

Flyin' Miata

Hard Dog RF Roll Bar 20-19030



Thanks for purchasing the FM-exclusive Hard Dog M4 RF roll bar. This is the only roll bar available for the RF, and is a necessity if you're planning to track your RF. The installation is pretty straightforward, but please call or email if you have any issues or questions. Many thanks to Kent Krueger for the pictures and help with the instructions.

WARNING: This article is sold without warranty, expressed or implied. No warranty is made to this product's ability to protect the user from any injury or death. The user assumes that risk.

WARNING: Not everyone can perform every installation. It is critical that you be honest with yourself in regards to your ability. We're more than happy to help, but there are only so many things we can do from the other end of a phone / computer. If in doubt, discuss the install with us before you dive in. Improper installation could cause injury and / or death!

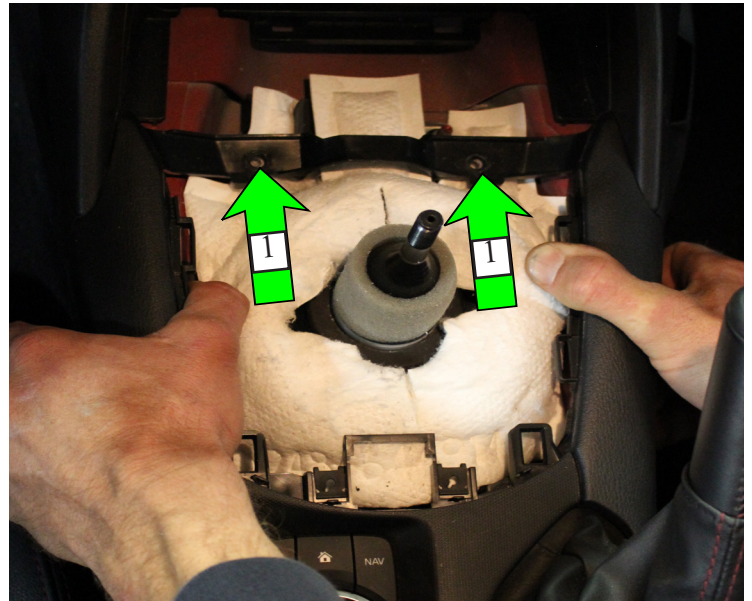
Required tools:

- Safety glasses
- Jack and jack stands
- 2) 7/16" wrenches or sockets
- 2) 1/2" wrenches or sockets
- 2) 9/16" wrenches or sockets
- 10mm wrench or socket
- 12mm wrench or socket
- E12 Torx socket
- #2 phillips head screwdriver
- Drill w/ 3/8" drill bits
- Hack saw (ideally pneumatic) and file / die grinder for cutting plastic interior panels
- Plastic trim tools

1. Open the top partially - open it so the fastback portion is all the way open but the window hasn't started to move. It will be easier to remove the seats with the top fully open (but not necessarily fully "packed away"), but you'll have a check engine light that you'll need to clear. If you don't have the ability to clear check engine lights (CELs), don't open the top all the way. If you do open the top all the way, be sure to close it before you begin to install the roll bar.
2. Disconnect the negative terminal of the battery. **This is non-negotiable, the seats have airbags in them. You don't want to accidentally set them off.**
3. Next, remove the center console. Unscrew the shift knob then grip the shifter trim ring as shown and pull straight up. This will take some force but should work, prying tools (with protective tape, screwdrivers will likely gouge the plastic) can be used on the outside edge of the silver ring if necessary. Once it's popped loose, slide it back and out. Remove the infotainment control next, by pulling up as shown. Unplug this and set it aside. It's easiest if you remove the parking brake boot now as well, pull straight up from the base to release the two tabs, unhook the boot, then slip it off the lever.



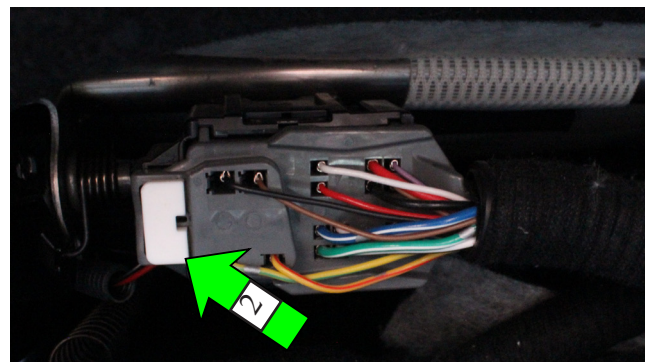
4. Remove the rest of the center console by first removing the two exposed Philips head screws (1). There are four hidden snaps in total, two in the front outside corners and two in the rear, on either side of the cupholder anchors. Grasp the front of the center console on either side, as far forward and outside as possible, and pull STRAIGHT UP firmly. Once those have broken loose, do the same for the rear - grasp the center console on either side of the cupholder anchors, as far outside as possible. It's very important to pull straight up, be sure not to pull sideways at all. If you have trouble, plastic trim tools can be helpful, but be careful.



5. Remove the door sill trim (running along the bottom edge of the door opening). Pull straight up on the rear edge until it pops loose, then work your way forward. Once you've worked all the way forward, rotate it inboard slightly to release it from the final hook. Do this before removing the seats so they don't get scratched by the seats.



6. Remove both front seats. The seat's electrical connector is under the front edge of each seat. Gently pry the white tab (2) straight towards the front of the car - you're trying to pop it forward, not remove it altogether. Push the release tab located in the exposed area under the white tab inwards (towards the wires), then pull/wiggle the front half of the connector towards the front of the car. There are four bolts holding each seat down, one at each end of each rail. Slide the seat forward and backwards to expose the bolts, then remove the seat. **Don't operate the slider with the seat out of the car.** If you need to reconnect the battery to move the top before the seats have been reinstalled, that's okay - as long as you can clear the CEL. Just be sure to disconnect the negative terminal on the battery and wait at least one minute before plugging the connectors back in.



7. Pull the windblocker straight up and out. The tabs holding this in place can be tenacious, but they'll let go eventually. There are two tabs, they're both located roughly halfway between the edge and center of the windblocker, one on each side.

8. Remove the roll hoop covers. Begin by finding the notch in the front portion of the cover, as shown. Start there and work your way around the outside, prying the front cover off of the back cover as you go. Bear in mind that the plastic is relatively soft, so use protective tape as necessary (the hoop covers won't be reused, though).



There are 14 clips for each hoop cover, be sure you get them all. Four of them are along the edge of the inside / hole through the trim. Finally, pop the rear cover off. The rear covers are held in place by one screw and two clips (per cover). Depress the tab in each clip to release the hooks.

9. Remove the quarter trim (3, plastic trim that the seatbelt passes through). Pull up on the top (behind the slot for the seatbelt), then pull the nearby vertical edge (under the roll hoop cover) forward until it pops loose (there are three tabs along that edge). Remove the plastic fastener on the front edge (near the door) - pry the center up roughly 1/4", then pull the entire fastener out (this is how most plastic fasteners in your car are) - then pull the front portion of the trim up. There are two hooks inside that need to be disengaged (the lower one is plastic, the upper one is metal and a bit more tenacious). Once everything is loose, pull the trim forward and out.

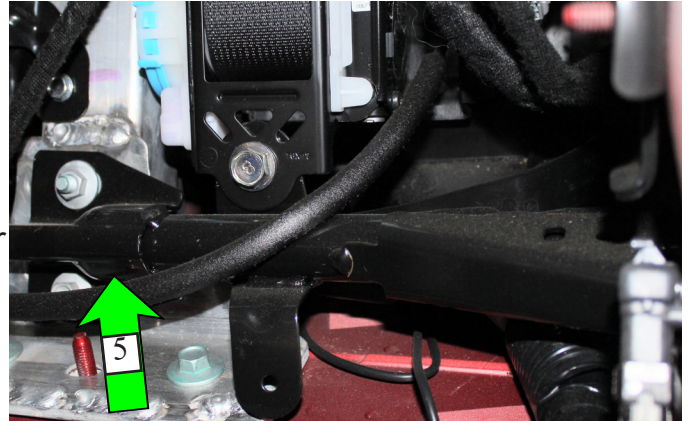


10. Remove the "tire house trim" (4, plastic trim below the quarter trim). There are three fasteners along the vertical edge towards the center of the car, remove those then pull it straight forward. There are two clips towards the top of the edge next to the door, concentrate your force there. Repeat steps 8, 9, and 10 for the other side.

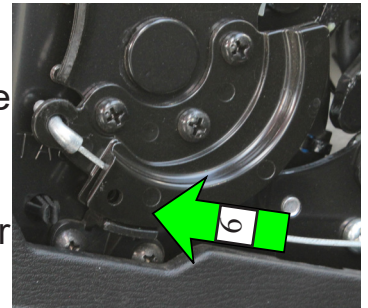
11. Remove the back trim (large plastic piece behind both seats). Remove the four fasteners - two at the bottom near the transmission tunnel and (possibly) two out-board, roughly halfway up (previously hidden under the “tire house trim”). Pull the passenger’s side top edge firmly forward to release the clips, then move towards the driver’s side as the clips release. There are 11 clips in total.

12. Remove the seatbelt reels, but you shouldn’t need to unplug them. There’s one bolt on top and one on bottom. Place these where the seat belt and wires won’t get accidentally pinched by anything. **ENSURE THAT THE SEAT BELT CAN’T RETRACT TOO FAR WITH A CLOTHES PIN OR SOMETHING SIMILAR.** Do NOT use anything that could cut or tear the seatbelt - if it’s damaged it must be replaced.

13. Remove the lock brackets (5, the metal bars that run from the side of the car over to the base of the stock roll hoop assembly). There is one bolt and two nuts in total (plus a second bolt that’s already been removed with the seat belt reel). Repeat for the other side. Remove the hardtop control module (box behind the driver’s seat, picture in step 23) by unbolting it from the stock roll hoop assembly. Set it aside, being sure it can’t be damaged. There’s no need to unplug it.



14. Locate the latch that retains the top when folded down, follow the cable from that latch to its other end and remove it from where it attaches. You’ll need to temporarily remove the plastic stopper (6) that keeps the cable from falling out of its groove. You can leave the top latch attached to the stock roll hoop assembly, it won’t be reinstalled.



15. Remove the stock roll hoop assembly. Remove the 10 upper bolts and four lower bolts, then remove the stock roll hoop assembly. Be careful not to scratch anything or catch any wires.

If you have any difficulty, remove the hoops first, then take out the main bar.

16. Remove all three interior panels in the rear. The two side panels are held in with five fasteners each, two of which are hidden under the seat belt reel area. There are large rubber stoppers as well - don’t try to remove the rubber piece before the plastic, instead, feed the rubber flap on the piece through the hole in the plastic as you remove the plastic. Once the plastic is out, you can depress the clips under the rubber piece to easily remove it. The “carpet” in the middle is held in with six fasteners.

17. Remove the small audio amp behind the passenger seat, then remove its bracket. Unplug the amp and set it aside for now.

18. Look at the roll bar and the area in the car where it’s going to sit. Be sure the area is clear and fix as needed. Wires might need to be relocated, sound deadening will need to be cut away (don’t sandwich the sound deadening under the roll bar). If you unbolt or unplug anything, be absolutely sure to put them back.

19. Set the roll bar in place by weaving it around the “wings” that the seat belt reels bolted to, being very careful not to snag the wiring harnesses as you place the bar. Snug the front plates using the factory fasteners. If you have difficulty, remove the wings to allow more clearance.
20. Jack up the rear of the car evenly with both wheels off the ground and support with properly placed jack stands. Do not raise one side at a time as the chassis will twist and cause fitment issues.
21. Remove the rear wheels and the felt inner fender liners.
22. Using a 3/8” drill bit (the higher quality the better), drill the mounting holes for the rear plates from the top. It’s safest to do the bottom holes first, cinch everything tight, then do the upper bolts. Drilling from the wheelwell can be easier, but be *absolutely sure* no wiring harnesses are in the way. If you drill in this direction, drill a pilot hole from the inside first so you’re certain of where to drill. A step drill might make your life easier here. You will need to cut off one of the studs for the fender liner to install the reinforcement plates. Install the reinforcement plates and included 3/8” fasteners. The head of the bolt should be inside the car to prevent interference with interior parts. Torque them to 45 lb-ft. Reinstall the fender liners and wheels. Tighten the factory fasteners for the front mounting plates to 25 lb-ft.



23. Reinstall the audio amp and hardtop brain (box behind driver’s seat). You can either slightly bend the bracket on the amp for clearance or slot one of the holes to let the bracket and amp arc out of the roll bar’s way. The former is easier, the latter will achieve better clearance. The hardtop brain will bolt to the tabs on the roll bar behind the driver’s seat. You’ll need to bend the lower tab 90° to match the tab on the roll bar. Again, don’t reinstall the top latch originally in the center of the stock bar.
24. Trim the rear side panels as needed to fit around the rear brac-



es (picture on previous page). This is where patience and care can give you a better end result, so take your time. To start, apply masking tape to the supports on the bar that the plastic will be dragging over, as the plastic can scratch the finish. Make a single cut up to the hole you cut for the brace, as the plastic can flex to fit around the brace as the panels are being put into place. Bear in mind that since the top won't go down we don't need to worry about water in the channels in the rear-most plastic panels (the hoses from the next step are still important).



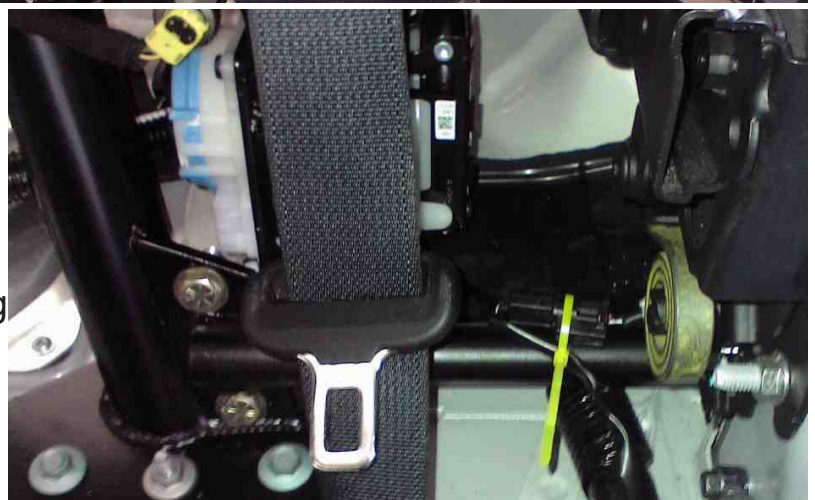
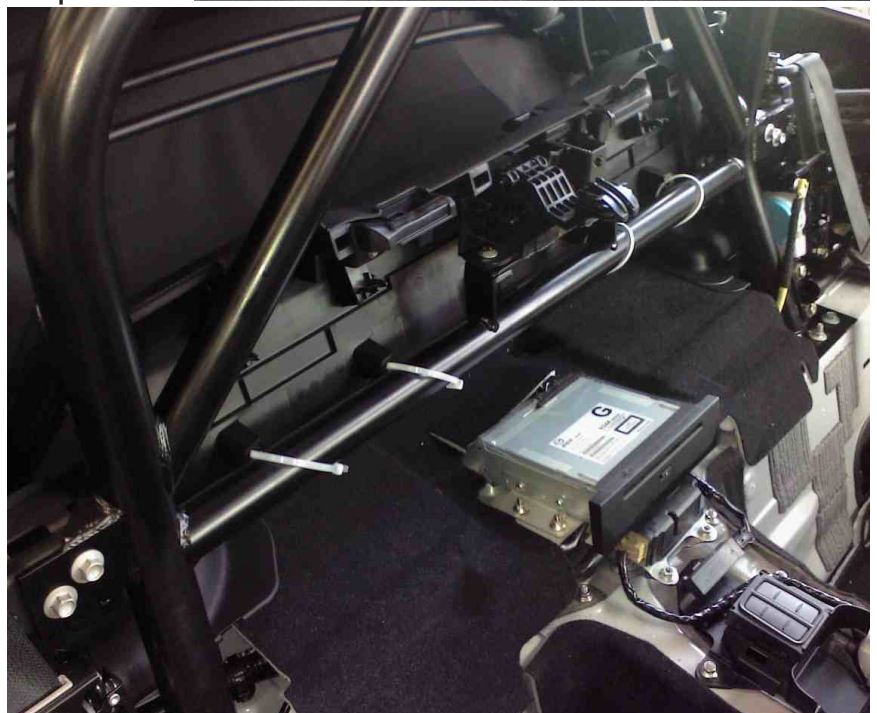
25. Trace the drain hoses from the window (one on each side). Remove the plastic panels that the hoses go through, then remove the coupler that the hoses actually connect to. Zip-tie the plastic coupler in place, as shown (6). Be sure that the lower hose is in the drain and can't bounce out. Secure as necessary.

26. Trim the plastic panels behind the seats to fit around the roll bar. Install the remaining interior trim behind the bar.

27. Loosely attach the rear horizontal trim to the cross bar with tie wraps as shown. Orient the tie wraps to allow access from behind as you will tighten these after the front panel is installed.

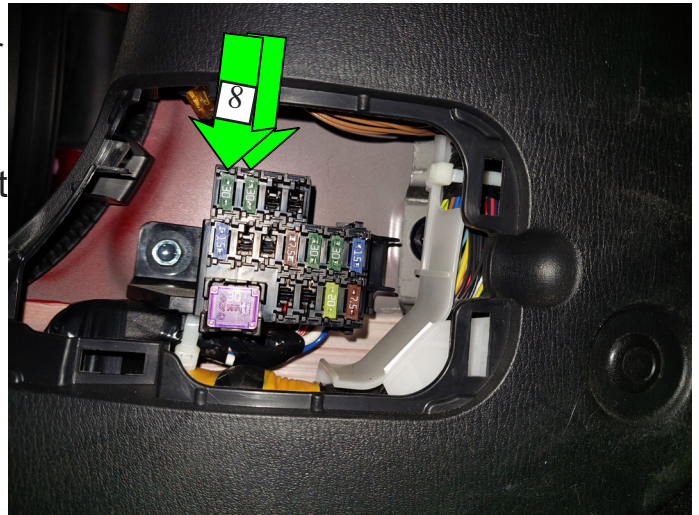
28. Install the new seat belt reel bars at the base of the roll bar using the included hardware at the new roll bar and the stock fasteners at the outside. The nuts and lower bolt should be torqued to 15-18 lb-ft. The upper bolt will be installed with the seatbelt reel.

29. Reinstall the seat belt reels using the factory bolts. Be sure to route the wires out of harm's way. The



lower bolt should be torqued to 29-57 lb-ft, the upper bolt should be torqued to 80-106 lb-IN (not lb-ft).

30. Hold the large front panel in place and remove the tabs that are in conflict with the bar and trim around the opening. Reinstall the interior panels and console using the stock fasteners. Reach around the bar and snug, not too tight, the tie wraps holding the rear panel to the bar.
31. If you have the interior panel covers, clean the plastic panels with alcohol, peel and stick the covers as shown in the first picture.
32. Reinstall the seats. This is as you'd expect, although the bolts need to be installed in a specific order - front inner, front outer, rear inner, rear outer - for each seat. Slide the seat back and forth for bolt access AFTER both rails are fixed at one end. Start all of the bolts, in the order above, then torque to 28-39 lb-ft in the same order. Remember to plug the seats back in as well.
33. We now need to defeat the top. **Some of the top panels will interfere with the roll bar and break something if allowed to move.** There are potentially two ways to do this. The first option, which works on all years of ND, is covered in the next step. The alternative method, which only works on earlier NDs, is covered in appendix A on the next page. The advantage of the alternative method is it does allow for the rear deck to raise, providing access to the area where the roof sections would otherwise store. We suspect the later NDs do not work due to a change in the top-control software. We do not know when this change occurred, but we would not expect the alternative method to work on any model year after 2021.
34. Locate the fuse box found in the driver side kick panel. To disable the top, pull the two 30 amp fuses in the top row (8).
35. That's it! Now go and use your car. But try really hard not to *use* the roll bar.



Appendix A

This method will allow you to move the rear-most portion, but none of the other panels will move. **If other panels move they will interfere with the new roll bar and break something.** Begin by closing the top - the operation needs to be 100% complete. Then, pull the plastic pieces (9) on either side of the headliner straight down firmly but carefully. It's typically easiest to work your finger between the headliner and the plastic, but it's important to only pull straight down. Next, remove the two plastic fasteners at the rear edge of the front panel (10). Pull the headliner down from the back, remembering that the front is still secured (you can remove the front fasteners if you feel it's necessary). Unplug the white plug (11, shown unplugged) on the left side. Turn the car on and ensure that the rear fastback will move up and down mostly like normal (it won't go up quite as high any more), but no other panels move (the latch hook will still move). Assuming everything works properly, reinstall the plastic fasteners then carefully press the plastic trim pieces back into place.

