



Assembly & Installation Instructions

**FOR
SUBFRAME COMPONENTS PACKAGE 99100187
AND
SUBFRAME NOSE PIECE PACKAGE 96103002**

TO FIT

**1992 - 1997 FORD 4X2 F250HD & F350 SINGLE & DUAL REAR WHEEL
1992 - 1997 FORD 4X2 F350 CHASSIS CAB SINGLE & DUAL REAR WHEEL
1992 - 1997 FORD 4X2 F350HD SINGLE & DUAL REAR WHEEL
1992 - 1997 FORD 4X2 F-SUPER DUTY CHASSIS CAB**

97100403F



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 Springs

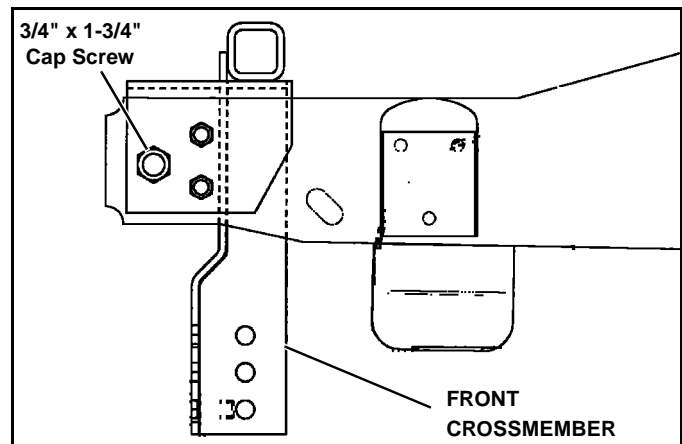
ASSEMBLY TOOLS NEEDED

Drill Bits 1/4", 17/32"
 Impact Sockets 7/16" – 1-3/8"
 Wrenches 7/16" – 1-3/8"
 Torque Wrench
 Center Punch and Hammer
 Clamping Device ("C", Bar, type device...)
 Rat Tail Pry Bar
 Hacksaw

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.

INSTALLATION NOTES

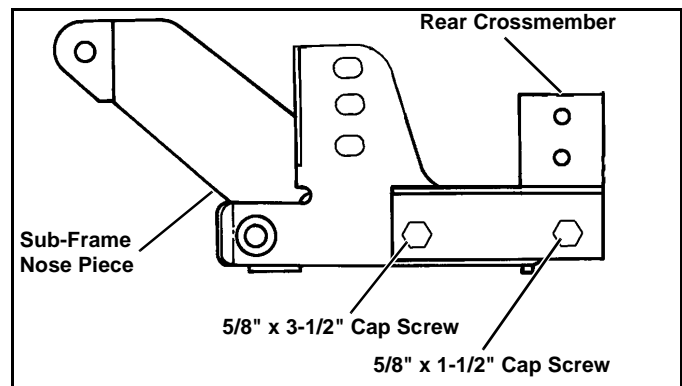
1. Unless otherwise specified, mount all Sub-Frame Components to vehicle before tightening any hardware.
2. It is recommended that LOCTITE®, or similar thread locking product, be used on ALL mounting hardware (i.e. Nuts, Cap Screws, Bolts, etc.).
3. Vehicle should be parked on a level surface with a 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: (2) 5/8" x 1-1/2" Cap Screws (#21).
5. It maybe necessary to relocate license plate holder. Relocate under the driver's side headlight by drilling new holes in the bumper. Check state and local laws for placement, if needed.



3. Place Rear Crossmember(#3) over Sub-Frame Nose Piece (#1) and secure as follows:
 - Rear Mounting - (2) 5/8" x 1-1/2" Cap Screws (#21), (2) Lock Washers (#20), and (2) Nylock Nuts (#18).
 - Front mounting - (2) 5/8" x 3-1/2" Cap Screws (#11), (2) Lock Washers (#20), and (2) Nylock Nuts (#18).

MOUNTING INSTRUCTIONS

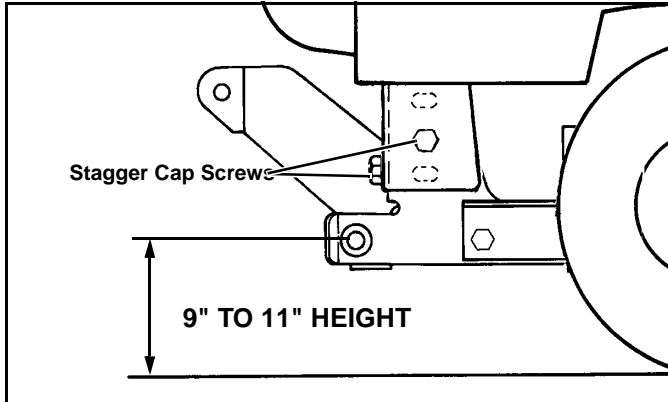
1. Remove the vehicle front bumper by removing the (4) nuts securing the bumper to the bumper support flanges, and remove bumper. Retain hardware for later use.
2. Place Front Crossmember (#2) over vehicle frame horns, align 3/4" x 1-3/4" Cap Screws (#12), 3/4" Flat Washers (#15) and 3/4" Nylock Nuts (#19).



IMPORTANT: The Cap Screws securing the Sub-Frame to the Front Crossmember must be staggered with the front bolts being positioned in a lower set of holes than the side bolts. (Unless the holes are in the lowest possible position).

- Attach Sub-Frame assembly to Front Crossmember (#2) using (4) 5/8" x 1-1/2" Cap Screws (#21), (4) Flat Washers (#14), and (4) Nylock Nuts (#18).

NOTE: Height from the center of the lower Plow Mounting holes on the Sub-Frame into the ground should be between 9" and 11" to insure proper operation.



NOTE: It may be necessary to use Shim Plates (#6), & (#7) between the Rear Crossmember and the Rear Mounting Brackets.

- From the engine side of the Rear Crossmember place (4) 5/8 x 3-1/2" Cap Screws (#11), with Lock Washers (#20) into holes for the Rear Mounting Brackets (#4) LH, and (#5) RH. Secure with (4) 5/8" Nylock Nuts (#18). Clamp both Rear Mounting Brackets to the vehicle frame making sure the brackets are tight with the bottom and sides of the vehicle frame and the Sub-Frame is parallel to the ground.



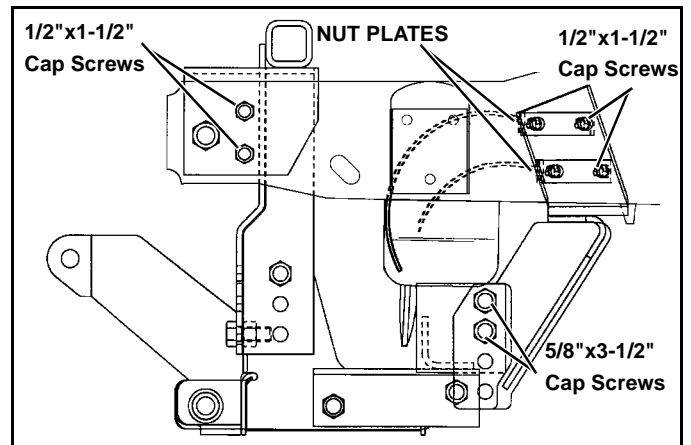
WARNING

Beware of brake and fuel lines secured to inside wall of frame rails when drilling holes in vehicle frame!

FAILURE TO HEED CAN RESULT IN SERIOUS INJURY OR DEATH.

- Using the (8) holes in the Rear Mounting Brackets (#4) LH, & (#5) RH as a template, center punch and drill (8) holes through the vehicle frame rail, first using the 1/4", then the 17/32" drill bit. Remove clamps and secure Brackets using (8) 1/2" x 1-1/2" Cap Screws (#10) with Lock Washers (#16) and on the engine side of the frame rails using (1 set) Nut Plate Assembly (#8) LH, and (#9) RH placed so wire handles face to the front of the vehicle.
- Using the (4) holes in the Front Crossmember (#2) as a template, center punch and drill (4) holes through the vehicle frame horns, first using the 1/4", then the 17/32" drill bit. Place (4) 1/2" x 1-1/2" Cap Screws (#10) through drilled holes and secure on the engine

side with Flat Washers (#13) and Nylock Nuts (#17).



- Using the Torque Specification Chart below, torque remaining hardware **starting at the rear** and working forward.

TORQUE SPECIFICATIONS FOR STANDARD MACHINE HARDWARE

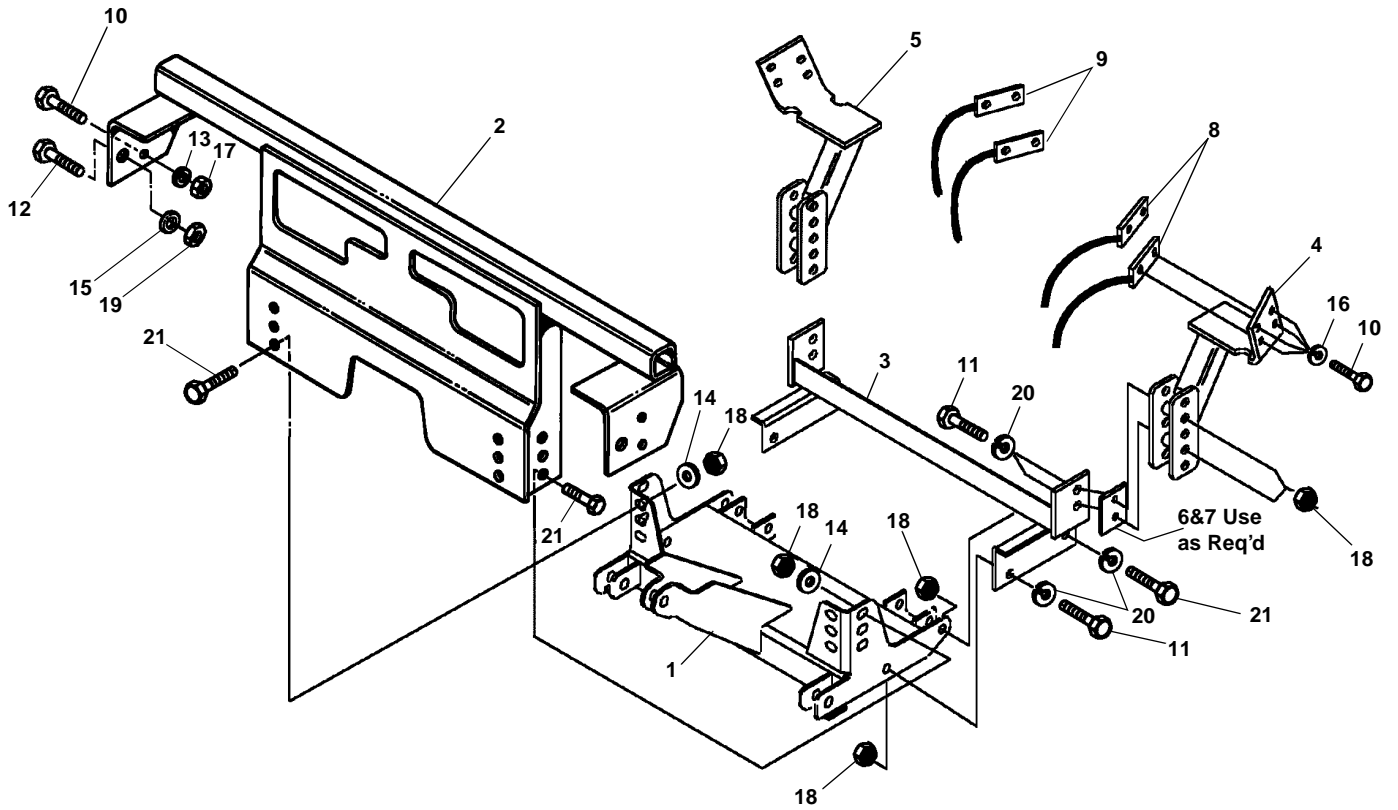
Bolt Size	GR.2 Dry	GR.5 Dry	GR.8 Dry	Metric Size	GR.8.8 Dry
1/4"	66*	9	12	M8	17
5/16"	11	17	25	M10	35
3/8"	20	30	45	M12	60
7/16"	32	50	70	M14	95
1/2"	50	75	110	M16	155
9/16"	70	110	150		
5/8"	100	150	220		
3/4"	175	260	380		
7/8"	170	430	600		
1"	250	640	900		

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!



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	96103002	Sub-Frame, Nose Piece (96102896)	1
2	96102221	Crossmember, Front	1
3	96102192	Crossmember, Rear	1
4	96103070	Bracket, Rear Mounting, LH	1
5	96103071	Bracket, Rear Mounting, RH	1
6	96102214	Plate, Shim, 1/8"	2
7	96103075	Plate, Shim, 1/4"	2
8	96100939	Plate Assembly, Nut, LH	2
9	96100938	Plate Assembly, Nut, RH	2
10	98009010	Cap Screw, Hex Head, 1/2-13 x 1-1/2"	12
11	98009042	Cap Screw, Hex Head, 5/8-11 x 3-1/2"	6
12	98009098	Cap Screw, Hex Head, 3/4-10 x 1-3/4"	2
13	98009011	Washer, Flat, 1/2"	4
14	98009039	Washer, Flat, 5/8"	4
15	98009030	Washer, Flat, 3/4"	2
16	98009012	Washer, Lock, 1/2"	8
17	98009013	Nut, Hex, Nylock, 1/2-13	4
18	98009038	Nut, Hex, Nylock, 5/8-11	12
19	98009003	Nut, Hex, Nylock, 3/4-10	2
20	98009062	Washer, Lock, 5/8"	8
21	98009115	Cap Screw, Hex Head, 5/8-11 NC x 1-1/2"	6

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