



# **Assembly & Installation Instructions**

**FOR  
SUBFRAME COMPONENTS PACKAGE 99100030  
AND  
SUBFRAME NOSE PIECE PACKAGE 96103002**

**TO FIT  
1986 - 1994 TOYOTA PICKUP 4x4  
1986 - 1995 TOYOTA FORERUNNER 4x4**



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 Front Springs                      Heavy Duty Alternator  
 Manufacturers Snow Plow Package      Heavy Duty Battery

*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    13/32" & 17/32"  
 Sockets    7/16" – 1-1/8"  
 Wrenches    7/16" – 1-1/8"  
 Torque Wrench  
 Center Punch and Hammer  
 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 (#9).
5. It may be necessary to relocate license plate holder. Check state and local laws for placement, if needed.

### MOUNTING INSTRUCTIONS

1. Remove Splash Pan from underside of vehicle. Retain, with mounting hardware, for future use if Plow Sub-Frame is removed.
2. Remove Tow Hooks to position the Front Crossmember. Tow Hooks may be re-installed or retain with the mounting hardware for future use if the Plow Sub-Frame is removed.

**IMPORTANT: Determine if the vehicle radiator or related parts, on 6 cylinder engines, will interfere with the Front Crossmember. If there is no interference, follow steps 3A and 5A. If there is interference, then follow steps 3B and 5B.**

#### 3A. NO INTERFERENCE

Install Front Crossmember (#2) by aligning Crossmember mounting holes with existing vehicle frame rail holes provided for mounting the Tow Hooks. Install with (4) M12 - 1.25 x 40mm Cap Screw (#12), existing Tow Hook bolts, Lock Washers (#14) and Flat Washers (#13).

#### 3B. INTERFERENCE

If vehicle radiator, or parts related, interfere with the Front Crossmember (#2) add Spacer Plates (#18) between Front Crossmember and vehicle frame. Mount Front Crossmember (#2) by aligning Front Crossmember mounting holes, and Spacer Plate holes, with existing vehicle frame holes. Secure using (6) M12 - 1.25 x 60mm Metric Cap Screws (#20), Lock Washers (#14) and Flat Washers (#13).

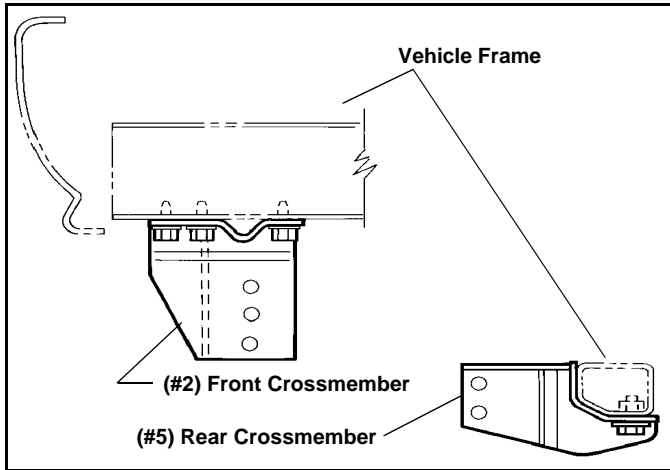
4. Locate Rear Crossmember (#5) on vehicle frame crossmember and drill 13/32" and 17/32" holes in vehicle frame crossmember as required to match spacing on Rear Crossmember.

#### 5A. NO INTERFERENCE

Attach Rear Crossmember to vehicle frame with (1) 1/2" x 3" Cap Screws (#10), (2) Flat Washer (#13), and Nylock Nut (#11) plus (2) 3/8" x 3" Cap Screws (#15), (4) Flat Washers (#16), and Nylock Nuts (#17). Flat Washers are used on both the bolt and nut side of fastener.

#### 5B. INTERFERENCE

When attaching the Rear Crossmember (#5) to vehicle frame, use the same amount of Spacers (#19) as the Front Crossmember needed. Then secure spacer between the Rear Crossmember and the vehicle frame with (1) 1/2" x 3-1/2" Cap Screw (#21), (2) Flat Washer (#13), and Nylock Nut (#11) plus (2) 3/8" x 3-1/2" Cap Screws (#22), (4) Flat Washer (#16), and Nylock Nuts (#17). Flat Washers are used on both the bolt and nut side of fastener.

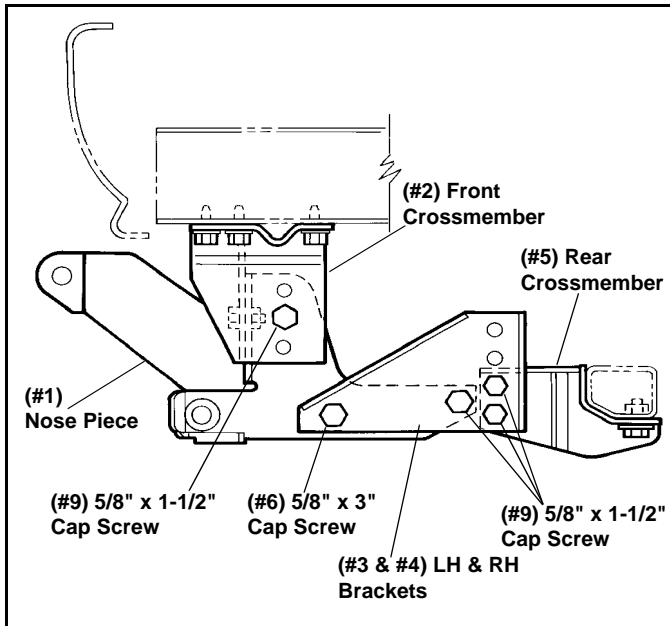


**NOTE:** It is recommended that **LOCTITE®** or similar thread locking material be used on the Metric Cap Screws during installation.

6. Assemble Brackets (#3 & #4) to the Nose Piece Assembly (#1) using (2) 5/8" x 1-1/2" Cap Screws (#9) in the rear holes and (2) 5/8" x 3" Cap Screws (#6) in the forward holes. Secure with Nylock Nuts (#8).

**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. Install Nose Piece Assembly (#1) to Front Crossmember with (4) 5/8"-11 x 1-1/2" Cap Screws (#9), Flat Washers (#7) and Nylock Nuts (#8).



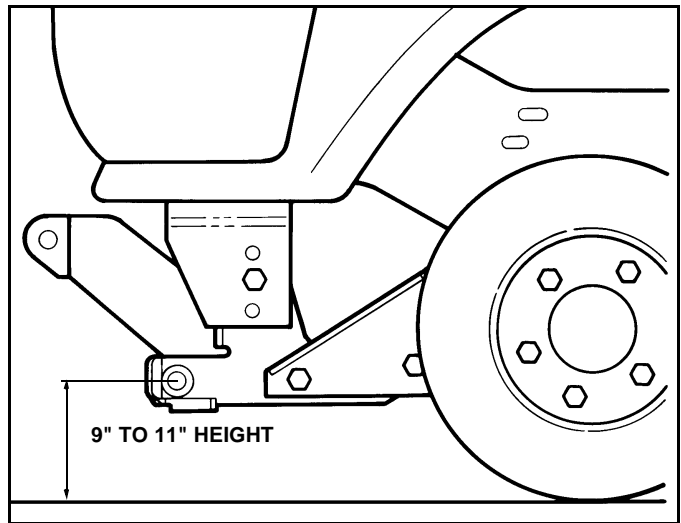
8. Attach Brackets (#3 & #4) to Rear Crossmember (#5) with (4) 5/8"-11 x 1-1/2" Cap Screws (#9) and (4) Nylock Nuts (#8).

9. Using the Torque Specification Chart provided, torque all Cap Screws starting at the rear and working forward.

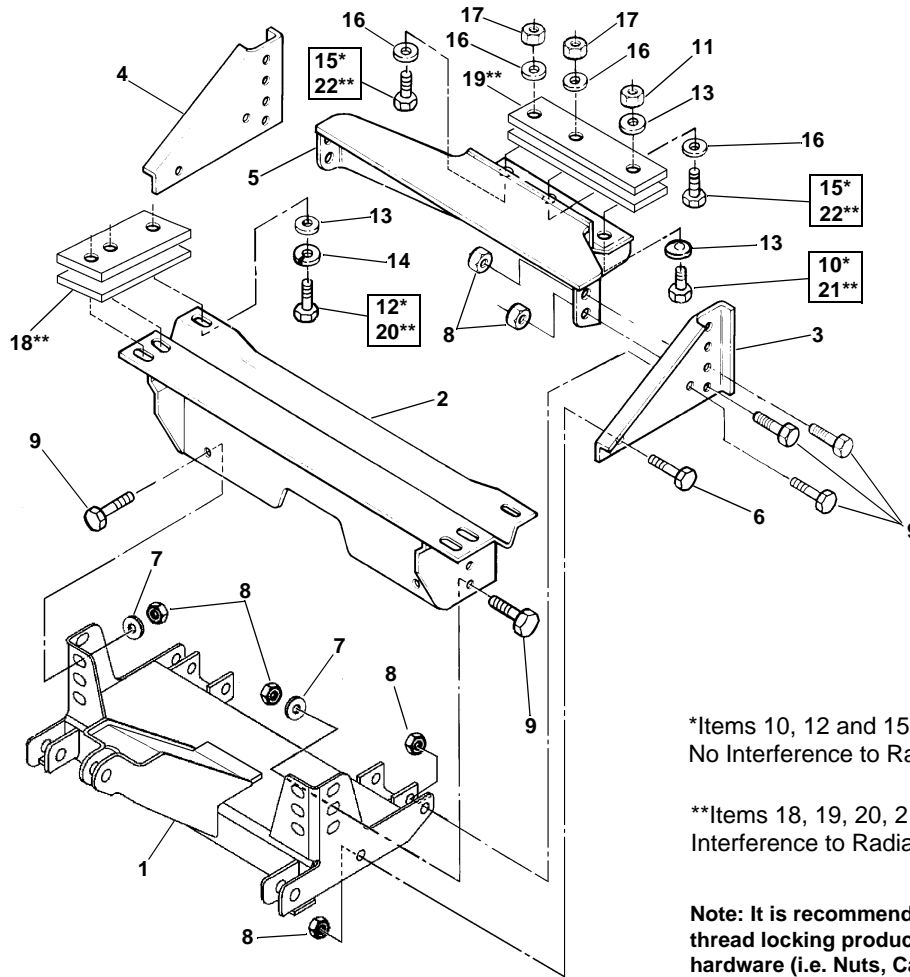
TORQUE SPECIFICATIONS FOR STANDARD MACHINE HARDWARE					
Bolt Size	GR.2 Dry	GR.5 Dry	GR.8 Dry	Metric Size	GR.8.8 Dry
1/4"	66*	9	12	M8	17
5/16"	11	17	25	M10	35
3/8"	20	30	45	M12	60
7/16"	32	50	70	M14	95
1/2"	50	75	110	M16	155
9/16"	70	110	150		
5/8"	100	150	220		
3/4"	175	260	380		
7/8"	170	430	600		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



**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.



\*Items 10, 12 and 15 are used with  
No Interference to Radiator (See Steps 3A and 5A)

\*\*Items 18, 19, 20, 21 and 22 are used with  
Interference to Radiator (See Steps 3B and 5B)

**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	96100282	Crossmember, Front.....	1
3	96100288	Bracket, LH.....	1
4	96100287	Bracket, RH.....	1
5	96100289	Crossmember, Rear.....	1
6	98009217	Cap Screw, Hex Head, 5/8"-11NC x 3".....	2
7	98009039	Washer, Flat, 5/8".....	4
8	98009038	Nut, Hex, 5/8"-11NC Nylock.....	12
9	98009115	Cap Screw, Hex Head, 5/8"-11NC x 1-1/2".....	10
10	98009017*	Cap Screw, Hex Head, 1/2"-13 NC x 3".....	1
11	98009013	Nut, Hex, 1/2"-13 NC Nylock.....	1
12	98009054*	Cap Screw, Hex Head, M12 - 1.25 x 40mm.....	6
13	98009011	Washer, Flat, 1/2".....	8
14	98009012	Washer, Lock, 1/2".....	6
15	98009258*	Cap Screw, Hex Head, 3/8"-16NC x 3".....	2
16	98009032	Washer, Flat, 3/8".....	4
17	98009009	Nut, Hex, 3/8"-16 NC Nylock.....	2
18	96101629**	Plate, Spacer.....	4
19	96101630**	Bar, Spacer.....	2
20	98100082**	Cap Screw, Hex Head, M12 - 1.25 x 60mm.....	6
21	98009036**	Cap Screw, Hex Head, 1/2"-13 NC x 3-1/2".....	1
22	98009093**	Cap Screw, Hex Head, 3/8"-16 NC x 3-1/2".....	2

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