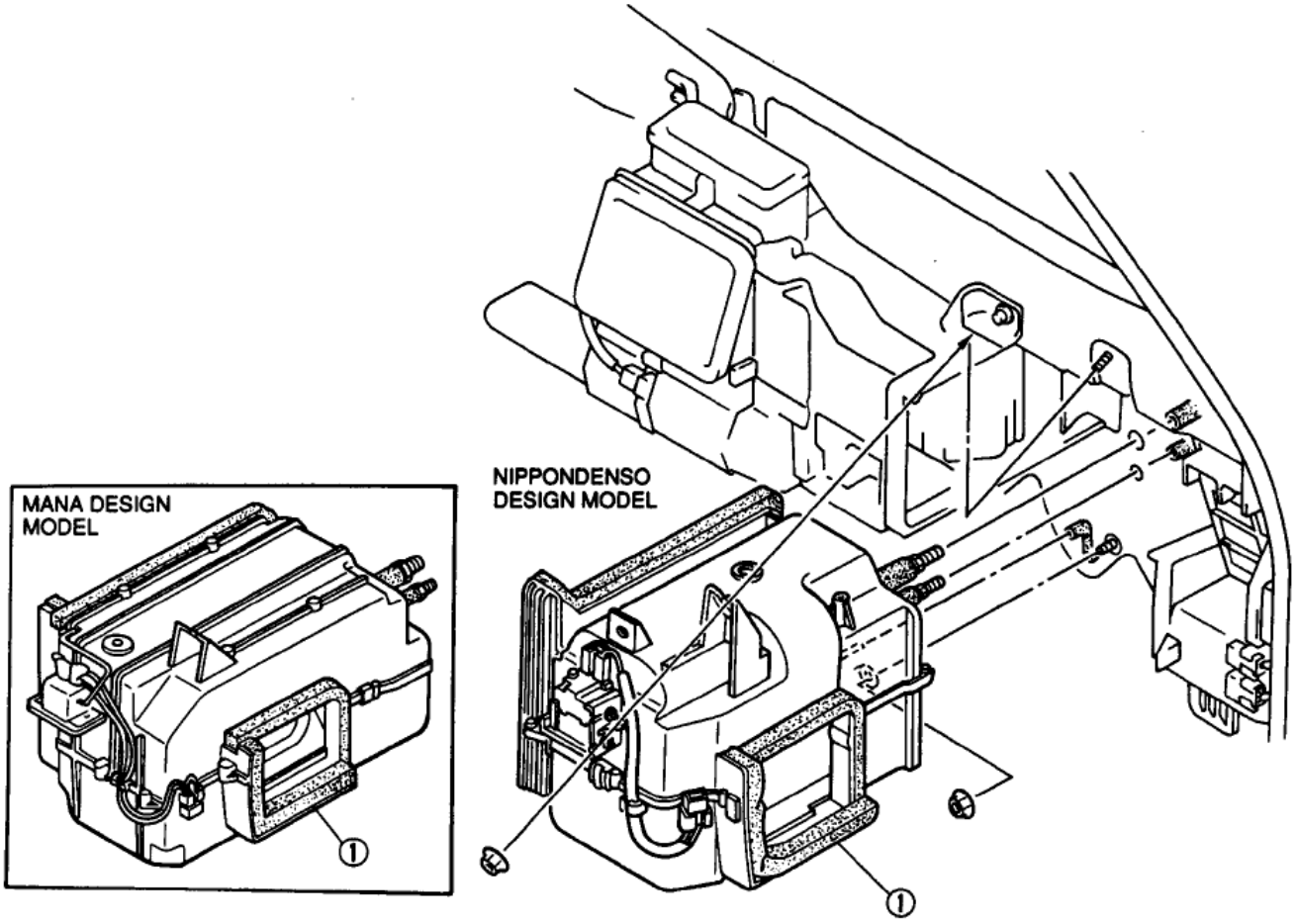
Preparation Guidelines for a FD RX7 A/C install

Rev 2

Note. This is just a recommended guideline listed in order of importance which is only based on my experiences. None of this is mandatory.

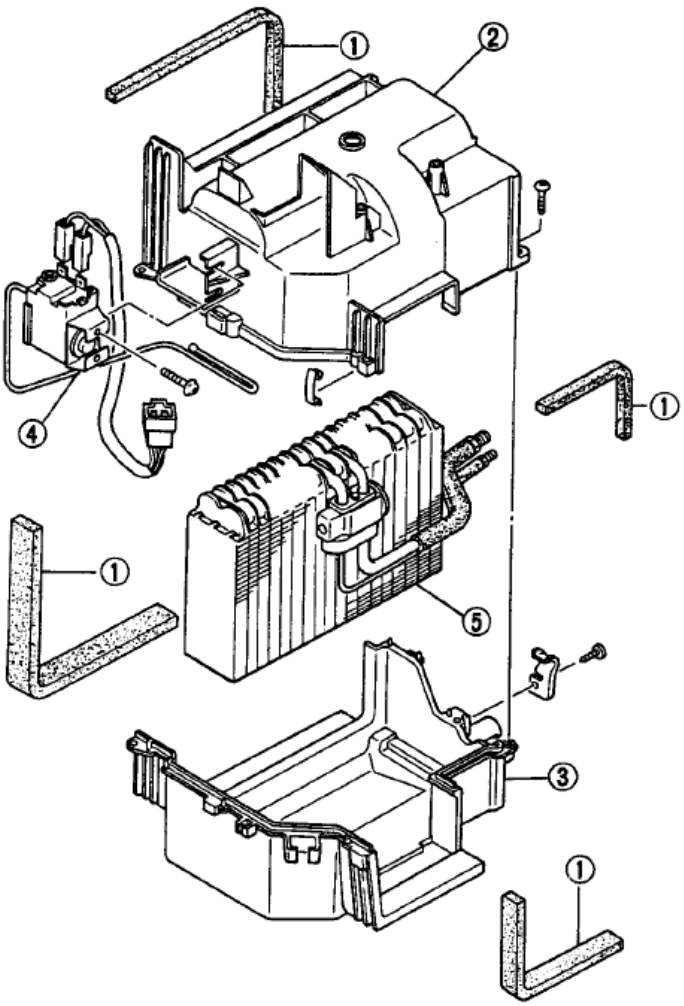
1. **Flush your old components.** For most of you that's going to mean your compressor and evaporator. If you're using an old condenser it is wise to flush it as well. A/C flush or solvent can be bought from most automotive shops on the A/C display. It's easy to use. Just pour it in and depending on what you're flushing, pour it out. **Just Remember, after flushing you've effectively flushed all of the old oil out of the system, so it's important to re-oil when charging the system. I find it best to flush and re-oil my whole system so I know I'm starting from scratch from an oil standpoint.**
    a. Compressor. Since writing this tutorial I have been told it is NOT advisable to flush the compressor with solvent. Therefore, this guide has been modified to only detail how to remove the compressor's oil in the case that you want to re-oil your whole system.
        i. Remove the compressor
        ii. Hold the compressor with the ports facing the ground and an oil pan below them on the ground
        iii. Turn the whole pulley (not just the center clutch section because it'll just spin inside the outer wheel of the pulley) clockwise
        iv. Keep turning until no oil comes out of the compressor.
    b. Condenser
        i. Remove your condenser
        ii. Pour solvent into one of the ports
        iii. Plug port and agitate the whole condenser so the solvent is able to move around inside
        iv. Unplug the port you poured the solvent into and use compressed air (~30-40psi) to blow the solvent out of the evaporator, which will blow out of the neighboring port.
        v. The above step is messy so try and plan out how to catch the solvent for recycling, etc.
        vi. Position the condenser with its ports facing the ground with a bucket or something else that will catch dripping solvent and let it drip and evaporate dry.
    c. Evaporator (this is the fun one)

i. The evaporator isn't as easy to flush since it has an expansion valve in-line with the core, which means to flush there is disassembly required.
ii. First, remove the evaporator core from the car. Tip #1 It helps to remove the glovebox. Tip #2, there is one M6 nut that fastens the box by the floorpan and one M6 nut that fastens the box above the evaporator box up in the dash. Tip #3, pull the drain pipe out through its grommet. After those two nuts and drain line are free, the box can gently be removed.

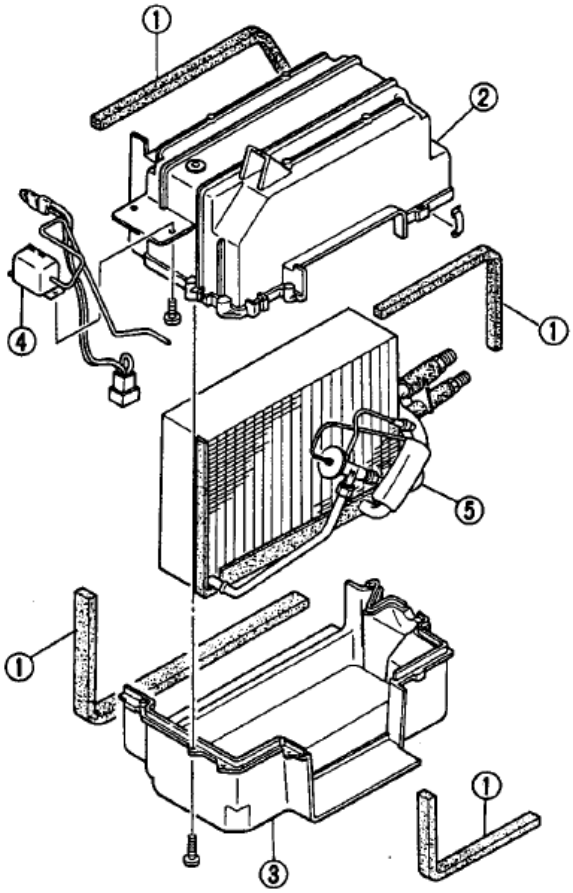


iii. Remove the outer box to expose the inner hose and hard lines. This consists of removing a few clips and a few screws. When the box shells come apart you'll have to pull the thermoswitch's sensor wire out of the core which is as simple as pulling it straight out.

NIPPONDENSO DESIGN MODEL



MANA DESIGN MODEL



iv. Now you should have the core and lines out and available to work on.

v. First thing to do is to physically clean out the core's fins with compressed air. Mild degreasers are acceptable, just be sure to cap off the inlet and outlet to the evaporator so no water gets inside.

vi. Remember, the cleaner your evaporator is, the better your airflow through it will be which equates to a more efficient system. Also, a clean evaporator will help your car not smell so old ;)
vii. After cleaning, remove the expansion valve. For removal instructions see the following section for Expansion Valve Replacement.
viii. With the expansion valve removed, run flush / solvent through the inlet and outlet hard lines.
ix. Blow the hard lines out with compressed air and allow them to dry
x. Pour flush / solvent through the evaporator core through one port
xi. Cap the port used to pour in the solvent and swish the solvent around inside.
xii. Uncap the port used to pour in the solvent and used compressed air (~30-40psi) to blow the solvent through the core and out of the other port. Keep blowing until no liquid comes out.
xiii. Position the core so that any liquid can drip out and evaporation can occur.
xiv. Let both the core and hardlines dry out completely.
xv. Reassemble core and hardline connections with expansion valve and at bare minimum, new o-rings. I recommend that the expansion valve be replaced.
xvi. Reassemble the evaporator box.
xvii. Reinstall evaporator in car.

2. Service / Replace your expansion valve

a. I consider the expansion valve to be a consumable in the A/C system. Replacing it is not the easiest task, but the rewards paid off. First, you'll be sure you've got a properly working valve. Second, you'll have a chance to change our ~20 year old o-rings that are probably leaky, especially with R134a. The second point is the big one. No use in spending all this time replacing all your seals and component only to have your refrigerant charge slowly leak out inside your cabin :(
b. Denso expansion valve part number = Denso 4750107. Available on rockauto.com From what I remember though, this expansion valve will come with Viton o-rings and not the green HNBR o-rings used in r134a systems, so it may be necessary to buy a small assortment of HNBR o-rings to properly replace the o-rings on the expansion valve.
c. Mana expansion valve part is made by UAC and its part number = EX10277C. Available at AutoZone. I've never replaced a Mana expansion valve so I have no

idea if the replacement comes with o-rings so it may be necessary to buy a small assortment of HNBR o-rings to properly replace the o-rings on the expansion valve.

d. For Denso guys see the above section for removal of the evaporator and the following link for pictures of the process:

http://www.norotors.com/index.php?topic=70.150

e. For Mana guys, see the above section for the removal of the evaporator and the following link for a full tutorial for replacing your expansion valve:

http://www.rx7club.com/3rd-generation-specific-1993-2002-16/how-replace-ac-expansion-valve-illustrated-412488/

f. After the expansion valve has been replaced, reassemble the evaporator and reinstall.

3. **Inspect heater box servo motors**
    a. If you still have your glovebox out these are great to check. These are the motors that control the paddles that move air through your evaporator or heater core. It is important that the servos move through their full range of motion, otherwise you might get air routed through the heater core instead of your evaporator core. The evaporator is stupid, it'll just sit their freezing cold none the wiser while hot air is piping into your cabin through the heater core. This is a recommendation because it's something I personally found in my own car. I'd turn the hot cold knob to full cold and would only get room temp air coming out of the vents. It turns out the contacts on the servo were oxidized / dirty and my paddle would only move to its ½ way position. That particular servo was located to the left of the glovebox. If you find a servo that doesn't move when you tell it to, chances are it can be fixed by cleaning the terminals on the connector and the servo side. If that doesn't fix it and your brave you can open the servo and clean contacts internally, otherwise, replace the servo.
4. **Refurbish Your A/C Blower Motor Box**
    a. This is more about getting potential garbage out of your system (i.e., leaves), getting a good seal, and making your car smell pretty than anything else.

http://www.rx7club.com/3rd-generation-specific-1993-2002-16/c-blower-rebuild-w-photos-993190/

5. **Refurbish Your Evaporator Box**
    a. Same reason as number 4

http://www.rx7club.com/3rd-generation-specific-1993-2002-16/c-evaporator-rebuild-w-photos-993467/

6. **Refurbish Your Heater Box**
    a. Same reason as #4 and #5

    http://www.rx7club.com/3rd-generation-specific-1993-2002-16/heater-core-restoration-w-photos-1001759/

Now go and install your A/C components and enjoy a cool cabin on a hot summer day!

- Lane (HalfSpec)