacing of hanger brackets should be held to tolerance of +/-.014.
4. Tighten U-bolt nuts to torque of 300 ft-lbs.
5. Tighten torque arm bolt nuts to torque of 140-160 ft-lbs.
6. Tighten equalizer shaft nuts to torque of 300 ft-lbs. Max.
7. Maintain 1/32” clearance between washer and casting.
8. See Drawing 63200 for axle seat welding specs.
9. Estimated weight 820 lbs. As shown with T 3564 springs.
10. Install springs with hooks to rear.

NOTE: Springs should be kept painted and protected from weld spatter.
1. Mounting height Y’ is from bottom of frame to -
of 5’ Rd. axle with no load on tandem.
2. Mount hanger brackets parallel to ground for equal load distribution.
3. Spacing of hanger brackets should be held to tolerance of +/-.014.
4. Tighten U-bolt nuts to torque of 300 ft-lbs.
5. Tighten torque arm bolt nuts to torque of 140-160 ft-lbs.
6. Tighten equalizer shaft nuts to torque of 300 ft-lbs. Max.
7. Maintain 1/32” clearance between washer and casting.
8. See Drawing 63200 for axle seat welding specs.
9. Estimated weight 820 lbs. As shown with T 3564 springs.
10. Install springs with hooks to rear.

### Table: Nominal Mounting, Seat, and Spring Chamber

<table>
<thead>
<tr>
<th>Nominal Mounting</th>
<th>Seat Height</th>
<th>Spring Chamber</th>
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</table>

### On/Off Highway Suspension System

Maintenance Instructions Model 21B

Drawing - 74117-2 & 70100-2
Maintenance Instructions Model 21B

1. MOUNTING HEIGHT DIMENSION IS FOR MEDIUM ARCH SPRINGS. 5" ROUND AXLE 3/4" HIGH SEAT, & UNLADEN TANDEM.
2. MOUNT HANGERS PARALLEL TO GROUND FOR EQUAL WEIGHT DISTRIBUTION.
3. TIGHTEN U-BOLT NUTS TO 300 LB.-FT. (410 N-m) TORQUE.
4. TIGHTEN TORQUE ARM BOLT NUTS TO 140-160 LB.-FT. (215-270 N-m) FOR FABRICATED TORQUE ARM ENDS.
5. TIGHTEN TORQUE ARM CLAMP NUTS TO 125-150 LB.-FT. (170-200 N-m).
6. TIGHTEN EQUALIZER SHAFT NUT TO 575-625 LB.-FT. (780-850 N-m).
7. INSTALL SPRINGS WITH HOOKS TO REAR.
8. INSTALL HANGERS PARALLEL TO GROUND FOR EQUAL WEIGHT DISTRIBUTION.
9. INSTALL SPRING RETAINER BOLT NUTS TO 60-80 FT-LB. (80-110 Nm).
10. TIGHTEN NUTS ON CAST ADJUSTABLE TORQUE ARM ENDS TO 125-150 LB.-FT.
NOTES:

A. SEE BILL OF MATERIAL FOR MOUNTING HEIGHT “F”.
B. TIGHTEN U-BOLT NUTS TO 300-325 FT-LB (410-440 Nm) TORQUE.
C. TIGHTEN TORQUE ARM BOLT NUTS TO 125-150 FT-LB (170-200 Nm).
D. TIGHTEN EQUALIZER SHAFT NUT TO 575-625 FT-LB (780-850 Nm).
E. INSTALL REYCO SPRINGS WITH HOOKS TO REAR.
F. INSTALL SPRING LINER ON TOP & BOTTOM OF SINGLE-LEAF SPRING, ON TOP ONLY OF THREE-LEAF SPRING.
G. INSTALL RIGID TORQUE ARMS ON CURB SIDE OF SUSPENSION.
H. INSTALL HANGERS PARALLEL TO GROUND FOR EQUAL WEIGHT DISTRIBUTION.

TIGHTEN SPRING RETAINER BOLT NUTS TO 60-80 FT-LB (80-110 Nm).
1. Mounting height (A DIM.) is unladen.
2. Install hangers to tolerance of ±1/16".
3. Tighten U-bolt nuts to torque of 300 ft.lbs.
4. Tighten torque arm bolts to 140-160 ft.lbs.
5. Tighten 5/8" torque arm tube clamp nuts to 125-150 ft.lbs.
6. Install equalizer shaft nuts to 250 ft.lbs.
7. Reinforcement bridging between hanger brace pipes and frame crossmembers is recommended.
8. Dimensions are shown in inches and millimeters.
9. Springs should be installed with hooks to rear.

<table>
<thead>
<tr>
<th>AXLE SPACING</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
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**Notes:**
- Dimensions are shown in inches and millimeters.
- Springs should be installed with hooks to rear.
- Reinforcement bridging between hanger brace pipes and frame crossmembers is recommended.
- Dimensions are shown in inches and millimeters.
- Springs should be installed with hooks to rear.
**Maintenance Instructions Model 21B**

**On/Off Highway Suspension System**

**Notes:**
1. Mounting Height, 15 1/2" Dim. is with 5" Rd. Axle. Medium Arch Springs and No Load on Tandem.
2. Mount Hangers Parallel to Ground for Equal Load Distribution. Hold Spacing to Tolerance of ±1/16".
3. Tighten Torque Arm Bolt Nuts to Torque of 145-160 ft.lbs.
4. Tighten U-Bolt Nuts to Torque of 300-325 ft lbs.
5. Tighten Equalizer Shaft Nut to Torque of 850-950 ft.lbs.
6. Tighten Equalizer Bolt Nut to Torque of 175-180 ft.lbs.
7. Reinforcement Bridging Between Hanger Cross-Braces and Frame is Recommended.
8. Use This Set of Equalizer Bolt Holes (A) for 72" Axle Spacing Only.
9. Frame Equalizer Brace (Item (2)) from 9" Channel.
10. Dimensions Shown in Inches and Millimeters.
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Reyco Granning
S U S P E N S I O N S

MISSOURI
Mount Vernon
1205 Industrial Park Drive
Mount Vernon, MO 65712
(800) 753-0050, Fax (417) 466-3964

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Form #21BIM rev 0511