

SNO-WAY[®]

SNOW & ICE CONTROL EQUIPMENT

Assembly & Installation Instructions

**FOR
SUBFRAME PACKAGE 99100742**

**TO FIT
2002 & LATER JEEP LIBERTY**



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 Suspension

NOTE: It will 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 Bit 3/16", 13/32"
 Impact Sockets 7/16" – 1-3/8"
 Metric Sockets 10mm - 17mm
 Wrenches 7/16" – 1-3/8"
 Torque Wrench
 Hacksaw
 Clamping Devices ("C" clamp, etc.)

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: (4) 7/16" Lock Washer (#11).
5. It maybe necessary to relocate license plate holder. Check state and local laws for placement, if needed.

MOUNTING INSTRUCTIONS

1. Remove the front bumper and air dam assembly. To do this, grille and the row of removable plastic snaps beneath the grille must be removed. Drill to remove the three lower plastic pop rivets, located between the wheel-well and the fender flaring on each side of the truck. Also remove the six plastic pop rivets underneath the bumper on each side of the truck. Retain hardware for re-installation of bumper.
- NOTE: The plastic pop rivets are one-time use only. Use suitable trim studs, not provided, for re-installation.*
2. Remove the air dam from the bumper by removing the plastic pop rivets located in the center of the bumper.
 3. Remove the two covers from the end of the frame rails and retain fasteners.

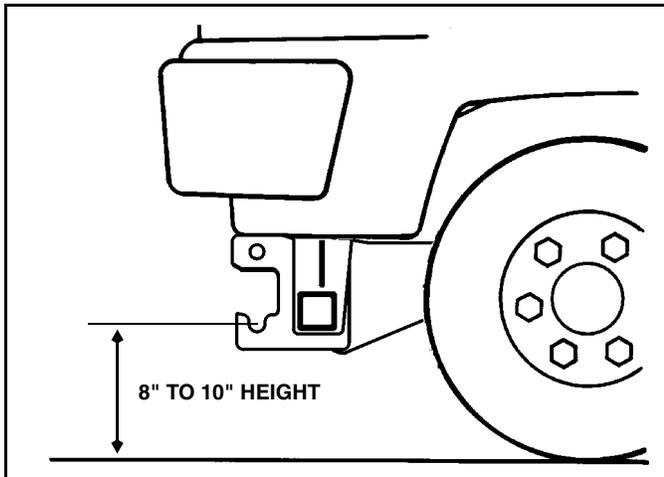
4. On models with optional tow hooks, remove the tow hooks and all fasteners. Save hardware for re-installation if the Subframe is later removed from the vehicle.
5. Remove skid plate, if installed, for Subframe installation. If re-installation of the skid plate is desired, some modifications to the skid plate may be necessary.
6. Position the Mounting Assembly (#1) against the front portion of the vehicle cross member, aligning the two outer front holes at each side of the Mounting Assembly with holes in the bottom of the frame rails. Secure one side using (2) 7/16"-14 x 1-1/2" Cap Screws (#10) and (2) 7/16" Lock Washers (#11) threaded into (1) Nut Plate (#3), inserted through the large square hole in the front of the frame cross member. Hand tighten bolts.
7. On the same side of the vehicle, insert (1) Nut Plate (#4) through the square hole in the bottom of the frame cross member and position it over the round hole located next to the square hole. This will be in alignment with the slotted hole in the Mounting Assembly. Secure using (1) 1/2"-13 Cap Screw (#6), (1) Nut Plate (#2), (1) 1/2" Flat Washer (#12) and (1) 1/2" Lock Washer (#7). Hand tighten bolts.
8. Repeat Steps 6 and 7 for the other side of the vehicle. Hand tighten all bolts. This will allow movement of the Mounting Assembly in order to position the rear mounting points.
9. Push the Mounting Assembly back until it is in contact with the rear portion of the cross member. Clamp the Mounting Assembly in place.
10. Using the rear holes in the Mounting Assembly as a template, drill (4) 13/32" holes through the rear portion of the cross member. Place (2) Spacers (#5) in between the Mounting Assembly and the vehicle frame (inner holes) to take up the gap. Secure using (4) 3/8"-16 x 1-1/2" Cap Screws (#9) and (4) 3/8"

Lock Washers (#8) threaded into (4) Nut Plates (#2), inserted in the side access hole in the rear portion of the cross member.

11. Using the Torque Specification Chart below, tighten all fasteners.
12. Re-install the two covers over the ends of the frame rails.

NOTE: Consider routing the wire harness and cable prior to re-installing the bumper.

13. Re-install the bumper. **Cutting into the bumper and air dam is necessary.** If desired, the air dam may be left off and just the bumper cut.

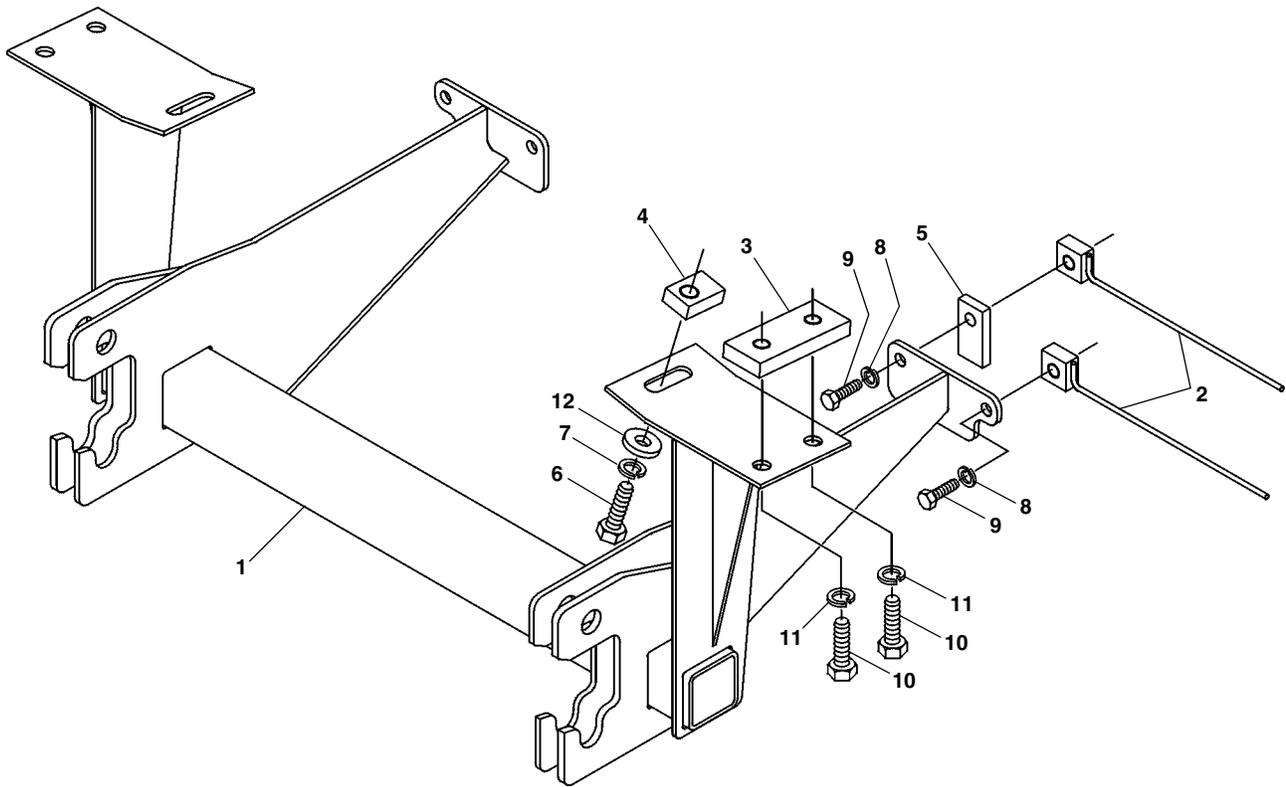


IMPORTANT: Height from the center of the lower pin slots on the Subframe to the ground should be between 8" and 10" to insure proper operation. On some vehicles, it may be necessary to use a form of load booster (See NOTE on page 1, Minimum Vehicle Recommendations).

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		

These torque values are to be used for all hardware. Unless otherwise specified, all torque values must meet this specification.
All torque values are in Ft.-Lbs unless otherwise stated
*In-Lbs

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



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	96107668	Assembly, Mounting	1
2	96107704	Assembly, Nut Plate	4
3	96107705	Plate, Nut	2
4	96103505	Plate, Nut	2
5	96108075	Spacer	2
6	98009010	Cap Screw, Hex Head, 1/2"-13 x 1-1/2"	2
7	98009012	Washer, Lock, 1/2" Heavy	2
8	98009008	Washer, Lock, 3/8"	4
9	98100002	Cap Screw, Hex Head, 3/8"-16 x 1-1/2"	4
10	98009048	Cap Screw, Hex Head, 7/16"-14 x 1-1/2"	4
11	98009045	Washer, Lock, 7/16"	4
12	98009011	Washer, Flat, 1/2"	2

SNO-WAY® INTERNATIONAL, INC.

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