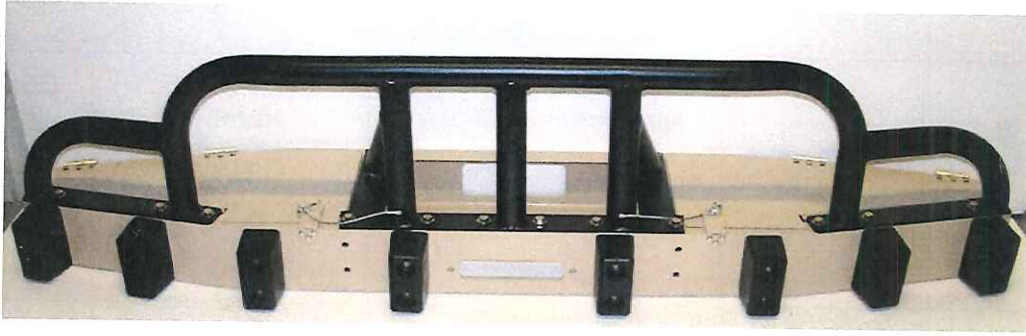


HMMWV Front Protective Bumper (FPB)



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NOTE

At least two people or a floor jack are required to support the Front Protective Bumper during installation.

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A CONTENTS — KIT WITHOUT OPTIONAL WINCH

The FPB Kit without the optional Winch Kit contains the following items (Figure 1):

TABLE 1. BASIC FPB KIT

Item	Name	Part Number	Quantity*
A	Bumper (shown on Page 1)	N/A	1
B	Passenger Side Lifting Shackle Plate	2830-100-005298	1
C	Driver Side Lifting Shackle Plate	2830-100-005299	1
D	Hardware Kit 5/8" x 4" (Brackets To Frame)	2830-100-005297	1
D1	Bracket, Passenger - side	2830-100-000823	1
D2	Bracket, Driver - side	2830-100-000822	1
D3	Outboard Mounting Bolt Washer Plate	2830-100-000833	2
D4	Inboard Mounting Bolt Washer Plate	2830-100-000832	2
D5	Nut, 5/8" -11	9-00000204	6
D6	Washer, Lock, 5/8"	9-00000234	6
D7	Washer, Flat, 5/8"	9-00002723	12
D8	Bolt, 5/8"- 11 x 4"	9-00000179	6
D9	Washer, Flat, 1/2" USS	9-00000407	18
D10	Washer, Lock, 1/2"	9-00000420	8
D11	Nut, 1/2" - 13	9-00000538	8
D12	Bolt, 1/2" - 13 x 2 1/2"	9-00000182	8
D13	Bolt, 1/2" - 13 x 2"	9-00000178	2
D14	1/4"-20 1 1/2" Flathead Socket Head Cap Screw	9-00000671	4
D15	1/4"-20 Hex Nut	9-00000226	4
D16	1/4" Lock Washer	9-00000233	4
D17	1/4" USS Flat Washer	9-00000416	4

* The values listed in this column indicate the value required to install the Bumper. Most hardware packages include extra pieces of hardware.

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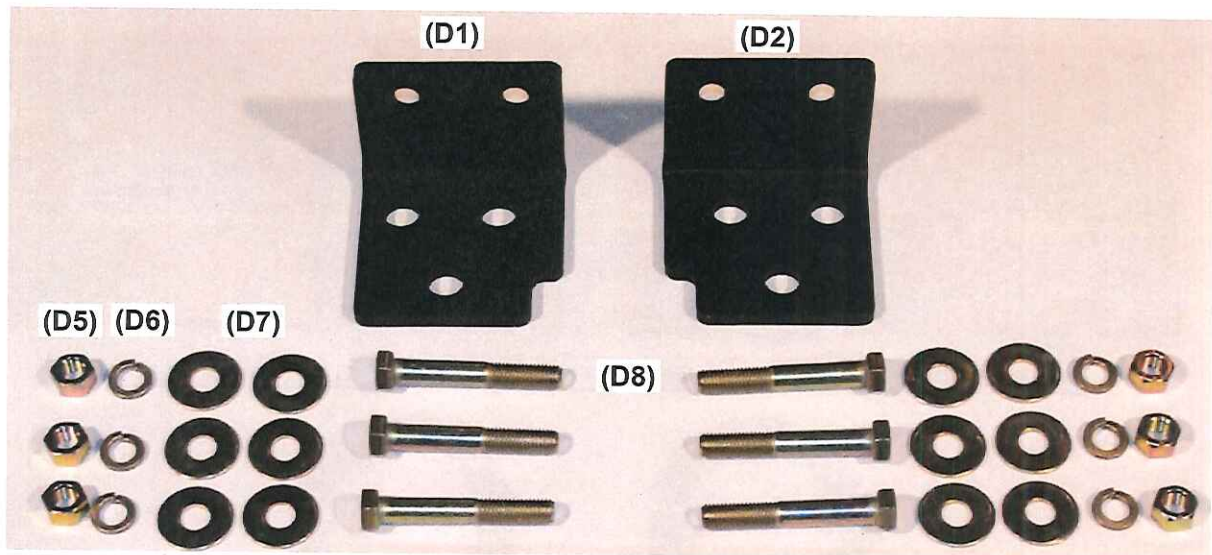


FIGURE 1. M990 BRACKET MOUNTING KIT PARTS, 5/8" DIA.

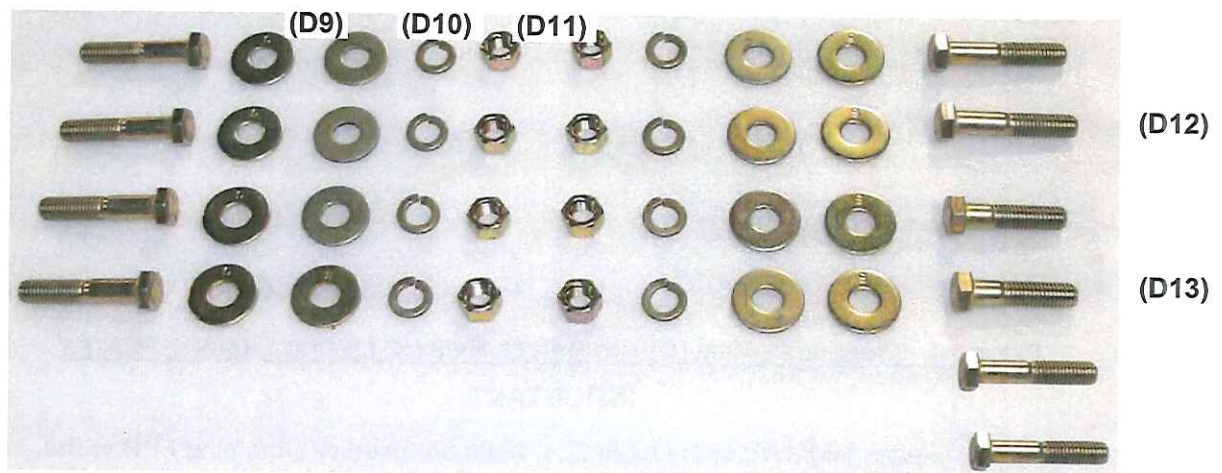


FIGURE 2. M990 & M1114 BUMPER MOUNTING KIT PARTS, 1/2" DIA.

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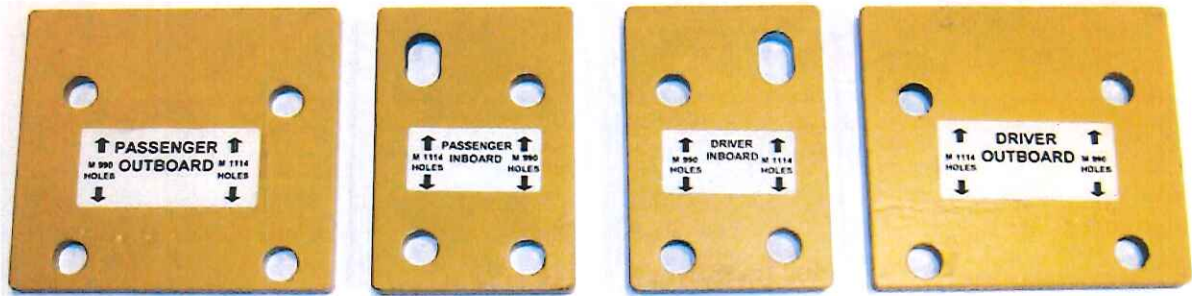


FIGURE 3. OUTBOARD (D3) AND INBOARD (D4) MOUNTING BOLT WASHER PLATES



FIGURE 4. PASSENGER-SIDE (B) AND DRIVER-SIDE (C) LIFTING SHACKLE PLATES
IMPORTANT

For M990 - series HMMWV's, the eight 2 ½" bolts are used to attach the FPB to the brackets and frame rails.

For M1114 – series HMMWV's, two 2" bolts are used in the Driver-side Inboard (threaded) holes, and six 2 ½" bolts are used in the remaining (unthreaded) holes.

In Figure 3 above, when used on M1114-series HMMWVs, the Outboard and Inboard Washer Plates can actually be used in their respective positions on either the Driver or Passenger side – just turn them over.

In Figure 4 above, Driver-side and Passenger-side Lifting Shackle Plates are shown. **Lifting Shackle Plates are only needed and only for use with M1114-series HMMWVs. Installing the Lifting Shackle Plates on M990-series HMMWVs will prevent the M990-series hood from opening fully.**

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Use of a floor jack and 4"x4" wood boards or a floor jack with a support plate to lift and stabilize the FPB and an existing winch is optional but strongly recommended. The FPB can be installed with the floor jack and 4" x 4" boards (Figure 5). If installing many bumpers, a floor jack support plate such as the one shown in Figure 6 (approximately 11 1/2" wide, 10" deep, a few inches high) enables the FPBs to be installed much easier and faster.



FIGURE 5. FLOOR JACK WITH 4" X4" BOARD

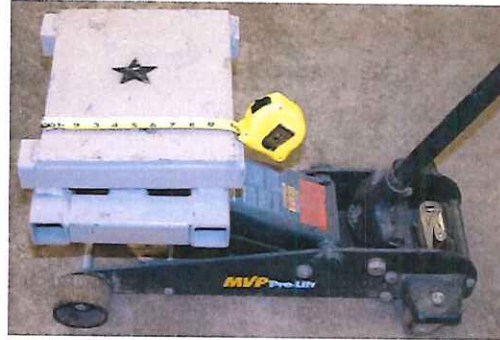


FIGURE 6. FLOOR JACK WITH LOCALLY-MADE SUPPORT PLATE

If a floor jack is not available, at least three people are required to install the FPB – two people on each end to lift the FPB, and one person dedicated to installing the mounting bolts.

If a floor jack is not available and a winch kit is installed on an M1114, the winch kit may need to be supported with a second floor jack or blocks when the two front bolts securing the winch kit to the M1114 Front Bumper Plate are removed.

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B CONTENTS — OPTIONAL WINCH KIT FOR M990 – SERIES

The FPB Kit including the optional Winch Kit contains the following items:

TABLE 2. OPTIONAL WINCH KIT FOR M990 SERIES

Item	Name	Part Number	Quantity*
	Optional Winch Kit	2830-900-001	1
	Rollers	2830-100-220	1
	Winch	2830-100-221	1
	Mounting Plate	2830-100-222	1
	Hardware Kit (Hydraulic Connectors)	2830-100-223	1
	Hardware Kit ½" x 1.5" (Winch and Rollers)	2830-100-005294	1
	Bolt, ½" – 13 x 1½"	9-00000180	2
	Nut, ½"	9-00000538	2
	Washer, Flat, ½" SAE	9-00000519	4
	Washer, Lock, ½"	9-00000420	2

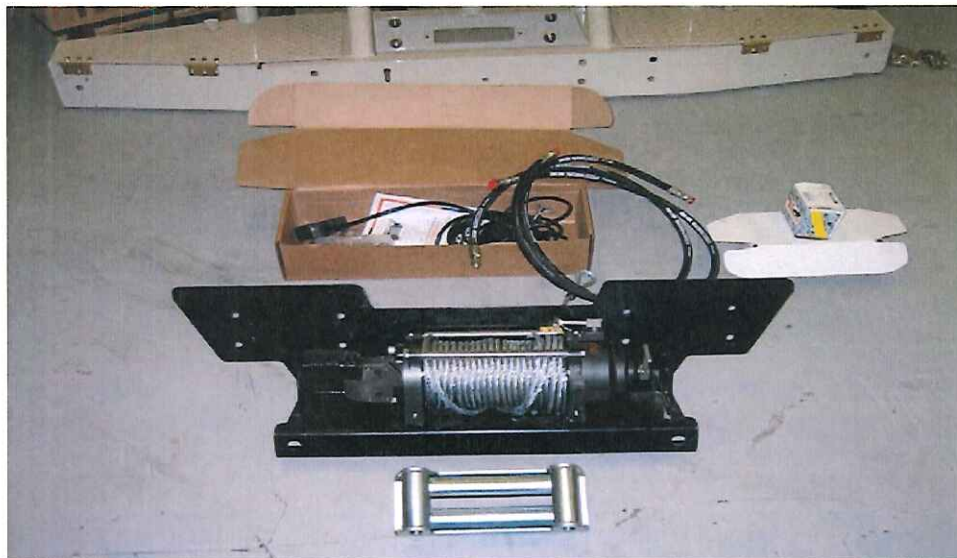


FIGURE 7. WINCH KIT PARTS

* The values listed in this column indicate the value required to install the Bumper. Most hardware packages include extra pieces of hardware.

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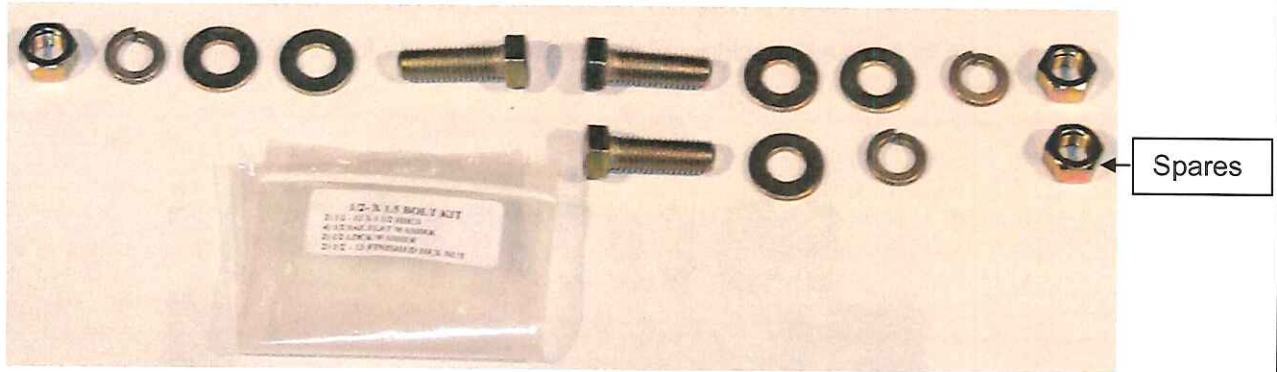


FIGURE 8. FPB WINCH ROLLER FASTENERS, 1/2" DIA.

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C M990 SERIES – INSTALLATION WITHOUT EXISTING WINCH

1. Remove two front lifting shackles (Figure 9) and set aside for re-installation onto FPB.



FIGURE 9. REMOVE LIFTING SHACKLES

2. Support the hood bracket on the frame rail using a floor jack and a block of wood (Figure 10), and remove the three bolts, nuts and washers (Figure 11). These fasteners will not be reused.



FIGURE 10. SUPPORT THE HOOD BRACKET WITH A FLOOR JACK

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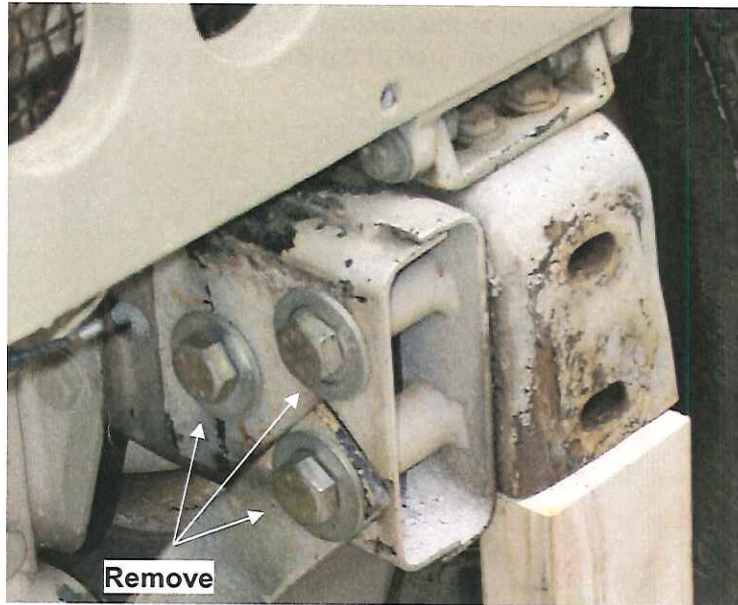


FIGURE 11. REMOVE EXISTING FRAME BOLTS

3. Install Bracket (Figure 1) onto the frame (Figure 12), using the 5/8" fasteners.

NOTE

The notch is down (Figure 12).



FIGURE 12. INSTALL BRACKET AND 5/8" FASTENERS

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- Align the front face of the Bracket to the front face of the frame rail with a straightedge or square (Figure 13). Ensure the front face of the Bracket is parallel to the front face of the frame rail.



FIGURE 13. USE A STRAIGHTEDGE TO CHECK THE BRACKET

- Repeat Steps 3 and 4 for the other Bracket.
- Attach the Bumper to the HMMWV brackets (Figure 14, Figure 15, Figure 16, Figure 17, Figure 18, Figure 19) using fasteners (Figure 2) and Washer Plates (Figure 3). The fasteners should be finger-tightened only.

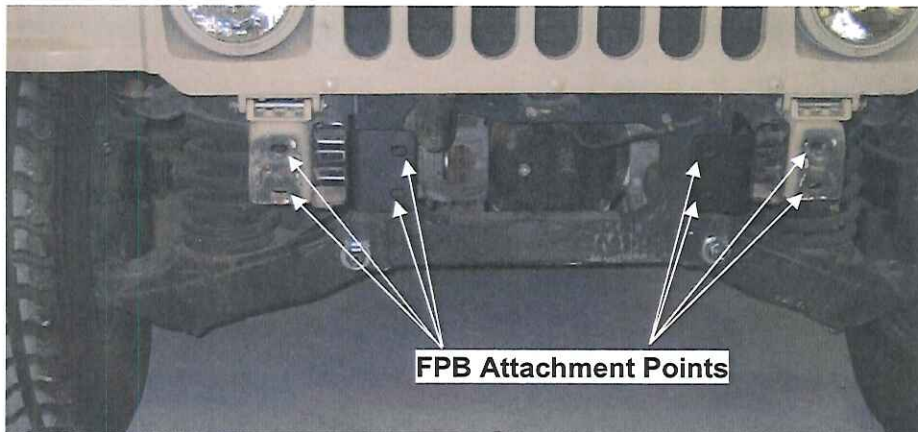


FIGURE 14. FPB ATTACHMENT POINTS

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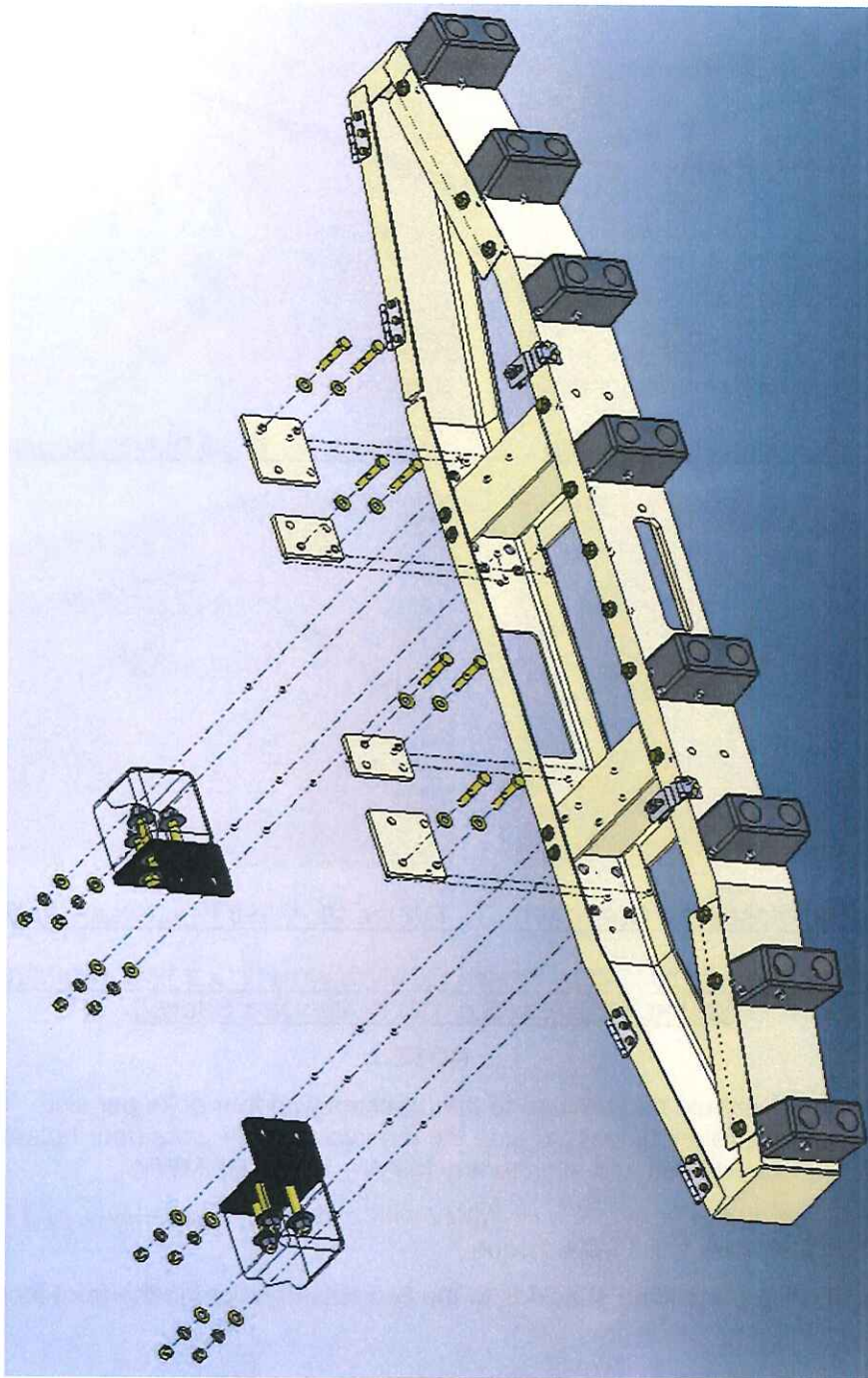


FIGURE 15. FPB BOLT AND WASHER PLATE POSITIONS FOR INSTALLATION ON A M990 HMMWV (SLOTTED WASHER PLATES NOT SHOWN)

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FIGURE 16. M990 DRIVER OUTBOARD

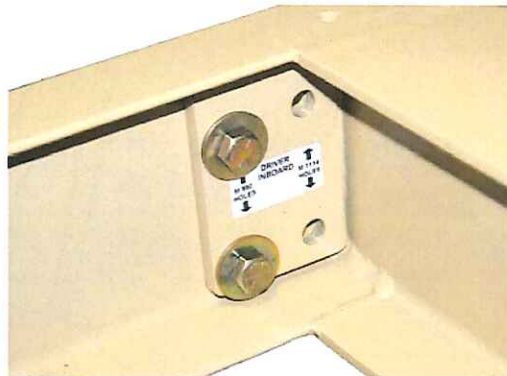


FIGURE 17. M990 DRIVER INBOARD



FIGURE 18. M990 PASSENGER OUTBOARD



FIGURE 19. M990 PASSENGER INBOARD

BUMPER ATTACHED TO M990 – SERIES HMMWV WITH ½” X 2 ½” FASTENERS AND WASHER PLATES (SLOTTED PLATES NOT SHOWN)

NOTE

The Bumper should be attached to the brackets with four bolts per side. There are four pairs (eight holes) per side, so the two **outside** pairs (four holes) per side should align to any M990 – series HMMWV.

7. Align the Bumper to the front of the HMMWV with a straightedge or level, and then tighten the mounting fasteners to 80 ft-lbs torque.
8. Attach the existing front lifting shackles to the two sets of holes on the front face of the FPB using the existing fasteners.

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**FIGURE 20. BUMPER (SHOWN WITH OPTIONAL VEHICLE PUSH ASSIST SYSTEM)
 INSTALLED ON M990 – SERIES HMMWV WITH WINCH KIT**

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D M990 SERIES – INSTALLING THE FPB AND THE OPTIONAL WINCH KIT

The Optional Winch Kit is shown in Figure 21.

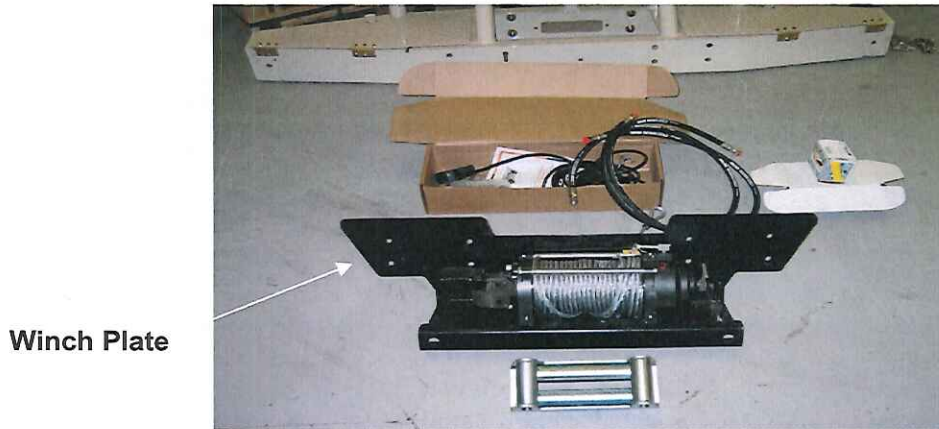


FIGURE 21. OPTIONAL WINCH KIT

1. Install the Optional Winch Kit on the M990 – Series HMMWV following the detailed instructions included with the Kit.

NOTE

When installing the winch plate onto the M990 – Series HMMWV frame, reverse the direction of the bolts (Figure 22). The bolts as shown in Figure 22 are correct for mounting the Winch Plate.



FIGURE 22. CONTROL ARM BOLTS REVERSED

2. After installation of the Optional Winch Kit is complete, install the FPB starting with “Installation without Existing Winch”, step 6. Figure 20 shows the HMMWV with the FPB and Optional Winch Kit installed.

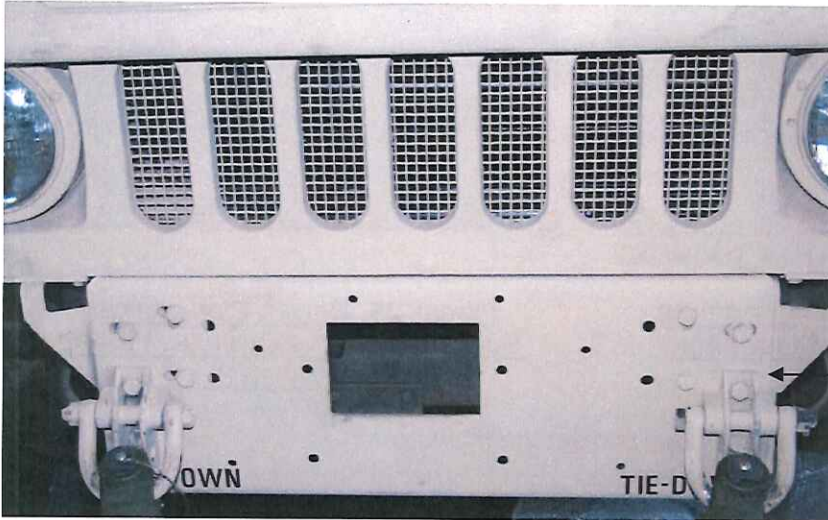
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E M1114 SERIES – INSTALLATION

1. Park the M1114 on a level flat surface which would support jacks or blocks.
2. Remove two front tie-downs (Lifting shackles, Figure 23) from the Front Bumper Plate. Set aside both the Lifting shackles and their fasteners for re-installation onto the Front Protective Bumper.

NOTE

Do not remove any other fasteners on the Front Bumper Plate.



M1114 Front Bumper Plate

FIGURE 23. REMOVE LIFTING SHACKLES AND THEIR FOUR FASTENERS

3. Insert two Lifting shackle bolts into the bottom tie-down holes.

NOTE

The two Lifting shackle bolts are re-installed to hold the Front Bumper Plate in alignment while the six bolts circled in Figure 26 are removed.

4. If the M1114 has a winch kit already installed, remove the two sets of fasteners which hold the winch rollers onto the existing Front Bumper/ Winch Plate, clean and lubricate the rollers as needed, and set them aside for re-use. Support the winch as necessary (using blocks or a floor jack).
5. Check the Driver-side and Passenger-side grille supports to see if they stick out past the front surface of the Front Bumper/ Winch Plate. If they do, loosen the two grille bolts and push the brackets rearward to be flush, then tighten the grille bolts.

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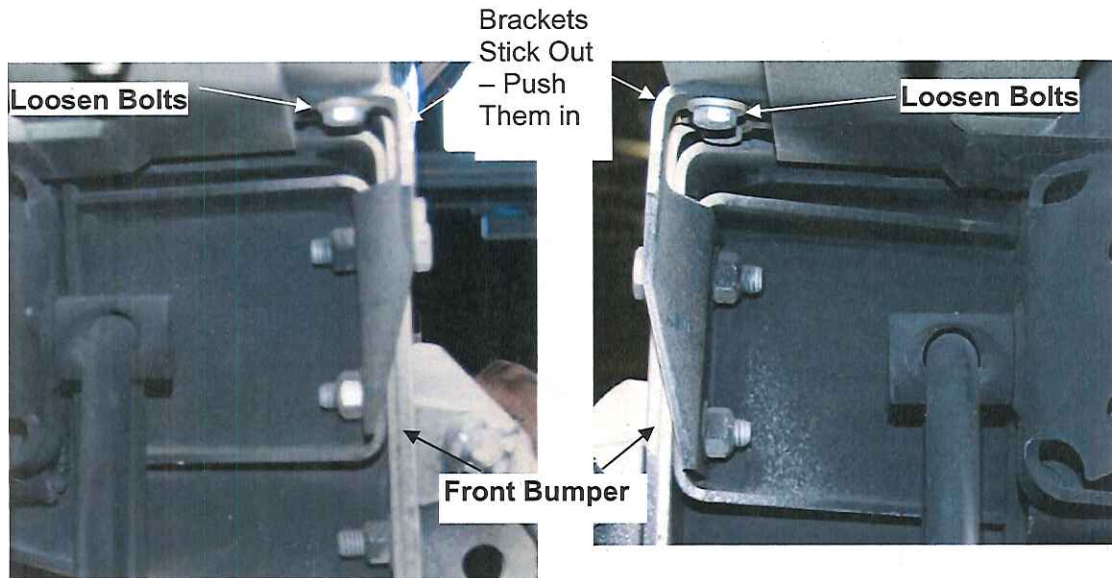


FIGURE 24. PASSENGER-SIDE GRILLE SUPPORT STICKING OUT PAST FRONT BUMPER/ WINCH PLATE

FIGURE 25. DRIVER-SIDE GRILLE SUPPORT STICKING OUT PAST FRONT BUMPER/ WINCH PLATE

6. Remove the six fasteners shown below, and set them aside.

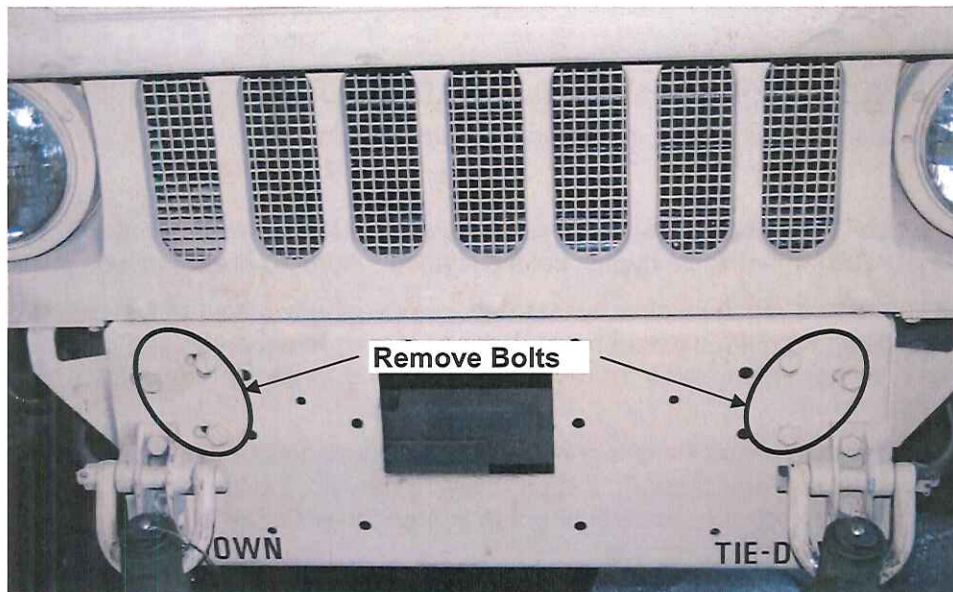


FIGURE 26. REMOVE CIRCLED BOLTS

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6. continued:

Look through the circled mounting holes in the M1114 Front Bumper Plate and verify that the marked holes are completely aligned with the slots in the Front Bumper Plate (Figure 27, Figure 28, and Figure 29).

7. If all four holes are not aligned:

Insert the bolts backwards into as many holes as possible, going all the way through the Front Bumper Plate,

Slightly loosen the two bolts in the lower tie-down holes,

Adjust the Front Bumper Plate to align all four holes.

Tighten the two bolts in the lower tie-down holes so the Front Bumper Plate stays in alignment.

NOTE

In Figure 27, below, the bolts were inserted backwards in the holes to check alignment.

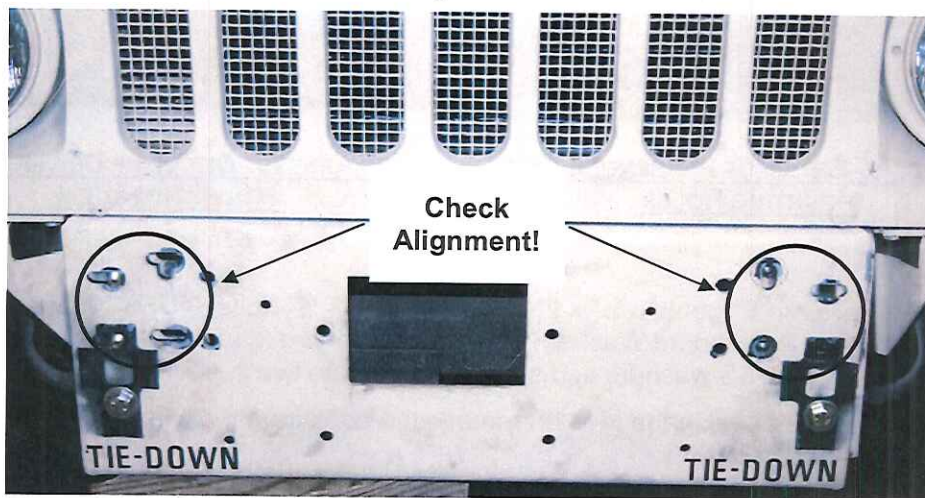


FIGURE 27. FRONT BUMPER PLATE FOR ALIGNMENT CHECK

(Details next page)

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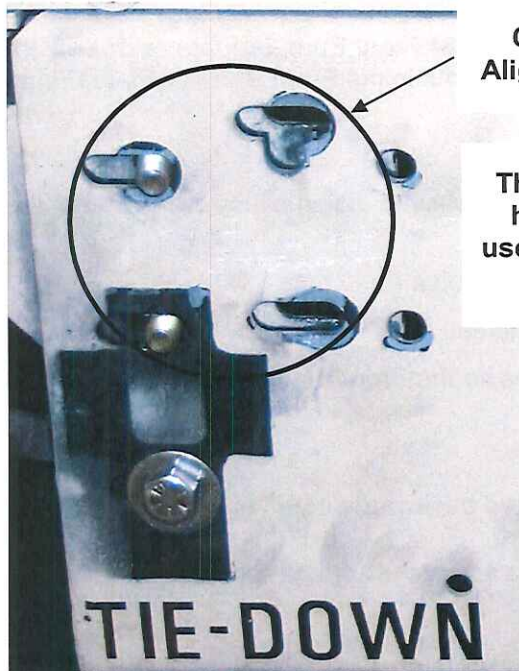


FIGURE 28. DETAIL OF PASSENGER SIDE MOUNTING HOLES

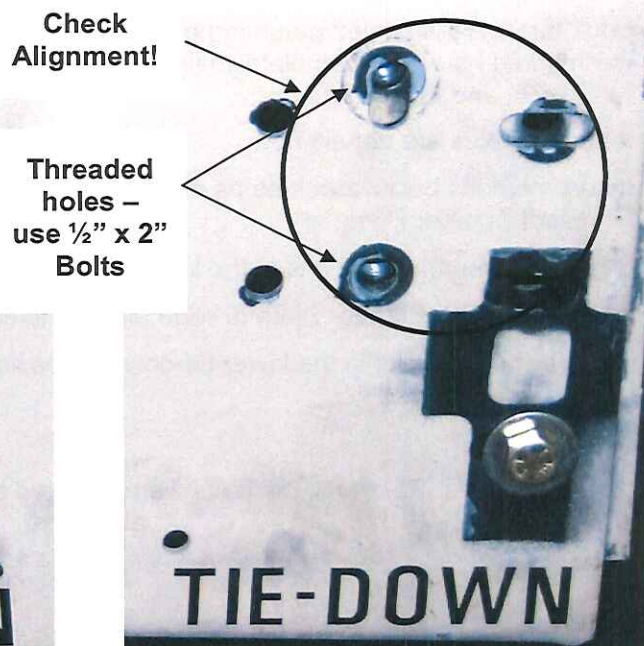


FIGURE 29. DETAIL OF DRIVER SIDE MOUNTING HOLES

8. From Hardware Kit "E" get two 1/2" x 2" Bolts, six 1/2" x 2 1/2" Bolts, 8 USS Washers, 8 lock washers, 6 Nuts, 2 Outboard Washer Plates and 2 Inboard Mounting Plates. Put the bolts through one set of USS washers and separate them into two sets of four.
9. If a winch kit is installed on the M1114, remove the hook from the winch cable and pay out a couple of feet of cable.
10. With either the floor jack (Figure 5, Figure 6) or two people, position the FPB in front of the Front Bumper Plate so that the inside four holes ("M1114 holes" on the labels) line up with the four circled holes (Figure 28, Figure 29, and Figure 30). If a winch kit is installed on the M1114, thread the winch cable through the two center holes on the FPB.
11. Position the Driver-side Lifting Shackle Plate between the FPB and the Front Bumper Plate so that the inside 4 holes are aligned.
12. Insert the two 1/2" x 2" bolts and USS washers into the Driver-side Inboard Washer Plate (Figure 30), then through the FPB, the Driver-side Lifting Shackle Plate, and into the threaded M1114 holes (Figure 29, Figure 30). Leave both bolts finger-tight (Figure 31).
13. Position the Passenger-side Lifting Shackle Plate between the FPB and the Front Bumper Plate so that the inside 4 holes are aligned.

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14. Insert the six ½" x 2 ½" bolts and USS washers into the Driver-side Outboard Washer Plate, Passenger-side Inboard Washer Plate, and Passenger-side Outboard Washer Plate (Figure 30), through the Lifting Shackle Plates, then through the six remaining "M1114" (inside pair) holes on the rear of the FPB as marked on the labels (Figure 32) (Figure 33) (Figure 34).
15. Attach the six sets of ½" USS washers, ½" lock washers, and nuts on the rear of the M1114 Front Bumper Plate and Grille Support Brackets as shown in Figure 24 and Figure 25. Once the flat washers, lock washers, and nuts are installed, adjust the Washer Plates as needed to distribute the load over the maximum area. Leave all fasteners finger-tight.

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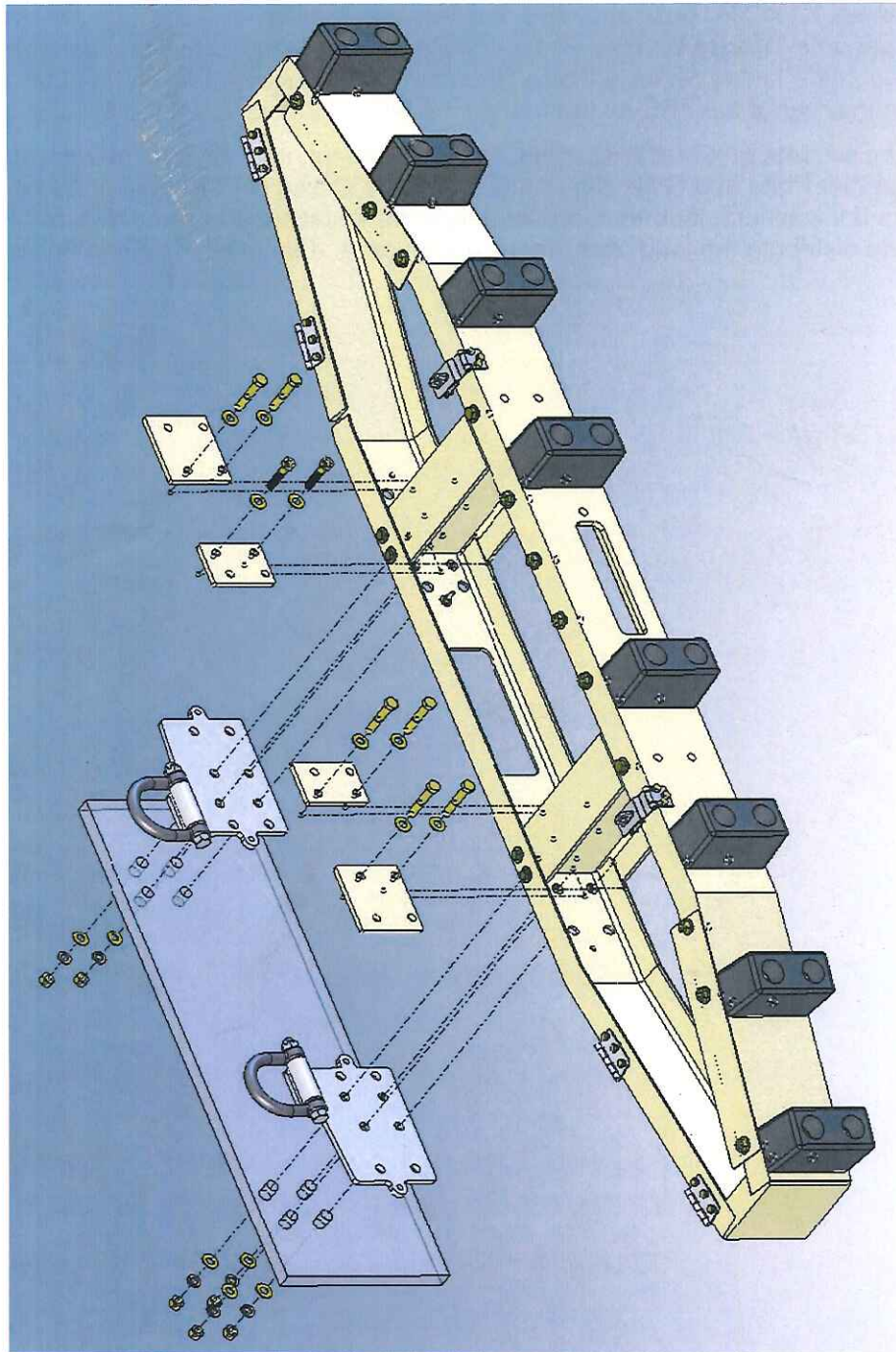


FIGURE 30. FPB BOLT, WASHER PLATE, AND LIFTING SHACKLE PLATE POSITIONS FOR INSTALLATION ON A M1114 HMMWW (SLOTTED WASHER PLATES NOT SHOWN)

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FIGURE 31. USE 2" BOLTS



FIGURE 32. USE 2 1/2" BOLTS



FIGURE 33. USE 2 1/2" BOLTS



FIGURE 34. USE 2 1/2" BOLTS

BUMPER ATTACHED TO HMMWV (IN M1114 HOLE POSITIONS) WITH FASTENERS AND WASHER PLATES (SLOTTED WASHER PLATES NOT SHOWN)

16. Ensure both the FPB and the Lifting Shackle Plates are parallel to the front of the M1114. Once all three are straight and parallel, tighten all fasteners to 80 ft-lbs torque.
17. Remove the two fasteners in the lower tie-down holes.

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18. Install the Lifting shackles over the FPB tie-down holes with the existing fasteners. Tighten to secure.



FIGURE 35. FPB INSTALLED ON M1114 HMMWV (REAR LIFTING SHACKLES NOT SHOWN)

19. If a winch kit is installed on the M1114, thread the cable through the existing winch rollers and install them on the front of the FPB.



FIGURE 36. M990 – SERIES WINCH ROLLERS INSTALLED IN THE FPB

20. After the first two hours of use, check all fasteners to ensure they are tight. The FPB mounting bolts should be torqued to 80 ft.-lbs.

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F USE OF LIFTING SHACKLES AND LIFTING SHACKLE PLATES

The Rear Lifting Shackle Plates are for lifting (or suspending) the front of the M1114-series HMMWV off the ground.

On the M1114-series HMMWV, the existing (front) Lifting Shackles are only for towing while the front wheels are on the ground (for example, with a tow bar).

On the M990-series HMMWV, the existing (front) Lifting Shackles can be used for both towing and lifting.

G MAINTENANCE

G.1 Periodic Maintenance

1. Check all bolts and nuts to ensure they are tight.
2. The FPB mounting fasteners should be torqued to 80 ft.-lbs.

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