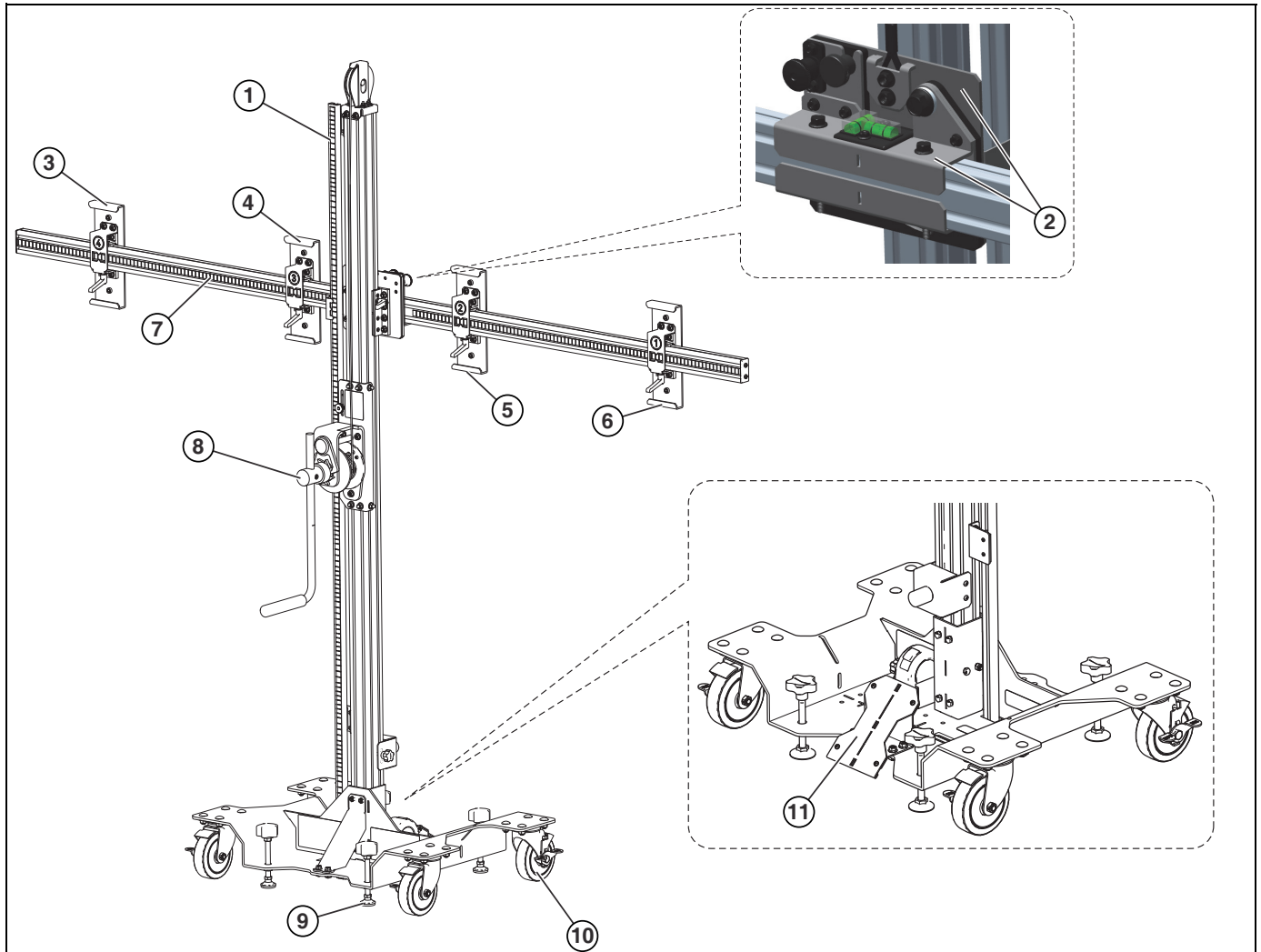




Service Parts Manual

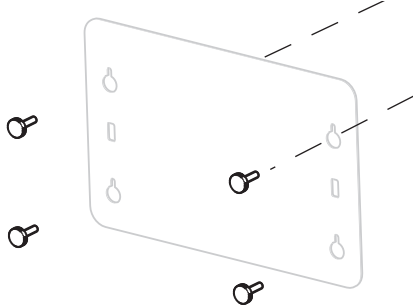
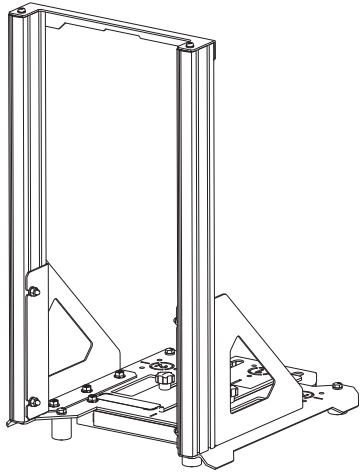
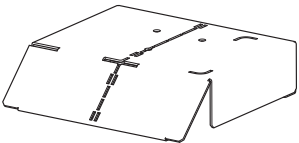
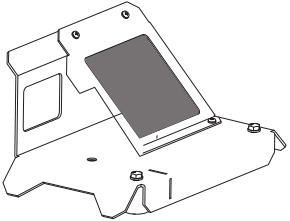
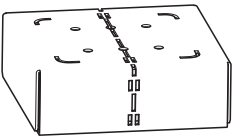
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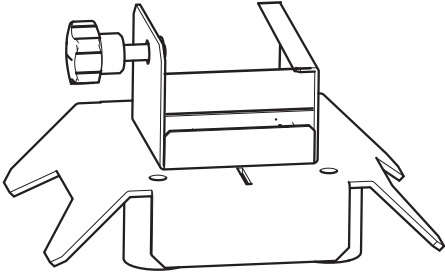
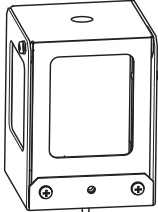
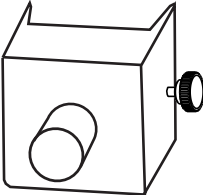
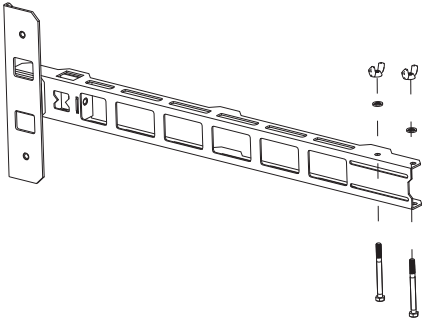
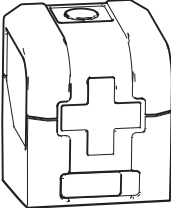
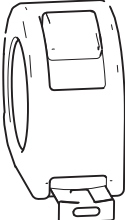
Service Kits

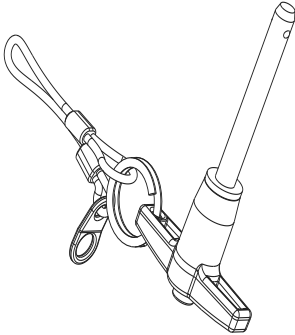
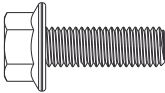



Item	Kit Part Number	Description	
1	EAK0366L09A	Vertical Scale Service Kit	Kit Instruction Sheets Located in Index.
2	EAK0366L10A	Cross Beam Pivot Service Kit	
3	EAK0366L07A	No. 4 Target Mount Service Kit	
4	EAK0366L06A	No. 3 Target Mount Service Kit	
5	EAK0366L05A	No. 2 Target Mount Service Kit	
6	EAK0366L04A	No. 1 Target Mount Service Kit	
7	EAK0366L08A	Cross Beam Service Kit	
8	EAK0366L11A	Winch Service Kit	
9	EAK0366L02A	Leveling Foot Service Kit	
10	EAK0366L01A	Caster Service Kit	
11	EAK0366L03A	Front Alignment Plate Service Kit	

Recalibration Fixtures and Hardware

Name / Part Number / Qty	Image
<p>Target Thumbscrew Pack of 12 EAK0366L12A</p>	
<p>AS10 Alignment Fixture EAA0496L05AR</p>	
<p>AS11 Alignment Fixture (use with AS10) EAA0496L15AR</p>	
<p>AS20 Rear Laser Alignment Fixture EAA0496L07AR</p>	
<p>AS21 Rear Alignment Fixture EAA0496L12AR</p>	

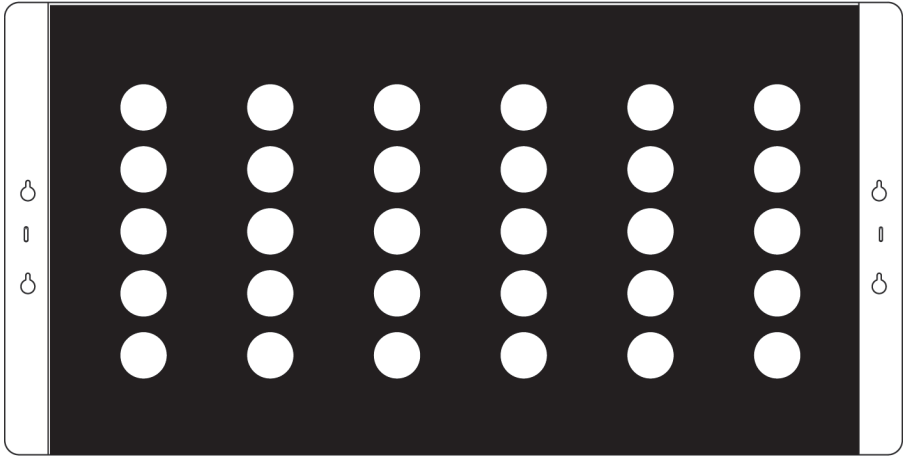
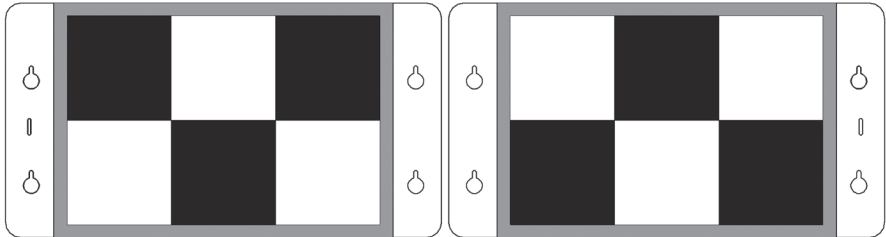

Name / Part Number / Qty	Image
<p>AT10 Tape Rule Stand EAA0496L09AR</p>	
<p>Laser Stand EAA0496L06AR</p>	
<p>Zero Stop EAA0496L13AR</p>	
<p>Honda Extension Arm Kit (North America) EAA0496L04AR</p>	
<p>Laser Unit 3-24413A</p>	
<p>Tape Rule 1-41584A</p>	


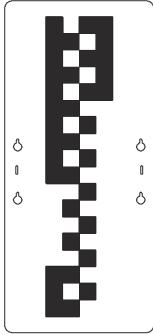
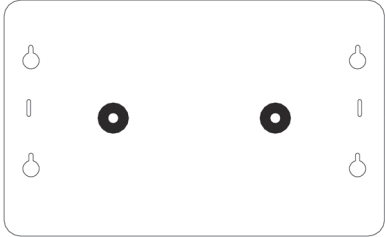
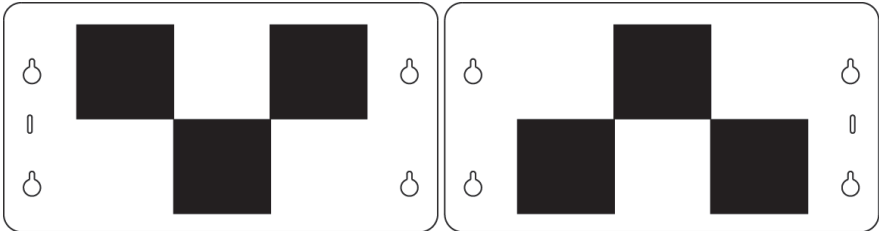
Name / Part Number / Qty	Image
<p>T-Handle Quick Lock Pin and Lanyard 8-73437A01</p>	
<p>Cross Beam Pivot Bolt 1-05115A</p>	
<p>Knurled Locking Knob 1-42984A</p>	

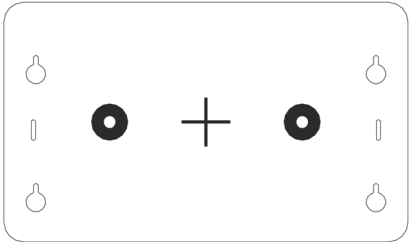
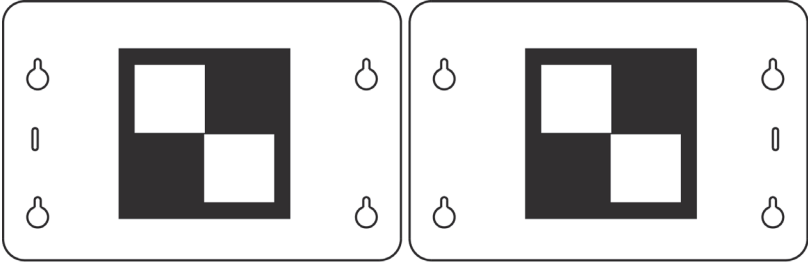
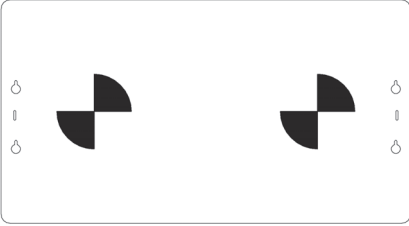
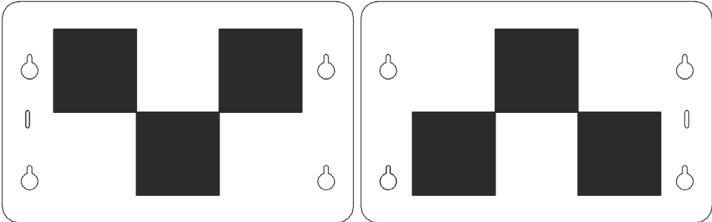
Front Camera Targets

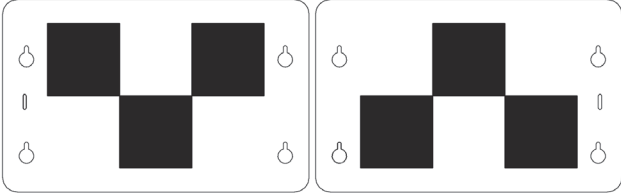
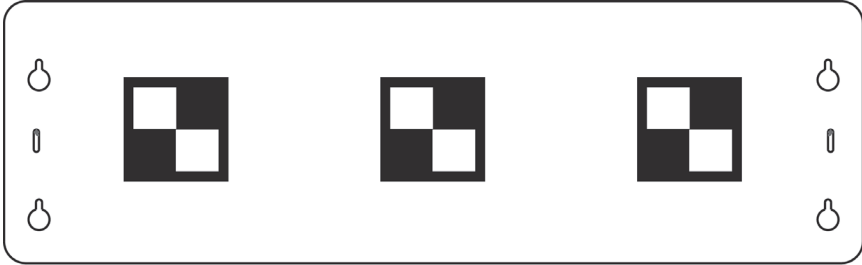
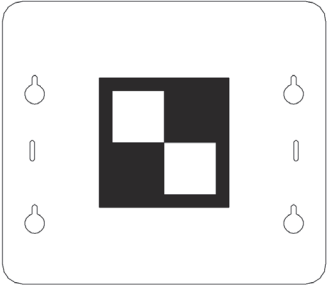
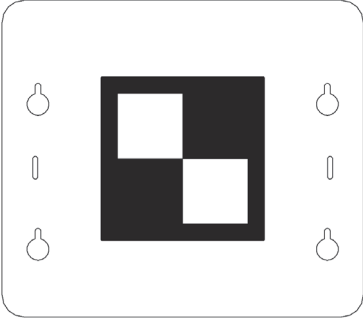
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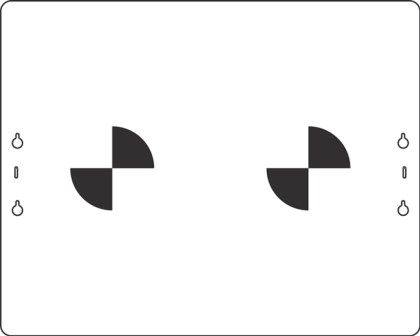
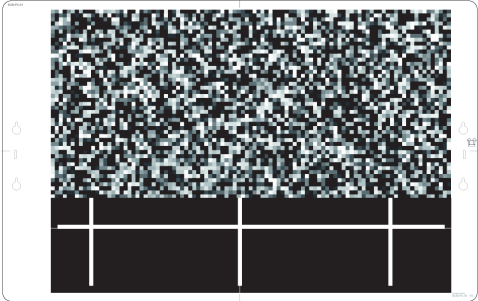
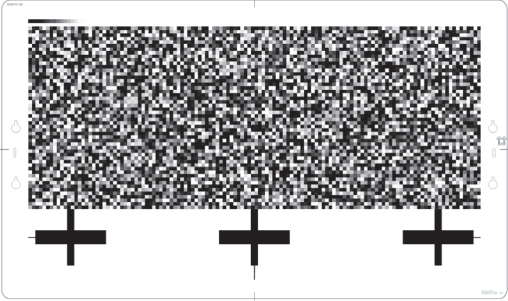
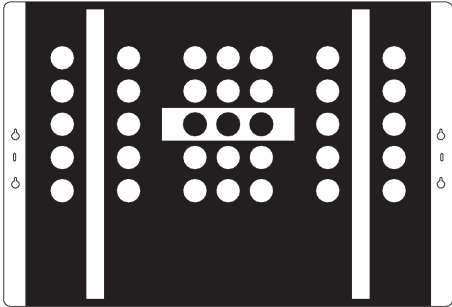
Prior to using any of the targets referenced in this document, the user should check the applicable automotive manufacturer's service information to make certain that the most recently published targets are used. Do not use the targets published in this document if the automotive manufacturer has published targets that are more recent..

Name / Part Number / Qty	Image
FIAT®	
<p>FIA-FC-01 EAK0362L18A (Qty. 1)</p>	
HONDA® / ACURA®	
<p>HON-FC-01 EAK0362L28A (Set - Qty. 2 Pc.)</p>	
<p>HON-FC-02 EAK0362L11A (Set - Qty. 3 Pc.)</p>	

Name / Part Number / Qty	Image
<p>HON-FC-03 EAK0362L13A (Qty. 1)</p>	
<p>HYUNDAI[®] / KIA[®]</p>	
<p>HYU-FC-01 EAK0362L29A (Qty. 1)</p>	
<p>MAZDA[®]</p>	
<p>MAZ-FC-01 EAK0362L27A (Qty. 1)</p>	
<p>MAZ-FC-02 EAK0362L33A (Set - Qty. 2 Pc.)</p>	

Name / Part Number / Qty	Image
MERCEDES-BENZ®	
<p>MB-FC-01 EAK0362L25A (Qty. 1)</p>	
MITSUBISHI®	
<p>MIT-FC-01 EAK0362L32A (Set - Qty. 2 Pc.)</p>	
NISSAN® / INFINITY®	
<p>NIS-FC-01 EAK0362L30A (Qty. 1)</p>	
<p>NIS-FC-02 EAK0362L26A (Set - Qty. 2 Pc.)</p>	


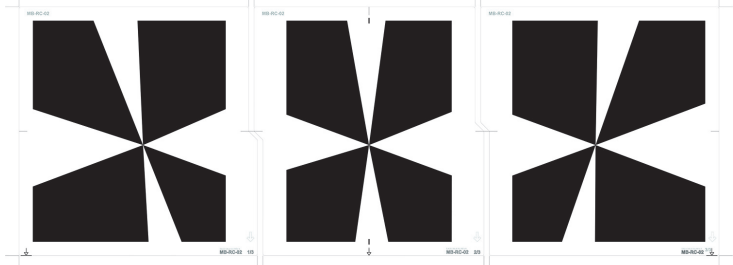
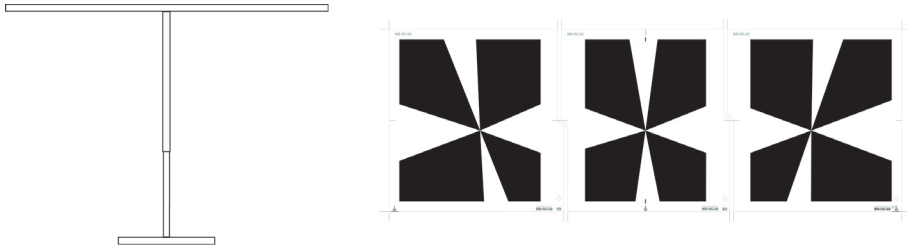
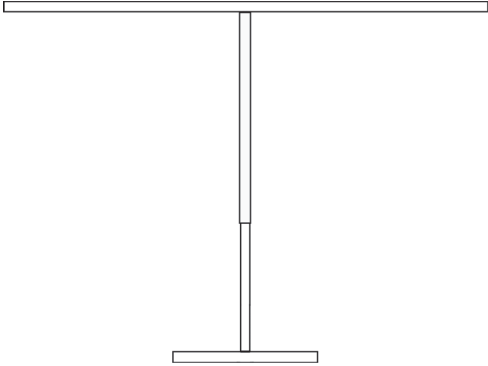
Name / Part Number / Qty	Image
<p>NIS-FC-03 EAK0362L20A (Set - Qty. 2 Pc.)</p>	
<p>TOYOTA[®] / LEXUS[®]</p>	
<p>TOY-FC-01 EAK0362L34A (Qty. 1)</p>	
<p>TOY-FC-02 EAK0362L23A (Qty. 1)</p>	
<p>TOY-FC-03 EAK0362L24A (Qty. 1)</p>	

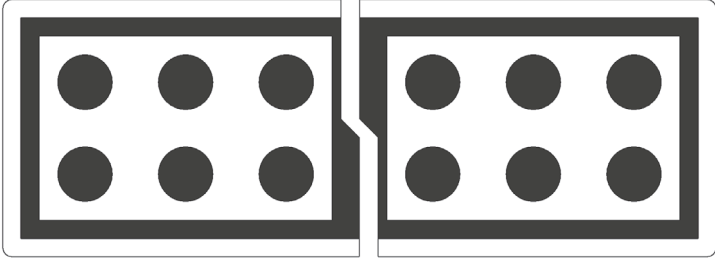
Name / Part Number / Qty	Image
RENAULT®	
<p>REN-FC-01 EAK0362L19A (Qty. 1)</p>	
SUBARU®	
<p>SUB-FC-01 EAK0362L37A (Qty. 1)</p>	
<p>SUB-FC-02 EAK0362L38A (Qty. 1)</p>	
VOLKSWAGEN® / AUDI®	
<p>VAG-FC-01 EAK0362L31A (Qty. 1)</p>	

Rear Camera Equipment

****IMPORTANT****

Prior to using any of the targets referenced in this document, the user should check the applicable automotive manufacturer's service information to make certain that the most recently published targets are used. Do not use the targets published in this document if the automotive manufacturer has published targets that are more recent..

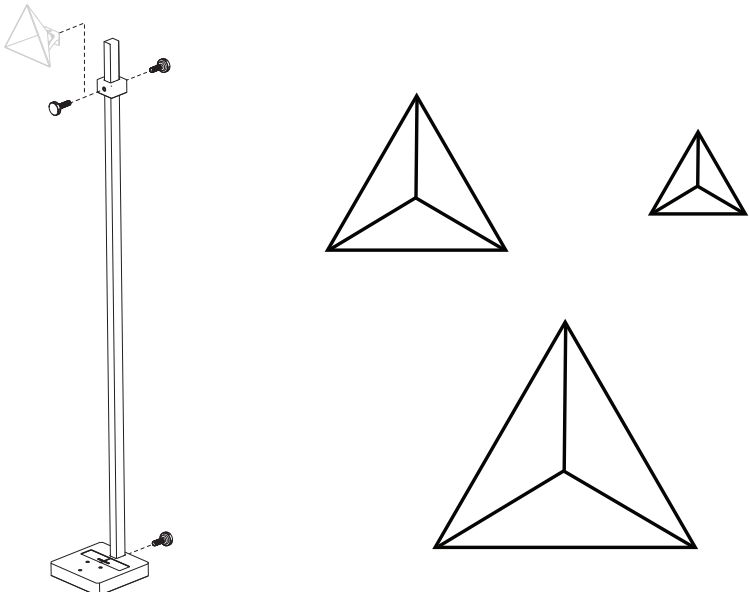
Name / Part Number / Qty	Image
MERCEDES-BENZ®	
<p>MB-RC-01 EAK0362L36A (Set - Qty. 2 Pc.)</p>	
<p>MB-RC-02 EAK0362L21A (Set - Qty. 3 Pc.)</p>	
<p>EAK0362L22A Kit Includes: EAK0362L21A Target Kit and MB-TBAR-01 Fixture</p>	
<p>MB-TBAR-01 5-01139A</p>	

Name / Part Number / Qty	Image
VOLKSWAGEN® / AUDI®	
<p>VAG-RC-01 EAK0362L35A (Set - Qty. 2 Pc.)</p>	

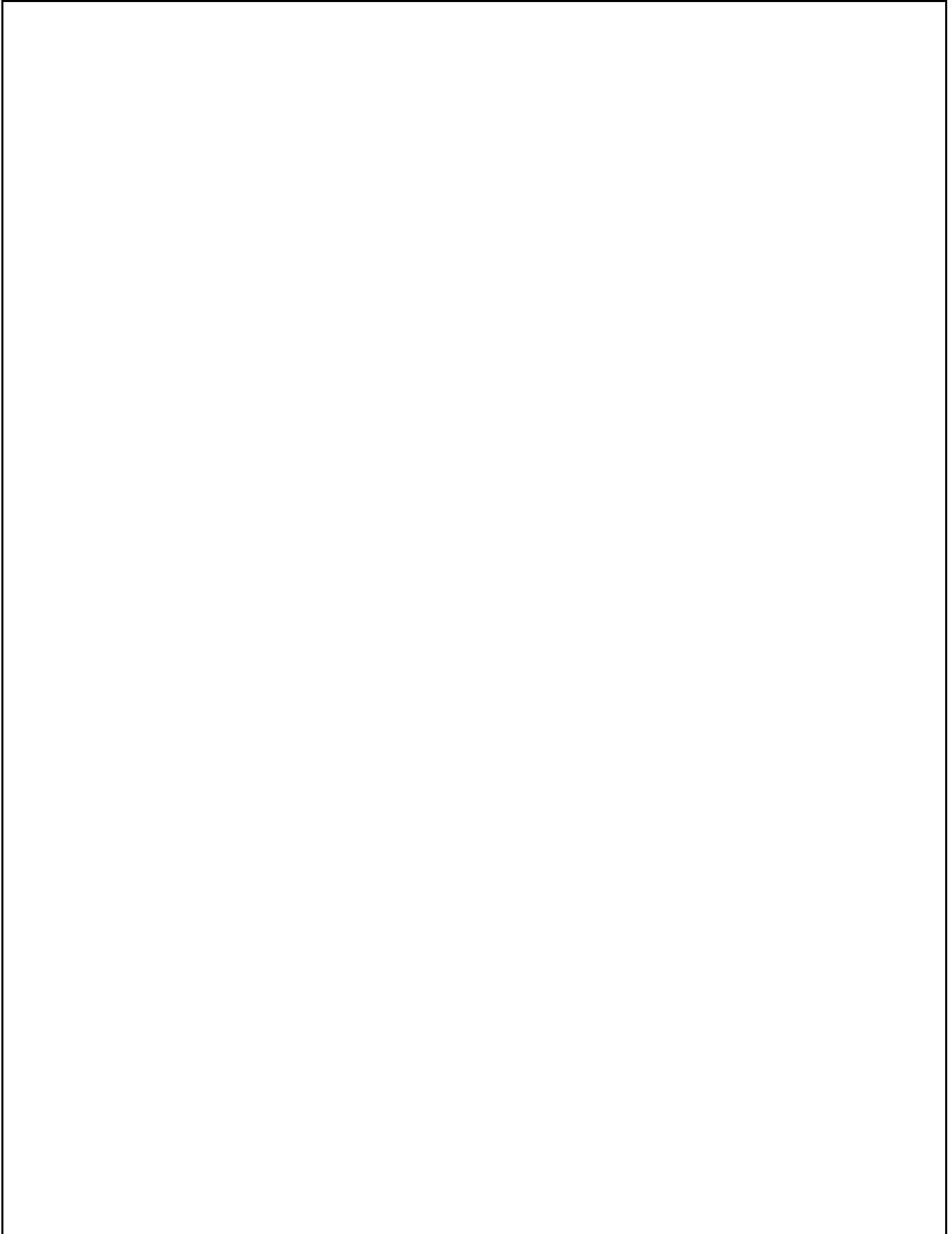
Front Radar Equipment

****IMPORTANT****

Prior to using any of the targets referenced in this document, the user should check the applicable automotive manufacturer's service information to make certain that the most recently published targets are used. Do not use the targets published in this document if the automotive manufacturer has published targets that are more recent..

Name / Part Number	Image
Front Radar Kit	
<p>EAA0496L11AR Kit Includes:</p> <p>RAD 10 Stand</p> <p>RAD 01 (137 mm) (MAZDA / HONDA / ACURA / TOYOTA / LEXUS)</p> <p>RAD 02 (212 mm) (MITSUBISHI)</p> <p>RAD 03 (112 mm) (SUBARU)</p>	

NOTES

A large, empty rectangular box with a thin black border, occupying most of the page. It is intended for the user to write their notes.



Index

Instruction Sheets Included

EAZ0139L60A Rev. A (EAK0366L01A - Caster Service Kit)

EAZ0139L61A Rev. A (EAK0366L02A - Leveling Foot Service Kit)

EAZ0139L62A Rev. A (EAK0366L03A - Front Alignment Plate Service Kit)

EAZ0139L63A Rev. A (EAK0366L04A - No. 1 Target Mount Service Kit)

EAZ0139L63A Rev. A (EAK0366L05A - No. 2 Target Mount Service Kit)

EAZ0139L63A Rev. A (EAK0366L06A - No. 3 Target Mount Service Kit)

EAZ0139L63A Rev. A (EAK0366L07A - No. 4 Target Mount Service Kit)

EAZ0139L67A Rev. A (EAK0366L08A - Cross Beam Service Kit)

EAZ0139L68A Rev. A (EAK0366L09A - Vertical Scale Service Kit)

EAZ0139L69A Rev. A (EAK0366L10A - Cross Beam Pivot Service Kit)

EAZ0139L71A Rev. A (EAK0366L11A - Winch Service Kit)

This kit provides the parts and instructions required to replace a TS100 Target Stand Caster Assembly.

Contents

See **Figure 1** for reference.

- **A** - (4) Carriage Bolt (5/16-18 x 3/4 in.)
- **B** - (4) Locknut (5/16-18 in.)
- **C** - (1) Caster Assembly

General Safety Information

WARNING

Risk of personal injury, unsafe conditions and equipment damage.

- Before repairing this unit, read this instruction sheet completely.
- Follow and perform these instructions as written.
- Use the proper personal protective safety equipment and tools as applicable for the work you are performing.
- Use a helper when lifting, handling and assembling heavy and large parts.
- Avoid pinching your fingers when sliding or moving parts.
- Check and replace all damaged and worn parts as required before returning the unit back into operation.

Not following these repair and safety instructions can result in personal injury, unsafe conditions and equipment damage.

Repair Instructions

Removal

(See **Figure 1** for reference.)

1. Rotate and secure the cross beam into the vertical storage position. See “Rotating/Storing the Cross Beam” in the ADAS Recalibration System User Guide for instructions.
2. In order to replace the caster assembly, the unit must be positioned on its side. With the assistance of a helper, position the unit on its side in a manner that avoids damaging the unit. Ensure the unit is secure before performing the repair.

3. Remove and discard the existing caster assembly, by removing the four locknuts and carriage bolts securing it to the base assembly.

Installation

(See **Figure 1** for reference.)

1. Install the replacement caster assembly (**C**) using the supplied carriage bolts (**A**) and locknuts (**B**). Position the head of the carriage bolt into the base assembly and tighten the locknuts to 11 lb-ft. (15 N·m).

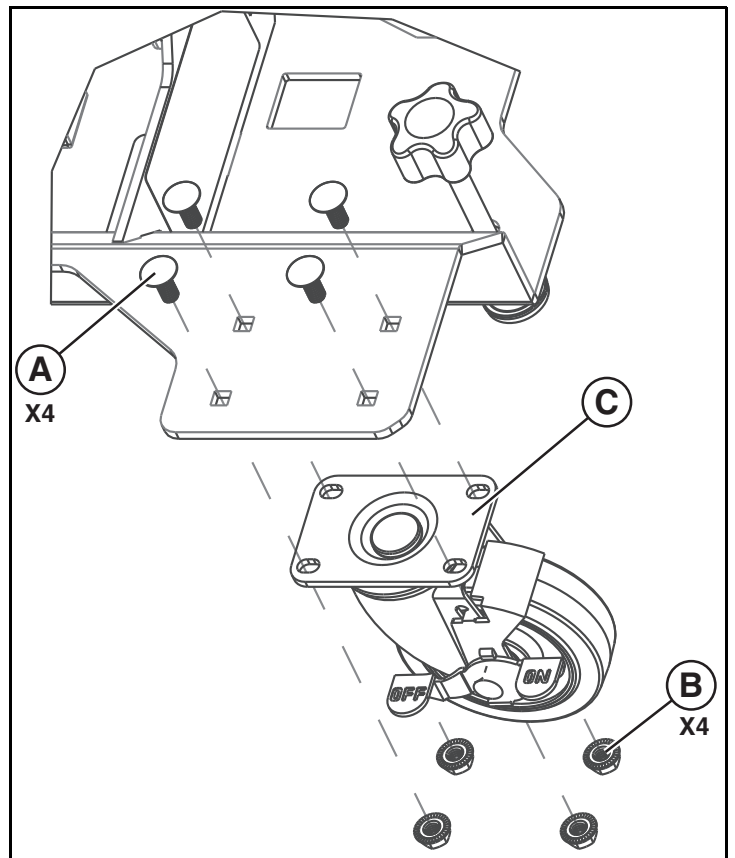


Figure-1

2. With the assistance of a helper, return the unit to its normal upright position.
3. Move the unit on its casters and ensure they swivel and roll freely without binding.
4. Check the lock function of the casters for proper operation.

This kit provides the parts and instructions required to replace a TS100 Target Stand Leveling Foot Assembly.

Contents

See **Figure 1** for reference.

- **A** - (1) Leveling Knob
- **B** - (1) Hex Nut (M10)
- **C** - (1) Leveling Foot Assembly
- **Not Shown** - (1) Tube - Thread Locker

General Safety Information

WARNING

Risk of personal injury, unsafe conditions and equipment damage.

- Before repairing this unit, read this instruction sheet completely.
- Follow and perform these instructions as written.
- Use the proper personal protective safety equipment and tools as applicable for the work you are performing.
- Use a helper when lifting, handling and assembling heavy and large parts.
- Avoid pinching your fingers when sliding or moving parts.
- Check and replace all damaged and worn parts as required before returning the unit back into operation.

Not following these repair and safety instructions can result in personal injury, unsafe conditions and equipment damage.

Repair Instructions

Removal

(See **Figure 1** for reference.)

1. Rotate and secure the cross beam into the vertical storage position. See “Rotating/Storing the Cross Beam” in the ADAS Recalibration System User Guide for instructions.
2. In order to replace the leveling foot assembly, the unit must be positioned on it’s side. With the assistance of a helper, position the unit on it’s side in a manner that avoids damaging the unit. Ensure the unit is secure before performing the repair.

3. Remove the existing leveling foot assembly, by unthreading the knob from the leveling foot stud and then unthread the stud from the base plate.
4. Discard all parts removed.

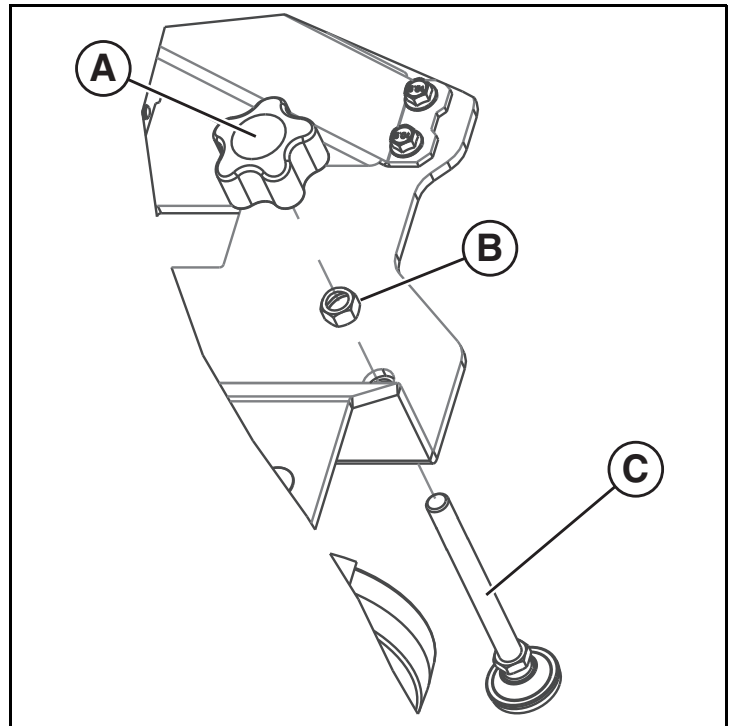


Figure-1

Installation

(See **Figure 1** for reference.)

1. Thread the replacement leveling foot assembly (**C**) into the base plate. The height from the bottom of the foot to the base plate, must be less than 45 mm.
2. From the top side of the base plate, thread the M10 nut (**B**) down 15mm on the leveling foot threaded stud.
3. Apply thread locker to the threaded stud and then thread on the replacement leveling knob (**A**) until it contacts the M10 nut.
4. While holding the knob, tighten the M10 nut against the knob to 7.4 lb-ft. (8-12 N·m).
5. With the assistance of a helper, return the unit to it’s normal upright position.
6. Check the operation of the leveling foot and make any additional adjustments as needed.

This kit provides the parts and instructions required to replace a TS100 Target Stand Front Alignment Plate.

Contents

See **Figure 1** for reference.

- **A** - (4) Screw M4 x 12mm
- **B** - (4) Hex Head Screw M6 x 16mm
- **C** - (1) Front Alignment Plate
- **D** - (1) Support Plate

Not Shown - (1) Tube - Thread Locker

General Safety Information

WARNING

Risk of personal injury, unsafe conditions and equipment damage.

- Before repairing this unit, read this instruction sheet completely.
- Follow and perform these instructions as written.
- Use the proper personal protective safety equipment and tools as applicable for the work you are performing.
- Use a helper when lifting, handling and assembling heavy and large parts.
- Avoid pinching your fingers when sliding or moving parts.
- Check and replace all damaged and worn parts as required before returning the unit back into operation.

Not following these repair and safety instructions can result in personal injury, unsafe conditions and equipment damage.

Repair Instructions

Removal

(See **Figure 1** for reference.)

1. Remove the existing front alignment plate, by unthreading the four screws attaching it to the support plate.
2. Discard all parts removed.

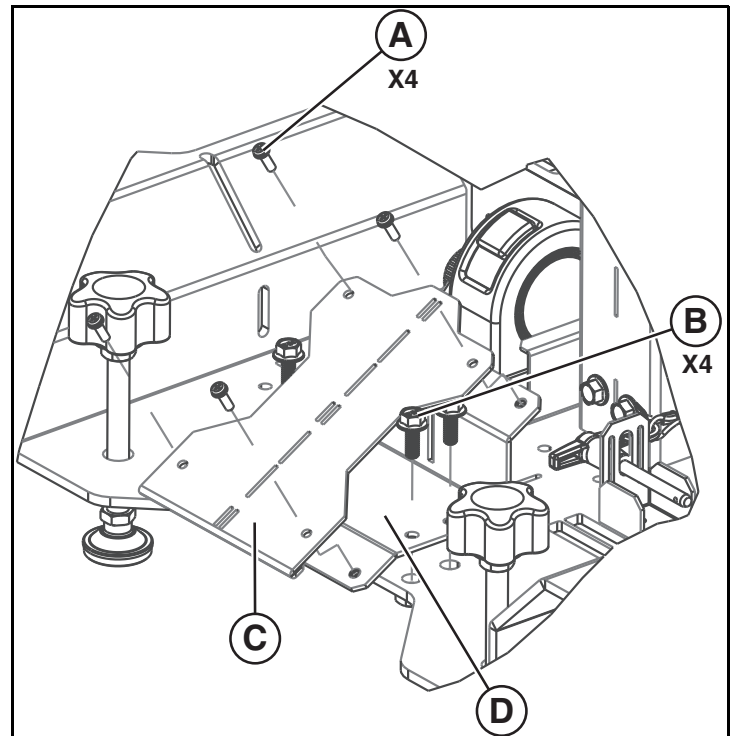


Figure-1

Installation

(See **Figure 1** for reference.)

1. Apply thread locker to the four new hex head bolts (**B**), and attach the support plate (**D**) to the base. Tighten the bolts to 7.4 lb-ft. (8-12 N·m)
2. Apply thread locker to the four new screws (**A**), and attach the new front alignment plate (**C**) to the support plate (**D**). Tighten the screws to 2.2 lb-ft. (2.8-3.2 N·m)

This kit provides the parts and instructions required to replace a TS100 Target Stand Target Mount.

Application

This instruction sheet is used for the Target Mount Service Kits listed below. **Note:** The replacement instructions for each of the target mounts (1 to 4) are similar. Procedural variances are identified within the steps of these instructions.

- **Target Mount (1)** - EAK0366L04A Rev. A
- **Target Mount (2)** - EAK0366L05A Rev. A
- **Target Mount (3)** - EAK0366L06A Rev. A
- **Target Mount (4)** - EAK0366L07A Rev. A

Kit Contents

See **Figure 1** for reference.

- **A** - (1) Target Mount Assembly

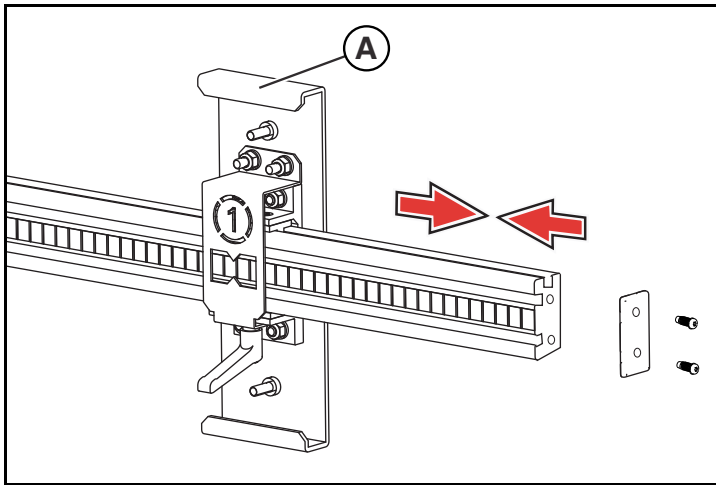


Figure-1

General Safety Information

WARNING

Risk of personal injury, unsafe conditions and equipment damage.

- Before repairing this unit, read this instruction sheet completely.
- Follow and perform these instructions as written.
- Use the proper personal protective safety equipment and tools as applicable for the work you are performing.
- Use a helper when lifting, handling and assembling heavy and large parts.
- Avoid pinching your fingers when sliding or moving parts.
- Check and replace all damaged and worn parts as required before returning the unit back into operation.

Not following these repair and safety instructions can result in personal injury, unsafe conditions and equipment damage.

Repair Instructions

(See **Figure 1** for reference.)

Removal

Remove the screws from the cross beam end and remove the end plate.

If replacing mount "1" or "4", unlock the target mount and slide it off the cross beam.

If replacing mount "2" or "3", first remove the applicable mount ("1" or "4") from the cross beam in order to remove the mount you are replacing.

Installation

1. Install the new target mount (**A**) onto the cross beam.
2. Install the cross beam end plate using the original screws. Tighten the screws to 3.7 lb-ft. (4-6 N·m).
3. Adjust and tighten the mount lock lever so that the brake locks the slide within one half turn of the lever.

Contents

See **Figure 1** for reference.

- **A** - (7) Hex Nut M4
- **B** - (1) Spirit Level
- **C** - (1) Cross Beam
- **D** - (1) Lower Front Mount Bracket
- **E** - (1) Plunger Assembly

- **F** - (2) Hex Head Screw M6 X 70mm
- **G** - (1) Upper Front Mount Bracket
- **H** - (1) Hex Head (Pivot) Screw M10 x 30 mm
- **I** - (1) Flanged (Pivot) Bearing
- **J** - (2) End Cap
- **K** - (4) Self Tapping Screw 12-24 x 3/8 in.

Not Shown - (1) Tube - Thread Locker

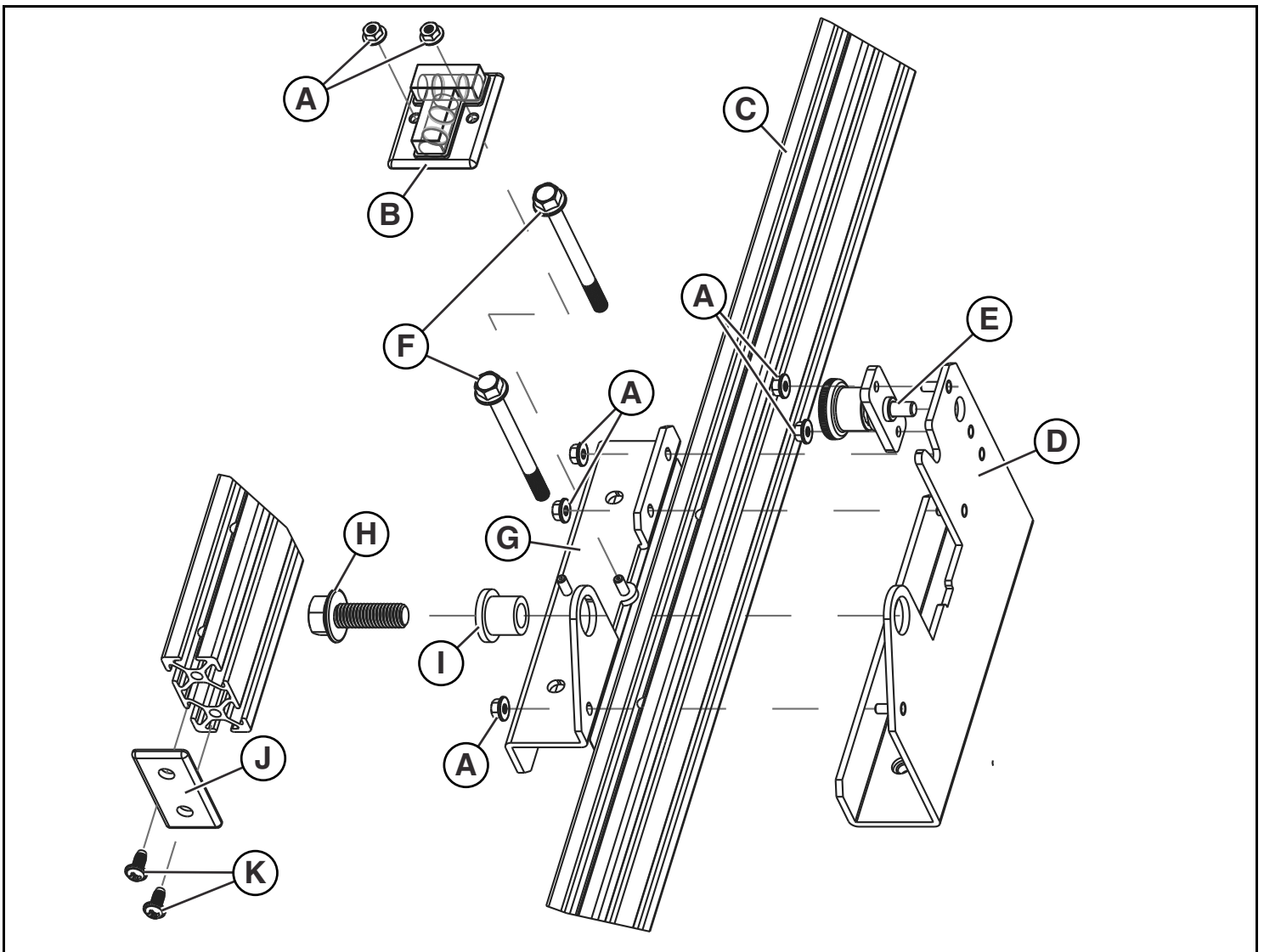


Figure-1

General Safety Information



Risk of personal injury, unsafe conditions and equipment damage.

- Before repairing this unit, read this instruction sheet completely.
- Follow and perform these instructions as written.
- Use the proper personal protective safety equipment and tools as applicable for the work you are performing.
- Use a helper when lifting, handling and assembling heavy and large parts.
- Avoid pinching your fingers when sliding or moving parts.
- Check and replace all damaged and worn parts as required before returning the unit back into operation.

Not following these repair and safety instructions can result in personal injury, unsafe conditions and equipment damage.

Repair Instructions

Removal

(See **Figure 1** for reference.)

1. If applicable, remove all targets from their mounts.
2. Remove the four screws (**K**) attaching the end caps (**J**) to the cross beam (**C**), and then remove the end caps.
3. Loosen and remove the four target mount brackets from the cross beam. Note position of target mounts before removal.
4. With the use of a helper, hold and support the cross beam assembly while removing the hex head pivot screw (**H**). This will allow you to remove the cross beam as an assembly.
5. Discard all parts removed, except the target mounts.

Installation

(See **Figure 1** for reference.)

The following steps may be completed by first assembling the cross beam as a subassembly on a workbench, and then installing it on the mast.

1. Install the four original target mount brackets onto the new cross beam (**C**). The target mounts are numbered and must be positioned in sequence on the cross beam left to right, with number "1" mount on the left side.
2. Install the new cross beam end plates (**J**) using two new self tapping screws per side (**K**). Tighten the screws to 3.7 lb-ft. (4-6 N·m).
3. Position the new lower mount bracket (**D**) on the center of cross beam, then fit the new upper mount bracket (**G**) to align with the lower bracket.
4. Attach the brackets to the cross beam using two new hex bolts (**F**) and three new hex nuts (**A**). Apply thread locker to hex bolts and tighten nuts to 7.4 lb-ft. (8-12 N·m). Tighten hex nuts to 2.2 lb-ft. (2.5-3.5 N·m).
5. Install the new spirit level (**B**) to upper mount bracket (**G**) using two new hex nuts (**A**). Tighten the hex nuts by hand until just tight. Do not overtighten the nuts or you may damage the level.
6. Install the new plunger assembly (**E**) to the lower mount bracket (**D**) with two new hex nuts (**A**). Tighten hex nuts to 2.2 lb-ft. (2.5-3.5 N·m). Do not overtighten nuts. After installation ensure the plunger moves freely.
7. Install the new flanged (pivot) bearing (**I**) through both upper (**G**) and lower (**D**) mount brackets.
8. With the use of a helper, hold and support the cross beam assembly while positioning into place, and then install the hex head pivot screw (**H**). Tighten screw to 177-266 lb-in. (20-30 N·m). Ensure cross beam rotates freely after tightening the screw.
9. Ensure cross beam operates normally after installation. Ensure pivot and plunger mechanisms operate normally, allowing free rotation and secure locking.

Contents

See **Figure 1** for reference.

- **A** - (2) Carriage Bolt M6 X16mm
- **B** - (4) Self Tapping Screw .4 x 20 -1/2 in.
- **C1, C2** - (2) Nylon Washer M5
- **D** - (6) Hex Lock Nut M6
- **E** - (2) Slide Bearing
- **F** - (1) Scale Bar with Label (0-1695mm)
- **G1, G2** - (2) Scale Bracket
- **H** - (1) Scale Lock Bracket

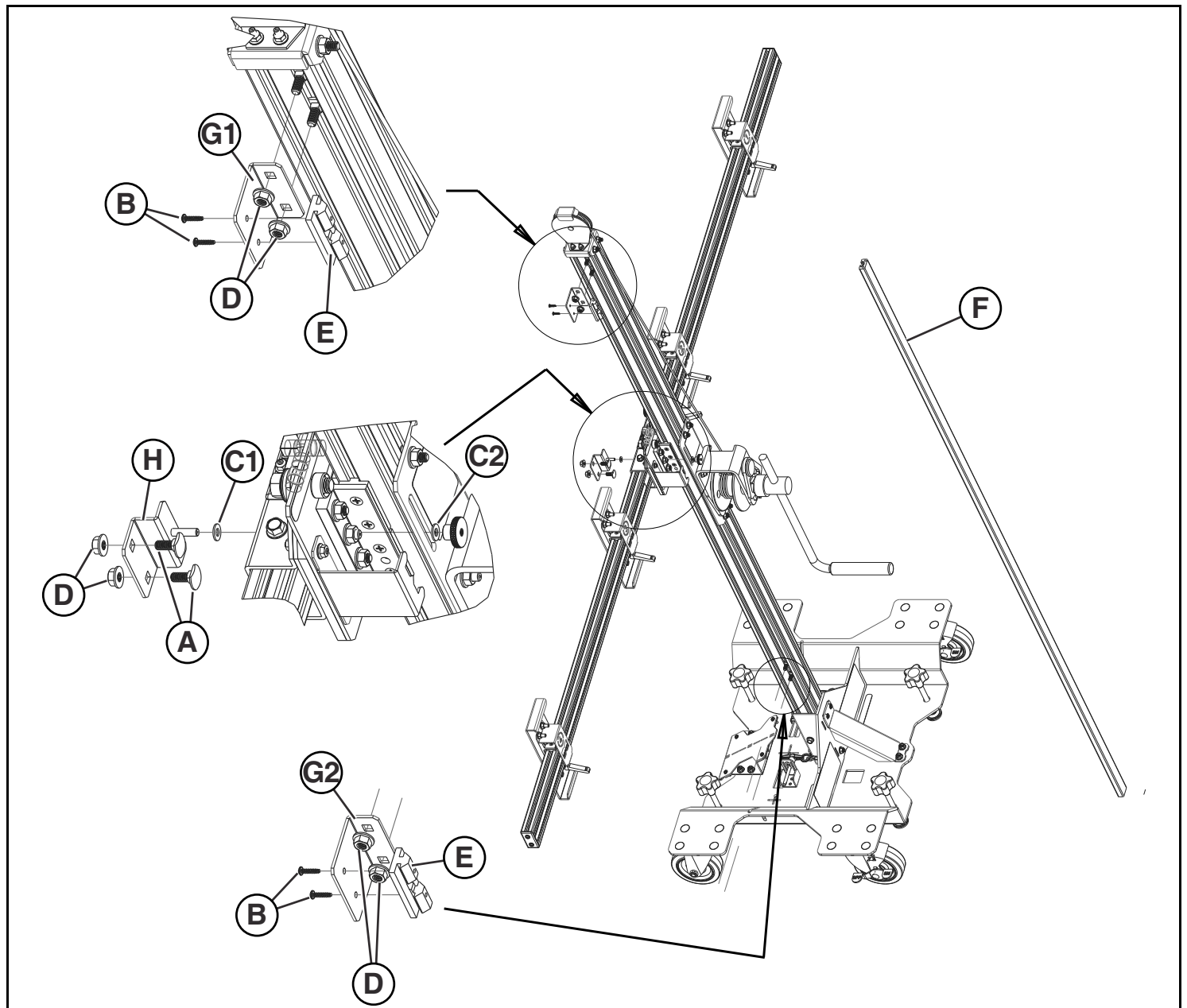


Figure-1

General Safety Information

WARNING

Risk of personal injury, unsafe conditions and equipment damage.

- Before repairing this unit, read this instruction sheet completely.
- Follow and perform these instructions as written.
- Use the proper personal protective safety equipment and tools as applicable for the work you are performing.
- Use a helper when lifting, handling and assembling heavy and large parts.
- Avoid pinching your fingers when sliding or moving parts.
- Check and replace all damaged and worn parts as required before returning the unit back into operation.

Not following these repair and safety instructions can result in personal injury, unsafe conditions and equipment damage.

Repair Instructions

Removal

(See *Figure 1* for reference.)

1. Remove the scale locking knob and outer washer (**C2**).
2. Remove the two hex nuts (**D**) from the scale lock bracket (**H**), then remove the lock bracket and inner locking knob washer (**C1**).
3. Slide the scale bar (**F**) up off the lower scale bracket (**G2**), and remove the two carriage bolts (**A**) from the slot in the scale bar.
4. Continue to slide the scale bar up and off the upper bracket (**G1**) to remove it.
5. Mark the position of the upper and lower scale brackets.
6. Loosen and remove the upper and lower scale brackets (**G1, G2**), by removing the two hex nuts (**D**) attaching each bracket. **Note** - Use tape to hold the upper bolts in the slot to aid in reassembly.
7. All parts removed may be discarded, except the locking knob.

Installation

(See *Figure 1* for reference.)

1. Install the replacement slide bearings (**E**) onto the replacement upper and lower scale brackets (**G1, G2**), using the new self tapping screws (**B**) provided. Tighten the screws hand tight.
2. Using the existing bolts, install the new upper and lower scale brackets (**G1, G2**) using the new hex nuts provided (**D**). Position and tighten the brackets using the marks from disassembly. Tighten the hex nuts to 7.4 lb-ft. (8-12 N·m).
3. Install the replacement scale bar (**F**) down onto the upper scale bracket (**G1**) slide bearing, then insert two new bolts (**A**) into the slot of the scale bar (**F**).
4. Continue to slide the scale bar down onto the lower scale bracket (**G2**) slide bearing.
5. Install the new scale lock bracket (**H**) with one new nylon washer (**C1**) on the stud. Align the two bolts (**A**) in the scale bar (**H**) and the locking knob stud into the slotted bracket.
6. Loosely install the new outer nylon washer (**C2**) and existing locking knob onto the stud.
7. Loosely tighten the scale lock bracket using the two new hex nuts (**D**) provided. With the scale bar touching the floor, the final installed position of the locking knob stud should be approximately 0.500 in. (12.7 mm) from the bottom of the winch bracket slot (*Figure 2*). Tighten the hex nuts to 7.4 lb-ft. (8-12 N·m).

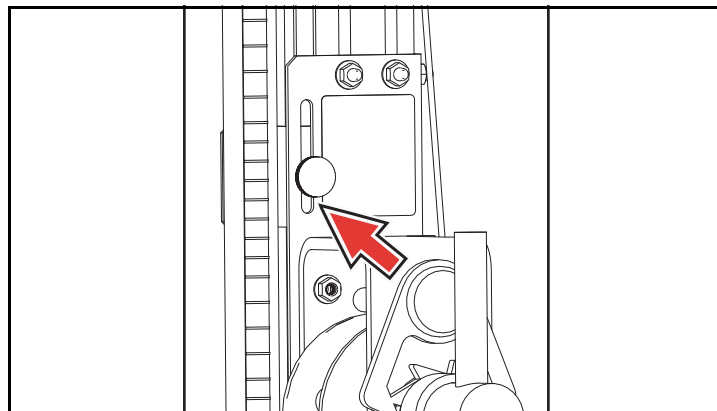


Figure-2

8. Tighten the locking knob as needed.
9. Ensure the scale bar operates normally (moves freely when loosened and locks into place securely) after installation

Contents

See **Figure 1** for reference.

- **A** - (7) Hex Nut M4
 - **B** - (2) Hex Bolt M6 X 70mm
 - **C** - (1) Spirit Level
 - **D** - (1) Plunger Assembly
 - **E** - (1) Lower Bracket
 - **F** - (1) Flanged (Pivot) Bearing
 - **G** - (1) Hex Bolt M10 x 30mm
 - **H** - (1) Upper Bracket
 - **I** - (12) Hex Nut M6
 - **J** - (1) Cable Mount Bracket
 - **K** - (1) Knurled Knob M6
 - **L** - (1) Pivot Mount Bracket
 - **M** - (1) Vertical Pointer Bracket
 - **N** - (4) Socket Hex Screw M6 x 25mm
 - **O** - (1) Pivot Guide
- Not Shown** - (1) Tube - Thread Locker

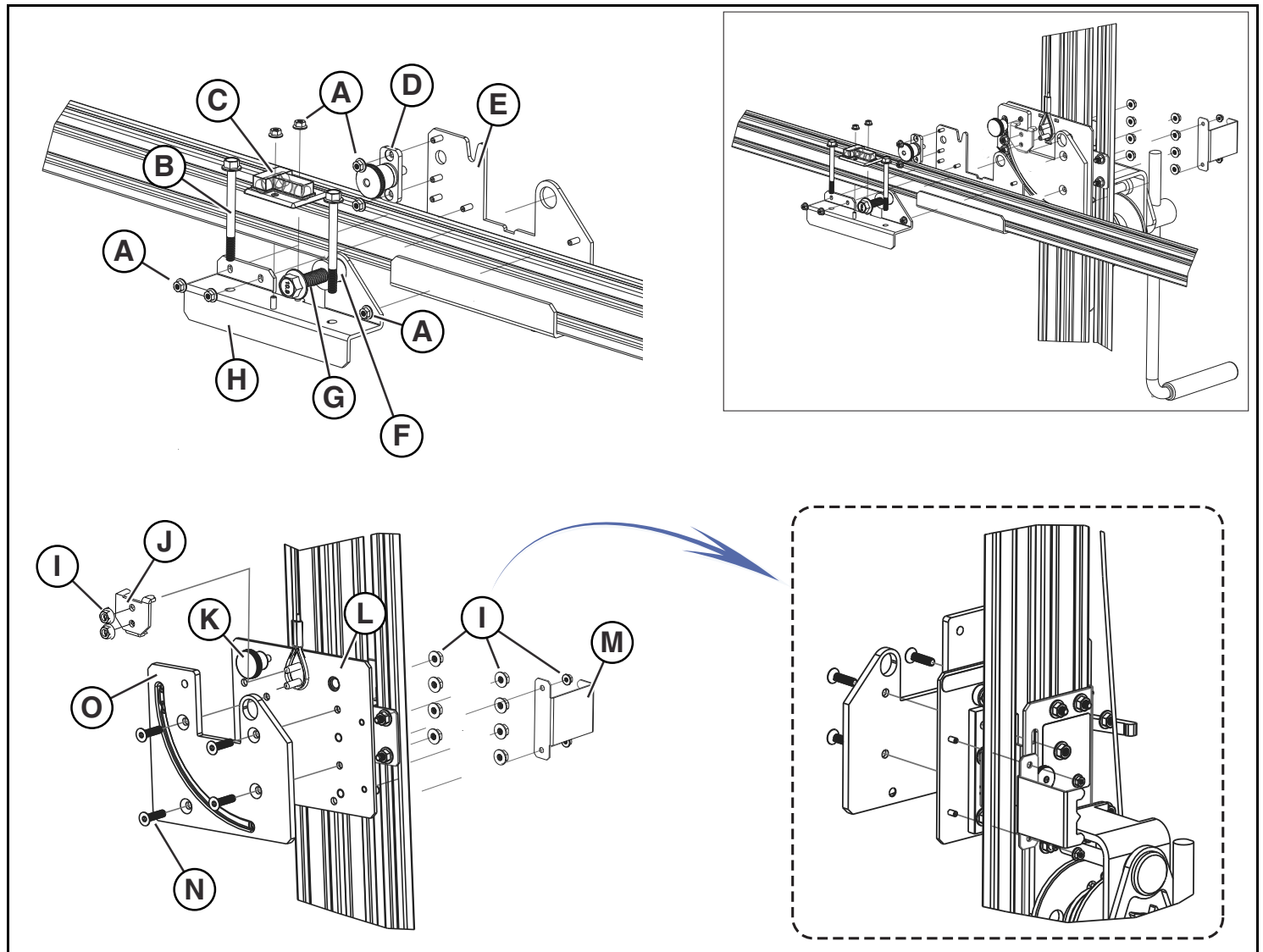


Figure-1

General Safety Information

WARNING

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- Before repairing this unit, read this instruction sheet completely.
- Follow and perform these instructions as written.
- Use the proper personal protective safety equipment and tools as applicable for the work you are performing.
- Use a helper when lifting, handling and assembling heavy and large parts.
- Avoid pinching your fingers when sliding or moving parts.
- Check and replace all damaged and worn parts as required before returning the unit back into operation.

Not following these repair and safety instructions can result in personal injury, unsafe conditions and equipment damage.

Repair Instructions

Cross Beam Removal

(See **Figures 1 and 2** for reference.)

1. If applicable, remove all targets from their mounts.
2. Remove the four screws attaching the end caps to the cross beam, and then remove the end caps. Retain these parts for reassembly.
3. Loosen and remove the four target mount brackets from the cross beam. Note position of target mounts before removal. Retain all parts removed in previous steps for reassembly.
4. With the use of a helper, hold and support the cross beam assembly while removing the hex head pivot screw (**G**). This will allow you to remove the cross beam as an assembly.
5. Remove all parts (**A, B, C, D, E, F, and H**) from the cross beam. Discard all parts including hex head pivot screw (**G**).

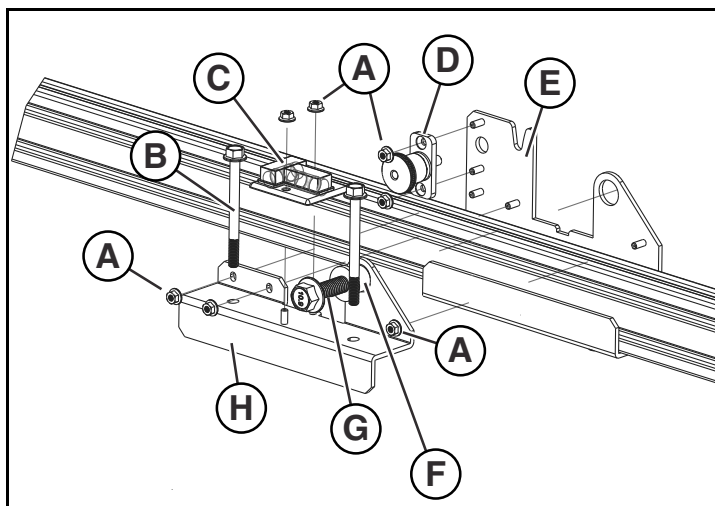


Figure-2

Cross Beam Assembly

(See **Figures 1 and 3** for reference.)

The following steps may be completed by assembling the cross beam as a subassembly on a workbench.

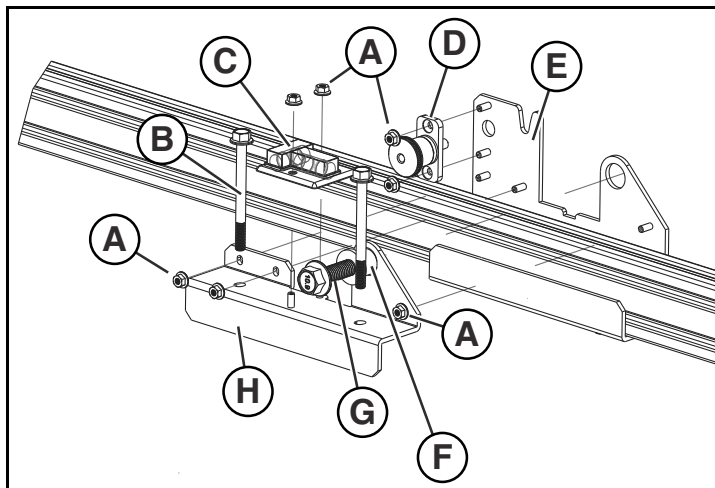


Figure-3

1. Install the four original target mount brackets onto the cross beam. The target mounts are numbered and must be positioned in sequence on the cross beam left to right, with number "1" mount on the left side.
2. Install the cross beam end plates using the original self tapping screws. Tighten the screws to 3.7 lb-ft. (4-6 N·m).
3. Position the new lower mount bracket (**E**) on the center of cross beam, then fit the new upper mount bracket (**H**) to align with the lower bracket.
4. Attach the brackets to the cross beam using two new hex bolts (**B**) and three new hex nuts (**A**). Apply thread locker to hex bolts and tighten nuts to 7.4 lb-ft. (8-12 N·m). Tighten hex nuts to 2.2 lb-ft. (2.5-3.5 N·m).

5. Install the new spirit level (**C**) to upper mount bracket (**H**) using two new hex nuts (**A**). Tighten the hex nuts by hand until just tight. Do not overtighten the nuts or you may damage the level.
6. Install the new plunger assembly (**D**) to the lower mount bracket (**E**) with two new hex nuts (**A**). Tighten nuts to 2.2 lb-ft. (2.5-3.5 N·m). Do not overtighten nuts. After installation ensure the plunger moves freely.
7. Install the new flanged (pivot) bearing (**F**) through both upper (**H**) and lower (**E**) mount brackets.
8. Continue to next section "Pivot Bracket Removal". The cross beam assembly will be installed after the pivot bracket is replaced.

Pivot Bracket Removal

(See **Figures 1 and 4** for reference.)

1. Remove the knurled lock knob (**K**), and discard.
2. Remove the four screws (**N**) and hex nuts (**I**) attaching the pivot guide (**O**) to the pivot mount bracket (**L**), and then remove the pivot guide (**O**). Discard all parts removed.
3. Remove the two hex nuts (**I**) attaching the vertical pointer bracket (**M**) to the pivot mount bracket (**L**), and then remove the vertical pointer bracket (**M**). Discard all parts removed.
4. Remove the two hex nuts (**I**) attaching the cable mount bracket (**J**) to the pivot mount bracket (**L**), and then remove the cable mount bracket (**J**). Before removing the cable end from it's anchor point, secure it in a manner to avoid the cable from unspooling from the winch. Discard all parts removed.
5. Remove the four hex nuts (**I**) attaching the pivot mount bracket (**L**) to the slide bearing brackets and then remove the pivot mount bracket (**L**). Discard all parts removed.

Pivot Bracket Installation

(See **Figures 1 and 4** for reference.)

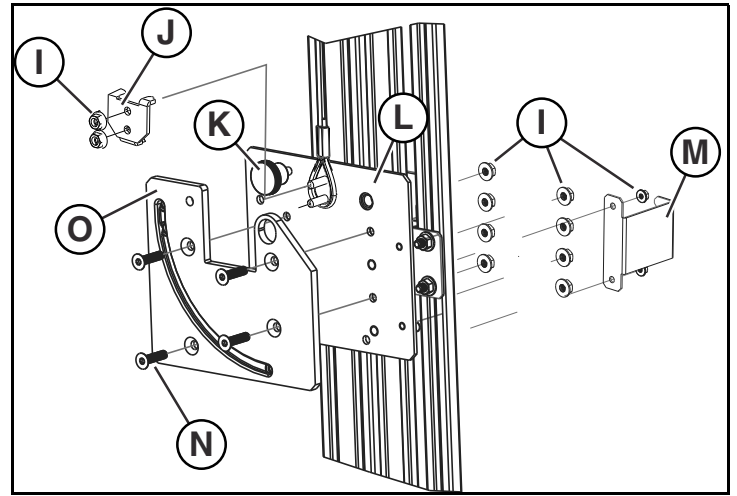


Figure-4

1. Install the new pivot mount bracket (**L**) to the slide bearing bracket using four new hex nuts (**I**). Tighten nuts to 3.7 lb-ft. (4-6 N·m).
2. Install the winch cable end around the anchor point (two studs) on the pivot mount bracket (**L**). Install the new cable mount bracket (**J**) using two new hex nuts (**I**). Tighten nuts to 3.7 lb-ft. (4-6 N·m).
3. Install the pivot guide (**O**) to the pivot mount bracket (**L**) using four new screws (**N**) and hex nuts (**I**). Tighten nuts to 3.7 lb-ft. (4-6 N·m).
4. Install the new vertical pointer bracket (**M**) to the pivot mount bracket (**L**) using two new hex nuts (**I**). Tighten nuts to 3.7 lb-ft. (4-6 N·m).
5. Install the new knurled lock knob (**K**) onto the pivot mount bracket (**L**).

Final Assembly

1. With the use of a helper, hold and support the cross beam assembly while positioning into place, and then install the hex head pivot screw (**H**). Tighten the screw to 177-266 lb-in. (20-30 N·m). Ensure the cross beam rotates freely after tightening the screw.
2. Ensure pivot and plunger mechanisms operate normally, allowing free movement and secure locking.

Contents

See **Figure 1** for reference.

- **A** - (4) Lock Nut M6
- **B** - (1) Winch Assembly
- **C** - (1) Thumbscrew M5
- **D** - (2) Nylon Flat Washer
- **E** - (1) Winch Bracket

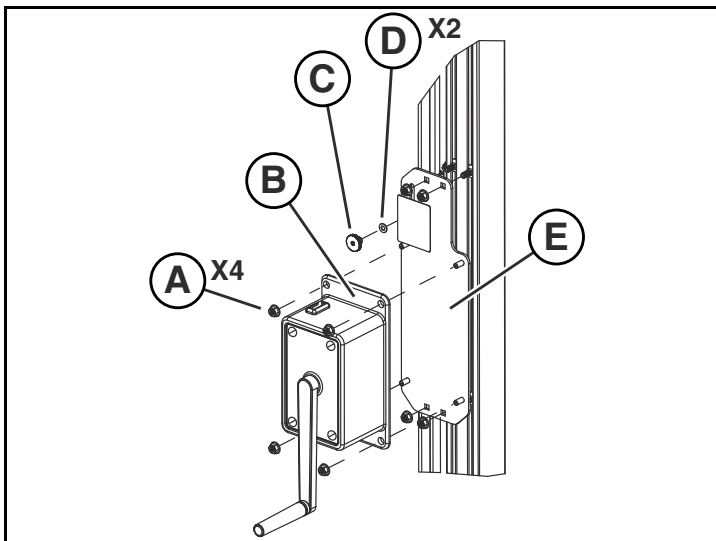


Figure-1

General Safety Information

WARNING

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- Avoid pinching your fingers when sliding or moving parts.
- Check and replace all damaged and worn parts as required before returning the unit back into operation.

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Repair Instructions

Removal

(As applicable, see **Figure 2** for reference.)

1. Lower the cross beam all the way down, to relieve the tension on the winch cable, then lock the cross beam in place.
2. Turn the winch handle counterclockwise to unspool all the cable from the winch. Pull the slack cable down and off the winch from the front side of the target fixture.
3. Loosen the two cable clamp screws (**C**) and remove the end of the cable from the winch.

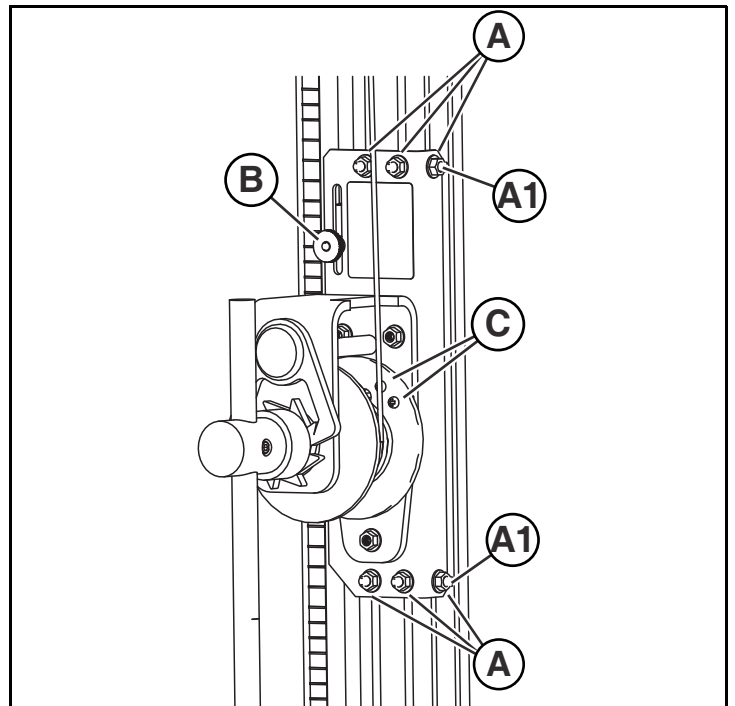


Figure-2

4. Remove the vertical scale thumbscrew (**B**) and the nylon washer.
5. Remove the six hex nuts (**A**) attaching the winch bracket to the mast and remove the winch assembly.
6. Remove the nylon washer on the vertical scale thumbscrew stud.

Note: The two screws on the side of the winch bracket (**A1**) are not used with the replacement winch. The screws may be left in the slot, or they may be removed, however removal instructions are not provided in this document.

Installation

(See **Figure 3** for reference.)

1. Install one new nylon washer (**D**) on the vertical scale thumbscrew stud (not shown).

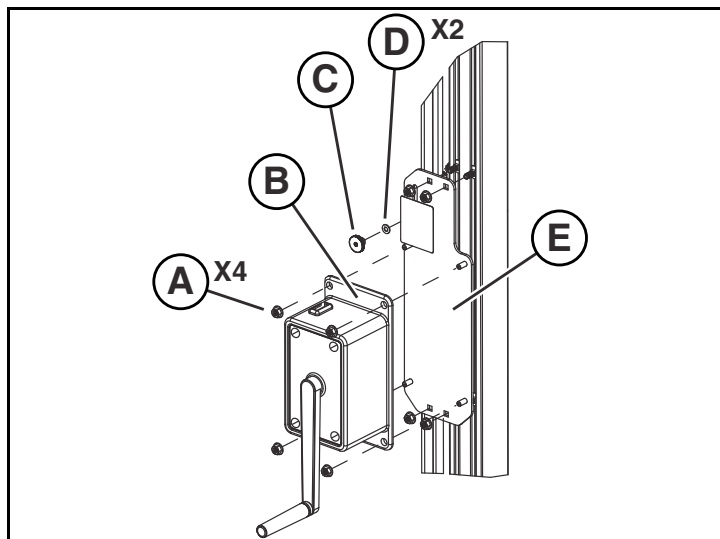


Figure-3

2. Mount the new winch bracket (**E**) to the mast using the original four screws and hex nuts. Tighten the hex nuts to 7.4 lb-ft. (8-12 N·m).
3. Install a new nylon washer (**D**) on the vertical scale thumbscrew stud and then install the new thumbscrew (**C**). Tighten the thumbscrew as needed. Ensure the scale bar operates normally (moves freely when loosened and locks into place securely) after installation
4. Install the new winch assembly (**B**) to the winch bracket using four new hex nuts (**A**). Tighten the hex nuts to 7.4 lb-ft. (8-12 N·m).
5. Pull the winch handle out and remove it (**Figure 4**).
6. Remove the four winch cover screws (**Figure 4**).

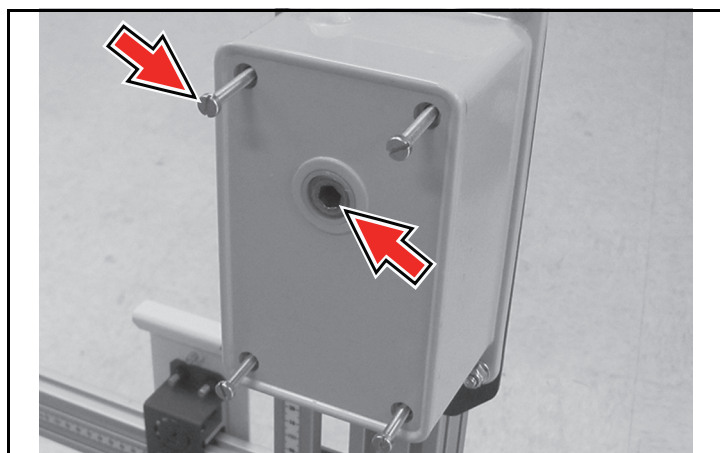


Figure-4

7. Remove the cover and gear assembly.
8. Thread the end of the winch cable into the slot in the top of the housing, and then anchor it to the pulley spool using the setscrew (**Figure 5**). The cable should be on the side of the spool closest to the housing slot when assembled.

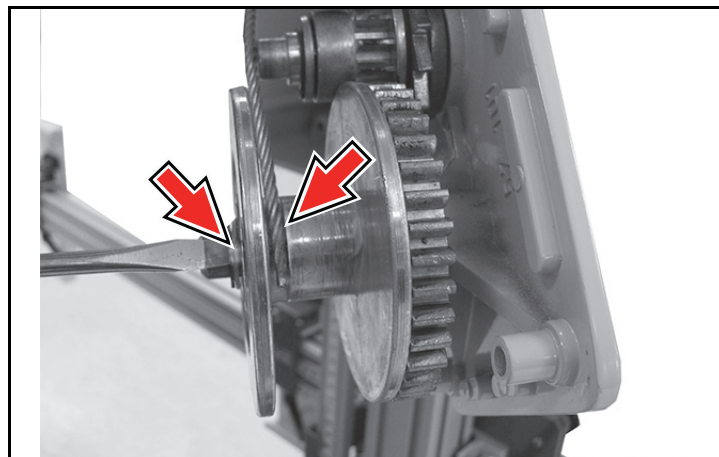


Figure-5

9. Reinstall the winch cover and tighten the four cover screws hand tight (**Figure 6**).
10. Reinsert the winch handle and turn it clockwise to spool on the cable (**Figure 6**).

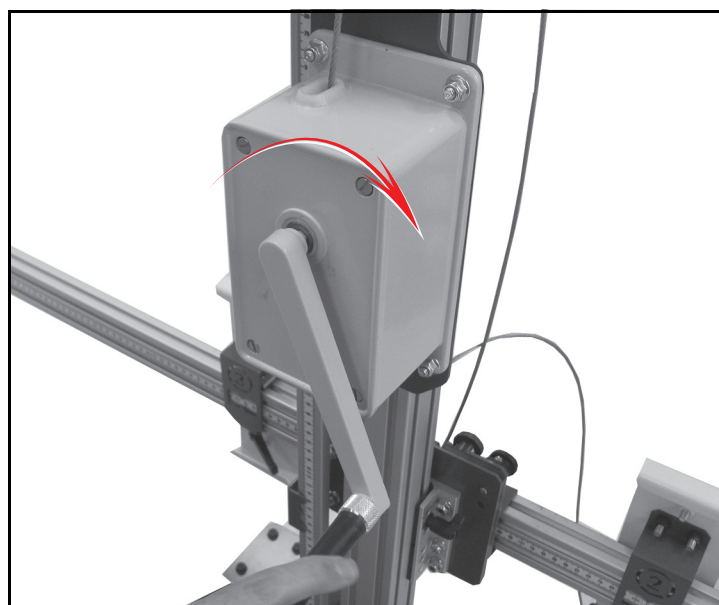


Figure-6

11. Loosen the cross beam lock and operate the winch several times in both directions to ensure the winch operates normally.