INSTALLATION GUIDE

1525-PHM Combination Ladder Rack
Promaster 136" Wheelbase (Aluminum)

RANGER DESIGN
QUICK START GUIDE

Phase 1 - Assembly

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REQUIRED ITEMS

NOTE: Use Sawhorses if possible, or use the box as a flat protective surface on the ground or table.

- Cordless Impact
- Ratchet
- Tape Measure
- Mallet
- Marker
- Ladder
- Cutter
- 1/2" Socket
- Sawhorse (Optional)
- Box
- Knife
- 1/2" Wrench
PHASE 1 – ASSEMBLY

1.1 SETUP

1.1.1 Unpack components; compare with the bill of materials.

1.1.2 Verify all parts are present.

BILL OF MATERIALS

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Qty.</th>
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<tbody>
<tr>
<td>10-149</td>
<td>Clamp Handle Support</td>
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<tr>
<td>10-342</td>
<td>Roof Clamp</td>
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</tr>
<tr>
<td>10-343</td>
<td>Top Roof Clamp</td>
<td>6</td>
</tr>
<tr>
<td>10-464</td>
<td>“V” Foot</td>
<td>4</td>
</tr>
<tr>
<td>10-545</td>
<td>Ski Plastic Plug</td>
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</tr>
<tr>
<td>10-548</td>
<td>Hook Protector (4 - 3/8&quot; L)</td>
<td>2</td>
</tr>
<tr>
<td>10-711</td>
<td>Mounting Track</td>
<td>2</td>
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<tr>
<td>70-015</td>
<td>Foam Sheet</td>
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</tr>
<tr>
<td>15-2584</td>
<td>Front Crossbow</td>
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</tr>
<tr>
<td>15-2594</td>
<td>Rear Crossbow</td>
<td>1</td>
</tr>
<tr>
<td>15-3003</td>
<td>Ladder Clamp Hasp</td>
<td>2</td>
</tr>
<tr>
<td>15-3004</td>
<td>Ladder Clamp Rear Hook</td>
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</tr>
<tr>
<td>15-3005</td>
<td>Ladder Clamp Bar (Driver Side)</td>
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</tr>
<tr>
<td>15-3006</td>
<td>Ladder Clamp Bar (Passenger Side)</td>
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<tr>
<td>15-3010</td>
<td>Ski (Left)</td>
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<tr>
<td>15-3011</td>
<td>Ski (Right)</td>
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<tr>
<td>15-4290</td>
<td>Front Hook</td>
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<tr>
<td>94-1009</td>
<td>Assembly Fastener Kit</td>
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</tr>
<tr>
<td>96-1005</td>
<td>Install Fastener Kit</td>
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### 1.1.3 Fastener kits.

#### 94-1009 Fastener Kit

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<tr>
<th>Quantity</th>
<th>Part</th>
<th>Description</th>
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<tr>
<td>4x</td>
<td>#90-487</td>
<td>Carriage Bolt 5/16&quot;-18 x 3/4&quot;</td>
<td>SS304</td>
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<tr>
<td>26x</td>
<td>#90-491</td>
<td>Carriage Bolt 5/16&quot;-18 x 1&quot;</td>
<td>SS304</td>
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<tr>
<td>34x</td>
<td>#94-105</td>
<td>Hex Nut 5/16&quot;-18</td>
<td>SS316wax</td>
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<tr>
<td>2x</td>
<td>#98-160</td>
<td>Spacer</td>
<td>SS18-8</td>
</tr>
<tr>
<td>34x</td>
<td>#98-117</td>
<td>Flat Washer 5/16&quot;, O.D 3/4&quot;</td>
<td>SS18-8</td>
</tr>
<tr>
<td>34x</td>
<td>#98-123</td>
<td>Lock Washer Regular 5/16&quot;</td>
<td>SS304</td>
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</table>

#### 96 - 1005 Fastener Kit

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<td>SS304</td>
</tr>
<tr>
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<td>#94-105</td>
<td>Hex Nut 5/16&quot;-18</td>
<td>SS316wax</td>
</tr>
<tr>
<td>8x</td>
<td>#94-150</td>
<td>Channel Nut 5/16&quot;</td>
<td></td>
</tr>
<tr>
<td>20x</td>
<td>#98-117</td>
<td>Flat Washer 5/16&quot;, OD 3/4&quot;</td>
<td>SS18-8</td>
</tr>
<tr>
<td>20x</td>
<td>#98-123</td>
<td>Lock Washer 5/16&quot;</td>
<td>SS304</td>
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### Fastener Assembly

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<td>#98-117</td>
<td>Flat Washer</td>
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<td></td>
<td>#98-123</td>
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<td></td>
<td>#94-105</td>
<td>Hex Nut</td>
<td></td>
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<td>Flat Washer</td>
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</tr>
<tr>
<td></td>
<td>#94-105</td>
<td>Hex Nut</td>
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</table>
PHASE 1 – ASSEMBLY

1.2 LADDER RACK ASSEMBLY

1.2.1 Peel the backer off of the adhesive on the hook protector, then attach the hook protector to the upper rear hook.

TOOLS
- Knife
1.2.2 Attach the rear hooks to the ladder clamps, with the pre-assembled hardware on the pivot bars.

**TOOLS**
- Cordless Impact
- 1/2" Socket
- 1/2" Wrench

**HARDWARE USED**
4x HARDWARE IS PRE-ASSEMBLED.
- #90-225 Hex Bolt
- 5/16" - 18 x 2" SS304
- #98-117 Flat Washer
- #98-117 Flat Washer
- #94-111 Lock Nut
1.2.3 Slide carriage bolts on the bottom face of the crossbows.

**NOTE:** The track plug must be removed from the underneath of the crossbows, and reinstalled after the feet have been installed in the final position.

**TIPS:** Use tape to keep the bolts from sliding off.
1.2.4 Install the feet on the first Front, and Rear Crossbows.

**NOTE:** The more slanted side of the V foot should be closer to the center of the crossbow.

**HARDWARE USED**

- **16x** Hand-tighten the nuts.
- Carriage bolts are already on the crossbows.
- #98-117 Flat Washer
- #98-123 Lock Washer
- #94-105 Hex Nut
1.2.5 Fasten the ladder clamp assemblies to the rear crossbow.

**TOOLS**
- Cordless Impact
- 1/2" Socket
- Tape Measure
- Marker

**HARDWARE USED**

4x

- Carriage bolts are already on the crossbows.
- #98-117 Flat Washer
- #98-123 Lock Washer
- #94-105 Hex Nut
1.2.6 • Pull out the 14.5” track plug on the passenger side of the first front crossbow and the driver side of the adjustable front crossbow.
• Loosen the pre-assembled hardware on the front hooks and slide the hooks onto the front crossbows to the position shown below.
• Cut the track plug, then attach it back to the crossbows.

HARDWARE USED
4x HARDWARE IS PRE-ASSEMBLED.
#90-491 Carriage Bolt 5/16” × 1”
#98-117 Flat Washer
#98-123 Lock Washer
#94-105 Hex Nut

TOOLS
_marker_ Marker
_cutter_ Cutter

Tighten the nuts just to hold the front hook for adjustment.
1.2.7 Install the left and right Skis to the end brackets of the front crossbow.

**HARDWARE USED**
- 4× Carriage bolts are already on the ski.
- #98-117 Flat Washer
- #98-123 Lock Washer
- #94-105 Hex Nut

**TOOLS**
- Cordless Impact
- 1/2" Socket
1.2.8 Install the adjustable front crossbow to the left and right Skis.

Tighten the nuts just to hold the 2nd front crossbow for adjustment.

**HARDWARE USED**

4× **HAND-TIGHTEN THE NUTS.**

- #90-491 Carriage Bolt 5/16" × 1"
- #98-117 Flat Washer
- #98-123 Lock Washer
- #94-105 Hex Nut
NOTE: If you have a third crossbow, stop here and open the third crossbow box and follow the installation guide to assemble the third crossbow.

1.2.9 After assembling the third crossbow attach the third crossbow to the skis.

NOTE: Don’t do this step if you don’t have the third crossbow.

Use the assembly fastener kit of the third crossbow.

**HARDWARE USED**

4x **HAND-TIGHTEN THE NUTS.**

- #90-491 Carriage Bolt 5/16” × 1”
- #98-117 Flat Washer
- #98-123 Lock Washer
- #94-105 Hex Nut
1.2.10 Loosen the pre-assembled hardware on the ladder clamp hasps, slide the hasps on the ski to the position shown below, and tighten the nuts.

**HARDWARE USED**

- #98-123 Lock Washer
- #98-117 Flat Washer
- #90-487 Carriage Bolt 5/16" × 3/4"
- #94-105 Hex Nut

**TOOLS**

- Cordless Impact
- 1/2" Socket
- Tape Measure
- Marker

**THIRD CROSSBOW**

15 - 1/2"
1.2.11 Slide 3pcs. of carriage bolts on the rear end of the each ski, then attach end plugs on both ends of the skis.

**THIRD CROSSBOW**

**HARDWARE USED**

- 6x #90-491 Carriage Bolt
- 5/16" x 1" SS304

**TOOLS**

- Mallet
1.2.12 Install the Rear Crossbow to the skis with the clamp handle supports, aligning the rear surface of the crossbow brackets to the rear surface of the skis.

**TOOLS**
- Cordless Impact
- 1/2" Socket

**HARDWARE USED**

4x
- Carriage bolts are already on the ski.
- #98-117 Flat Washer
- #98-123 Lock Washer
- #94-105 Hex Nut

2x
- Carriage bolts are already on the ski.
- #98-160 Spacer
- #98-117 Flat Washer
- #98-123 Lock Washer
- #94-105 Hex Nut
PHASE 2 – INSTALLATION

2.1 MOUNTING TRACKS INSTALLATION

2.1.1 Peel the backer off of the foam sheet.

2.1.2 Attach 3 foam sheets, to the back of each mounting track.

TOOLS
☑ Tape Measure
☑ Marker

REAR

FRONT

6" 20"
2.1.3 Attach the roof clamps and top roof clamps onto the roof.

- Attach the roof clamps to the roof.
- Add the top roof clamps on the roof clamps.

**NOTE:** The top roof clamp should lay flat on the roof clamp and not slant.
2.1.4 Install the mounting tracks onto the clamps, aligning the rear surface of the mounting tracks to the rear surface of the last clamps.

Mounting Track Orientation

REAR

FRONT

5-1/8"

6"

TOOLS

- Cordless Impact
- 1/2" Socket

HARDWARE USED

12x

- #98-117 Flat Washer
- #98-123 Lock Washer
- #94-105 Hex Nut
PHASE 2 – INSTALLATION

2.2 LADDER RACK INSTALLATION

2.2.1 Position the Ladder Rack (minimum two persons) on the vehicle so that the feet are on the tracks.

NOTE: If you do not have a hoist, lift the ladder rack onto the roof manually.
2.2.2 While making sure the crossbows are parallel to each other, slide the rack to the appropriate position, then attach all the “V” feet to the mounting tracks.

NOTE: • If you have a third crossbow, center the third crossbow between the front and rear crossbows. • Use the third crossbow install faster kit for the third crossbow feet installation.

DISTANCE < FOOT TO END OF TRACK >

THIRD CROSSBOW

DISTANCE < A >

DISTANCE < B >

DISTANCE < B >

DISTANCE < A >

TOOLS
- Ratchet
- 1/2” Socket
- Tape Measure

FASTENERS USED
8x

#90-209 Hex Bolt 5/16” × 1”
#98-123 Lock Washer
#98-117 Flat Washer
#94-150 Channel Nut
2.2.3 Center the crossbows on the vehicle, then tighten all the “V” feet to the crossbows.

**NOTE:** If you have a third crossbow, center the third crossbow between the front and rear crossbows.
2.2.4 Ladder Rack adjustment for extension ladder.

**NOTE:** The ladder cannot extend beyond the rear bumper of the vehicle.

**THIRD CROSSBOW**

When the rear hook touches the ladder, the handle should be 1" below the ladder clamp hasp.

Now adjust the front hook to be snug against the ladder rung and tighten the bolts on the front crossbow.

**TOOLS**
- Cordless Impact
- 1/2" Socket
2.2.5 Ladder Rack adjustment for stepladder.

**NOTE:**
- The same procedure applies to the hook located on the adjustable front crossbow. The position of the adjustable front crossbow must be adjusted according to the length of the stepladder.
- The ladder cannot extend beyond the rear bumper of the vehicle.

**IMPORTANT:**
- After installation is complete, cut the track plug underneath the crossbows to fill all the unused space.
- Place the ladder rack warning label on a visible area, recommended on a partition.

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**NOTE:** Make sure all the bolts are tightened after adjusting.

Be sure that the extrusion of the step ladder is on the ladder side support.

The inner ladder side support must be adjusted according to the width of the step ladder.
PHASE 2 – INSTALLATION

2.3 NOTE

2.3.1 If the handle is interfering with the door or roof of the vehicle, the handle can be installed in an alternate position.

If the handle is interfering with the door or roof of the vehicle, disassemble the handle, then assemble it in an alternate position as shown.
“You have successfully installed your Ladder Rack

Thank you for doing business with us.”

For any feedback or suggestions you may have, please contact: cs@rangerdesign.com