

Assembly & Installation Instructions

**FOR
SUBFRAME COMPONENTS PACKAGE 99100069
AND
SUBFRAME NOSE PIECE PACKAGE 96100694**

TO FIT

**1992-1997 FORD F250/F350 4X4 PICKUP
1992-1995 FORD F250HD/F350 4X4 PICKUP
1992-1995 FORD F350 4X4 CHASSIS CAB
EXCLUDES F350 4X4 MONOBEAM**

97100189D



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
Manufacturers Snow Plow Package.

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

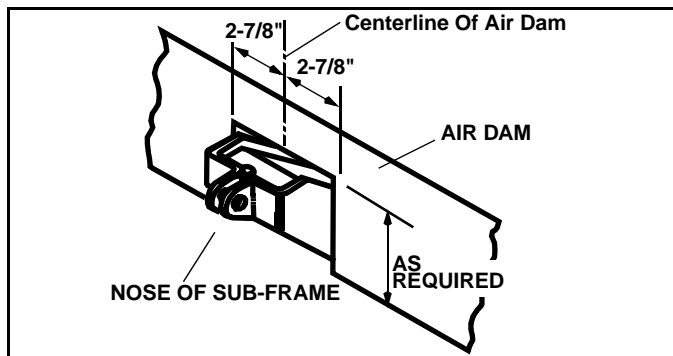
INSTALLATION NOTES

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 (#10)
5. It may be necessary to relocate license plate holder. Check state and local laws for placement, if needed.

MOUNTING INSTRUCTIONS

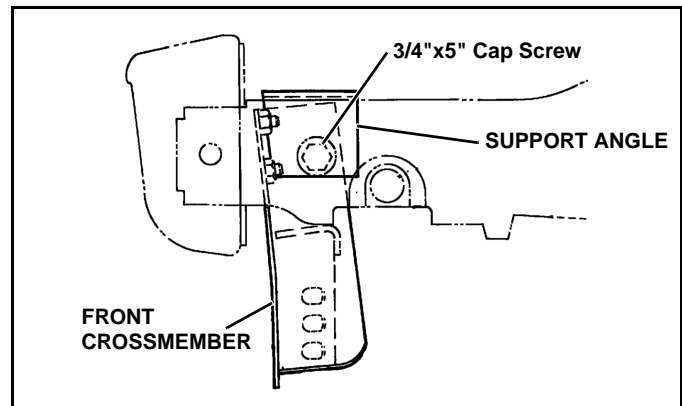
1. Remove the vehicle front bumper assembly, by removing the four (4) nuts that secure the bumper to the bumper support, retain hardware for later use.
2. Remove air dam from bumper. Retain, with mounting hardware, for future use if plow Sub-Frame is removed.

NOTE: Front air dam can be modified to clear Sub-Frame by cutting dam to allow clearance for nose of Sub-Frame. Cut air dam as shown and remove cut section or fold back for when nose piece is removed.

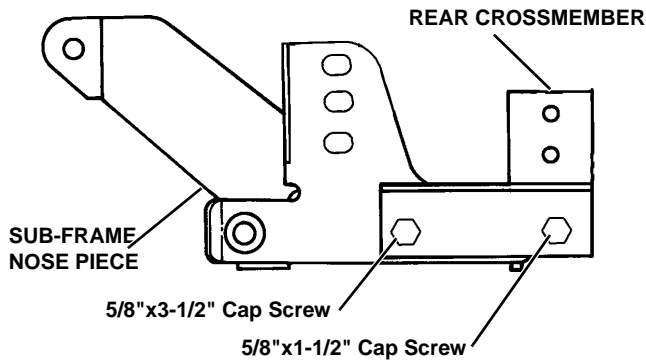


NOTE: It may be necessary to use Shim Plates (#6) between Front Crossmember and vehicle frame rails to center Front Crossmember.

3. Place (2) Angle Frame Support (#7) on the outside of the vehicle frame, aligning hole with the existing hole located behind the bumper mounting bracket. Insert (2) 3/4 x 5" Cap Screws (#14) until flush with the inside edge of the frame, to hold Angle Support in place.



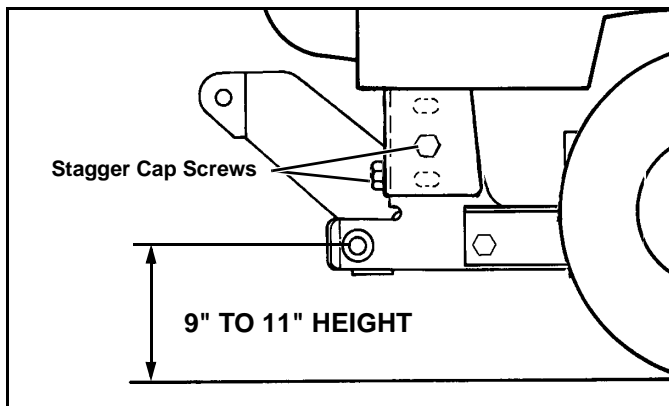
4. Place (1) Front Crossmember (#2) between vehicle frame rail behind bumper mounting brackets aligning with bolt from step#3. Push 3/4" Cap Screws through, and on engine side secure using (2) 3/4" Flat Washers (#15) and (2) 3/4" Nylock Nuts (#16). (See Install Notes #1 & #2.)
5. Replace front bumper and tighten its hardware only. (See Install Notes #1 & #2.)
6. Place (1) Rear CrossMember (#3) over (1) Sub-Frame Nose Piece (#1) and secure as follows:
 - Rear Mounting - (2) 5/8" x 1-1/2" Cap Screws (#10), (2) Lock Washer (#21), and (2) 5/8" Nylock Nuts (#13). (See Install Notes #1 & #2.)
 - Front mounting - (2) 5/8" x 3-1/2" Cap Screws (#11), (2) Lock Washer (#21), and (2) 5/8" Nylock Nuts (#13). (See Install Notes #1 & #2.)



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)

7. Attach Sub-Frame assembly to Front Crossmember (#2) using (4) 5/8" x 1-1/2" Cap Screws (#10), (4) 5/8" Flat Washers (#12), and (4) 5/8" Nylock Nuts (#13), provided. (See Notes #1, & #2.)

IMPORTANT: 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 (#8), & (#9) between the Rear Crossmember and the Rear Mounting Brackets.

8. From the engine side of the Rear Crossmember place (4) 5/8 x 3-1/2" Cap Screws (#11), with (4) 5/8" Lock Washer (#21), into holes for the Rear Mounting Brackets (#4) LH, and (#5) RH. Secure with (4) 5/8" Nylock Nuts (#13). 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. (See Install Notes #1 & #2.)

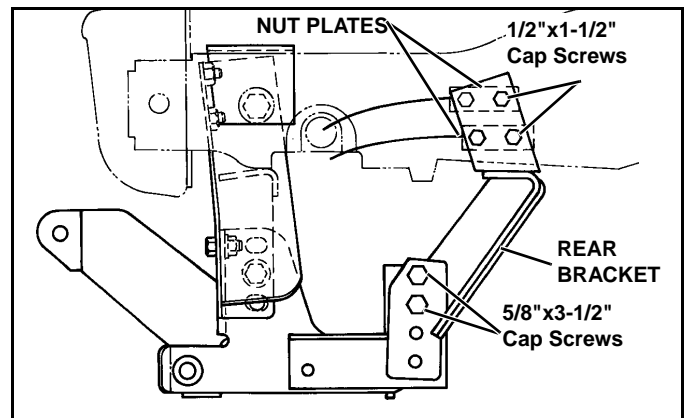


WARNING

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.

9. 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 a 1/4", then a 17/32" drill bit. Remove clamps from the vehicle and Rear Crossmember. On engine side of frame rails insert Nut Plate Assembly (#19) LH, and (#20) RH lined up with the drilled holes, placed so wire handles face to the front of the vehicle. Place (8) 1/2" Lock Washer (#18) on (8) 1/2" x 1-1/2" Cap Screws (#17) and insert them into drilled holes, through Rear Mounting Brackets, and into Nut Plates. (See Install Notes #1 & #2.)



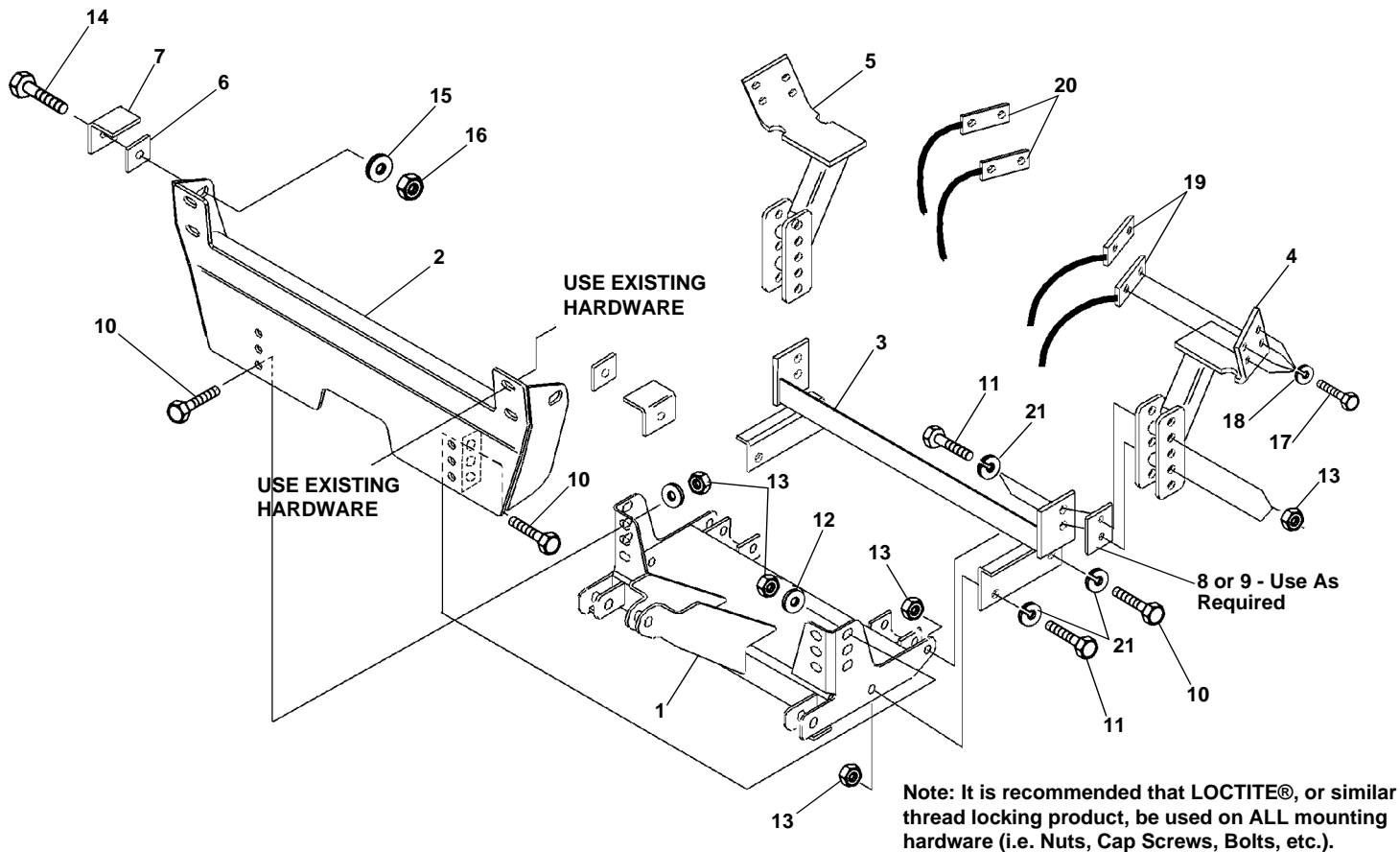
10. Using the Torque Specification Chart below, torque all bolts **starting at the rear** and working forward.

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 Screw!



ITEM	PART NO.	DESCRIPTION	QTY.
1	96103002	Sub-Frame, Nose Piece (96102896)	1
2	96100982	Crossmember, Front	1
3	96100953	Crossmember, Rear	1
4	96103070	Bracket, Rear Mounting, LH	1
5	96103071	Bracket, Rear Mounting, RH.....	1
6	96100985	Plate, Shim, 3/16"	4
7	96100986	Angle, Frame Support.....	2
8	96102214	Plate, Shim, 1/8"	2
9	96103075	Plate, Shim, 1/4"	2
10	98009115	Cap Screw, Hex Head, 5/8"-11NC x 1-1/2"	4
11	98009042	Cap Screw, Hex Head, 5/8"-11NC x 3-1/2"	4
12	98009039	Washer, Flat, 5/8"	8
13	98009038	Nut, Hex, 5/8" - 11NC Nylock,	12
14	98009018	Cap Screw, Hex Head, 3/4"-10NC x 5"	2
15	98009030	Washer, Flat, 3/4"	2
16	98009003	Nut, Hex, 3/4" - 10NC Nylock	2
17	98009910	Cap Screw, Hex Head, 1/2"-13NC x 1-1/2"	8
18	98009012	Washer, Lock, 1/2"	8
19	96100939	Plate Assembly, Nut, LH	2
20	96100938	Plate Assembly, Nut, RH	2
21	96109062	Washer, Lock, 5/8"	8

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