

SNO-WAY®

SNOW & ICE CONTROL EQUIPMENT

ASSEMBLY & INSTALLATION INSTRUCTIONS

**SUBFRAME 99100693
(For 22 Series Plow ONLY)**

TO FIT
1998 - 2011 FORD RANGER 4X4
1996 - 2006 MAZDA B-3000 and B-4000 4X4
1995 - 2001 FORD EXPLORER 4X4
1997 - 2001 MERCURY MOUNTAINEER 4X4

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1. **THINK SAFETY, ALWAYS WEAR SAFETY GLASSES WHEN PERFORMING THE OPERATIONS PRESCRIBED IN THESE INSTRUCTIONS**
2. **READ ALL INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING INSTALLATION**
3. **BEFORE BEGINNING WORK MAKE SURE TO SET PARKING BRAKE AND CHOCK WHEELS**



MINIMUM VEHICLE RECOMMENDATIONS

Heavy Duty Alternator
 Heavy Duty Battery
 Heavy Duty Front Torsion Bars

NOTE: On some vehicles it may be necessary to use a form of load booster to decrease the vehicle's front suspension sag with the snow plow in place. This can be accomplished with the use of supplementary air bags, booster springs, or similar load boosting devices. Since there are different load boosting devices available, it will up to the customer/end user to decide and purchase the product to suit the application, and not the responsibility of Sno-Way International, Inc.

ASSEMBLY TOOLS NEEDED

| | |
|---|----------------|
| Drill Bits | 1/4", 17/32" |
| Impact Sockets | 7/16" – 1-3/8" |
| Metric Sockets | 10mm – 17mm |
| Wrenches | 7/16" – 1-3/8" |
| Torque Wrench | |
| Alignment Pry Bar | |
| Center Punch and Hammer | |
| Hacksaw | |
| Clamping Devices ("C", Bar, type device) | |

INSTALLATION NOTES

1. **Unless otherwise specified, mount all Subframe components to vehicle before tightening any hardware.**
2. **It is recommended that LOCTITE®, or similar thread locking product, be used on ALL mounting hardware (i.e. Nuts, Cap Screws, Bolts, etc.).**
3. Vehicle should be parked on a level surface with a normal vehicle load on the FRONT suspension.
4. Items in parentheses () refer to quantity required for this step. Items in parentheses with a pound sign (#) indicate the part number as found in the parts list on the last page of this document.
 Example: (10) Washer, Lock, 1/2" (#8).
5. It maybe necessary to relocate license plate holder. Check state and local laws for placement, if needed.

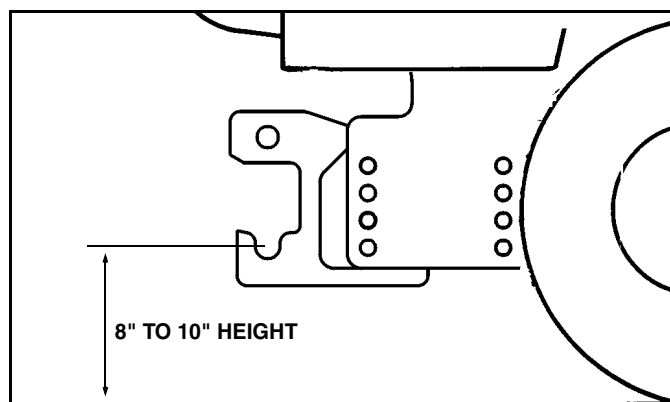
4. Secure the Side Mounting Plates to the frame using (8) 1/2" x 1-1/2" Cap Screws (#4), (8) 1/2" Lock Washers (#5), and inserted through the front of the frame rails, (4) Nut Plate Assemblies (#3).

NOTE: On 2010 & later Ford Rangers, item 7 will be needed. Item 7 should be placed between item 2 and the truck frame.

5. Install the Mounting Assembly (#1) by aligning the Side Mounting Plate holes with the holes in the Mounting Assembly. Secure the Mounting Assembly by using (8) 1/2" x 1-1/2" Cap Screws (#4), (2) 1/2" Lock Washers (#5) (in the threaded holes) and (6) 1/2" Nylock Nuts (#6).
6. Using the Torque Specification Chart below, torque all Cap Screws.
7. Re-install the front bumper onto the vehicle.

MOUNTING INSTRUCTIONS

1. Remove the front bumper and air dam from the vehicle, retain with hardware for re-installation in a later step.
2. Place the Side Mounting Plate (#2) to the outside of the vehicle frame. Align the second hole in the Side Mounting Plate with the rear of the slot in the outside of the vehicle frame. Keeping the Side Mounting Plate parallel to the frame, clamp into place. Use the existing holes in the Side Mounting Plates as a template, center punch and drill 1/4" pilot holes through the outside of the frame on each side of the vehicle.
3. Remove the Side Mounting Plates. Drill the 1/4" pilot holes out with a 17/32" drill. Do this procedure on each side of the vehicle.



IMPORTANT: Height from the center of the lower Plow mounting holes on the Subframe to the ground should be between 8" and 10" to insure proper operation.

**TORQUE SPECIFICATIONS FOR
STANDARD MACHINE HARDWARE**

| Bolt Size | GR.2 Dry | GR.5 Dry | GR.8 Dry | Metric Size | GR.8.8 Dry |
|------------------|---------------------|---------------------|---------------------|------------------------|-----------------------|
| 1/4" | 66* | 9 | 12 | M8 | 17 |
| 5/16" | 11 | 17 | 25 | M10 | 35 |
| 3/8" | 20 | 30 | 45 | M12 | 60 |
| 7/16" | 32 | 50 | 70 | M14 | 95 |
| 1/2" | 50 | 75 | 110 | M16 | 155 |
| 9/16" | 70 | 110 | 150 | | |
| 5/8" | 100 | 150 | 220 | | |
| 3/4" | 175 | 260 | 380 | | |
| 7/8" | 170 | 430 | 600 | | |
| 1" | 250 | 640 | 900 | | |

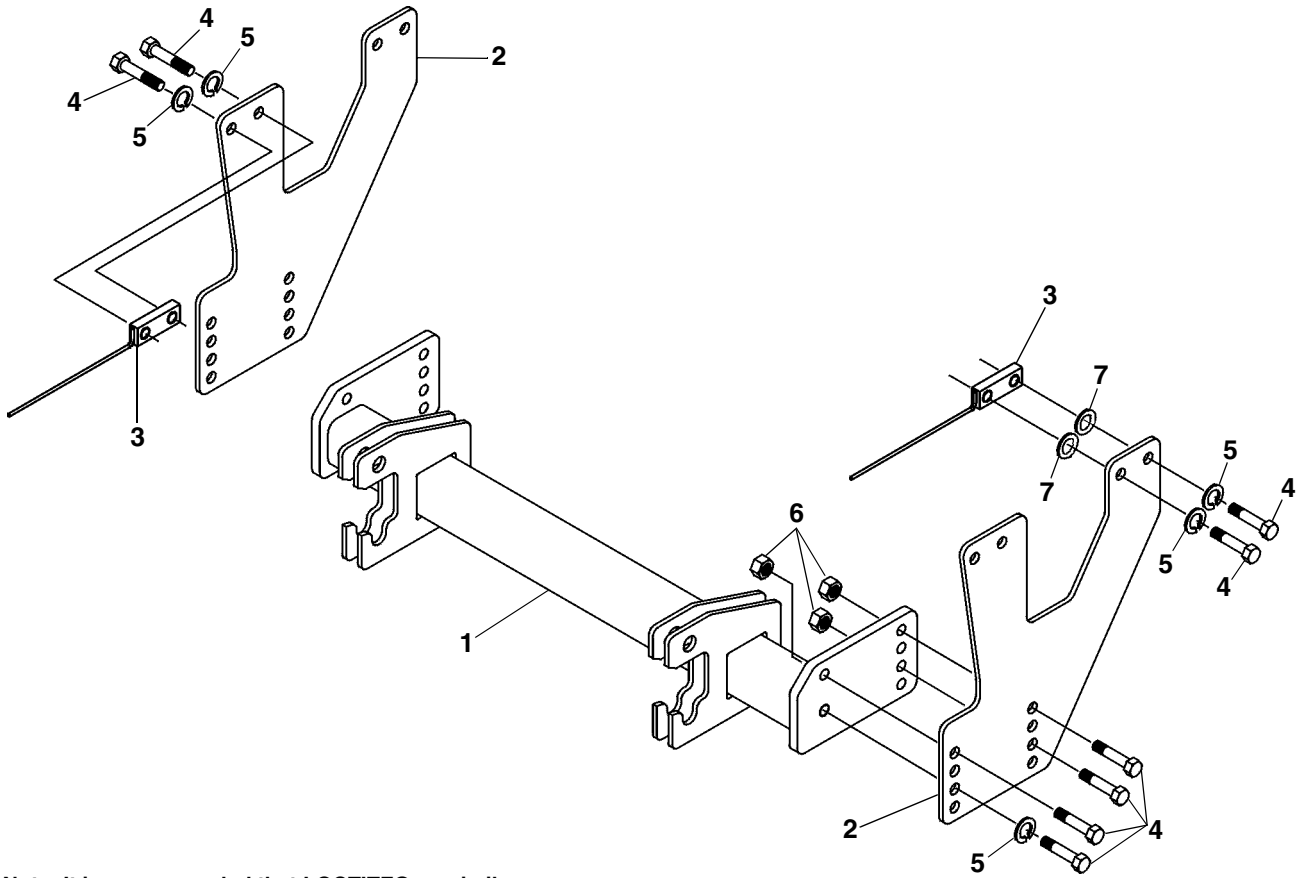
Note: These torque values are to be used for all hardware. Unless otherwise specified, all torque values must meet this specification.

Note: All torque values are in Ft.-Lbs unless otherwise stated

Note: *In-Lbs

**REMEMBER After 5 to 10 hours of snowplow usage,
re-torque all Cap Screws!**

PARTS LIST



Note: It is recommended that LOCTITE®, or similar thread locking product, be used on ALL mounting hardware (i.e. Nuts, Cap Screws, Bolts, etc.).

| ITEM | PART NO. | DESCRIPTION | QTY. |
|------|----------|--|------|
| 1 | | Assembly, Mounting | 1 |
| 2 | | Mounting Plate, Side | 2 |
| 3 | | Assembly, Nut Plate | 4 |
| 4 | | HHCS, 1/2"-13 x 1-1/2" | 16 |
| 5 | | LW, 1/2" | 10 |
| 6 | | LN, Nylock 1/2" | 6 |
| 7 | | PW, 1/2" | 4 |
| 8 | 96105924 | Kit, HDWE (Not Shown) (Includes Items 4-7) | 1 |

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