

# MX-5 NC Coolant Reroute Kit

By BlackAngelDevelopments



## **Official Instruction Guide**

### **Safety & Installation Disclosure**

**READ BEFORE COMMENCING WORK!**

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**⚠ IMPORTANT:** This kit is designed for the relocation of the rear engine coolant pipe to ensure adequate clearance from high-temperature aftermarket exhaust manifolds. Cooling systems operate under extreme pressure and heat. Failure to follow these instructions or observe safety precautions can result in severe scalding, chemical burns, or permanent mechanical damage.

### **1. Critical Safety Precautions**

- **Thermal Safety:** Automotive cooling systems can reach temperatures exceeding 100°C and remain highly pressurized long after the engine is shut off. It is imperative that the engine is stone cold before commencing any work to avoid the risk of severe scalding.
- **Toxic Substances:** Engine coolant contains additives that are highly toxic if ingested. Because its sweet scent is attractive to wildlife and pets, it is the installer's responsibility to immediately clean and wash away any spilled coolant from the workspace.

### **2. Installer Responsibility**

By proceeding with the installation of this retro-fit kit, you acknowledge the following:

- **Competency:** You possess the mechanical and plumbing skills necessary to perform vehicle modifications. If you are unsure of your ability to safely modify the cooling system, consult a qualified professional mechanic.
- **System Integrity:** It is the installer's responsibility to ensure that all hose connections are secure and that the new pipe routing maintains proper clearance from the exhaust manifold to prevent thermal failure.

## Section 1: Engine Bay Disassembly

 **CAUTION:** Ensure the vehicle's ignition is off and keys are removed. Before working near the windshield area, lay a clean, thick microfibre towel or rag across the lower windshield glass. This protects the glass from potential scratches or impact.

### Step 1: Prepare for Minor Spillage

While a full system drain is not required for this procedure, be prepared to catch the small amount of residual coolant (a few millilitres) that will escape upon disconnecting the hose ends. Position a shop rag or small container below the rear water outlet before starting.

### Step 2: Remove Expansion Tank Hose

Remove the factory rubber coolant hose running from the coolant expansion tank to the over-exhaust coolant pipe.

### Step 3: Remove the Over-Exhaust Pipe

Unbolt the over-exhaust coolant pipe using a 14mm socket on the two mounting bolts and remove the pipe. Clean the factory bolt threads with a brass wire wheel to remove debris, then reinstall the bolts back into the engine block and tighten to 10 Nm (89 in-lbs) using a torque wrench so they are not lost.

### Step 4: Cowl Assembly Removal

Remove the protective caps and unbolt both wiper arms.

 **Pro-Tip:** Mark the position of the wiper arms on the spindle or windshield with a marker before removal to ensure they are aligned correctly upon reinstallation.

Remove the plastic windshield cowl assembly and disconnect the washer jet hose.

### Step 5: Firewall Access

Unbolt the centre cowl piece at the back of the firewall to gain clear access to the rear engine coolant housing. Use a 10mm socket to remove the six M6 bolts securing the centre cowl trim and lift the panel free.

### Step 6: Extract the Rear Hose

Using long-nose or needle-nose pliers, carefully compress the tension clamp and remove the rear coolant pipe from the 8mm barb at the back of the engine head. Immediately catch any minor fluid release with your shop rags.

## Section 2: Installing the New Coolant Reroute

### Step 1: Prepare the Barb

Apply a very small amount of silicone-based lubricant to the 8mm barb at the back of the engine coolant housing to assist with hose installation and prevent the rubber from binding.

### Step 2: Fit the Hose

Slide the pre-assembled hose onto the barb until it bottoms out completely against the housing.

### Step 3: Secure the Clamp

Using the supplied hose-clamp driver, tighten the hose clamp until it is slightly sub-flush from the hose's outer diameter.

 **CAUTION:** Ensure the clamp head is oriented to allow straightforward tool access if needed in the future.

### Step 4: Install Heat Protection

Carefully slide the included silver fiberglass heat-sleeving down the hose. It should completely overlap the Oetiker clamps and rest tight against the hose clamp on the back of the engine housing. (Refer to Figure 1.0)

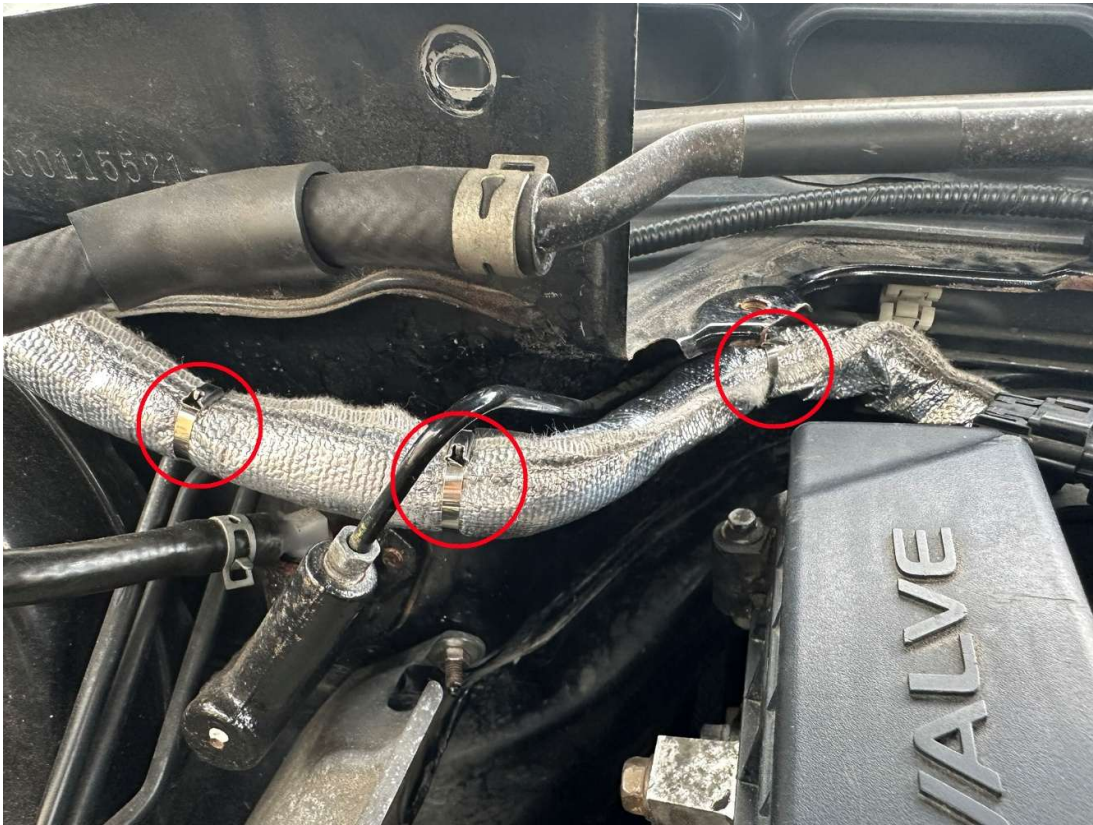


**Figure 1.0**

#### Step 5: **Secure the Line**

Using the provided steel zip-ties, clip the wrapped coolant hose to the factory black steel hard lines at the points highlighted in the kit photography.

**⚠ CRITICAL:** Ensure you push a small amount of slack toward the centre of the firewall before tightening the ties. This loop allows for engine movement and vibration under load. (See Figure 1.1)



**Figure 1.1**

#### Step 6: **Route Toward Expansion Tank**

Route the coolant hose behind the clutch hardline and over the top of the brake booster, then follow the factory fender wiring path. Secure it cleanly along the run using the supplied black nylon zip-ties. (Refer to Figure 1.2)



**Figure 1.2**

### **Section 3: Mounting and Final Connection**

#### **Step 1: Position the P-Clip**

Fit the rubber-lined P-clip over the hose. Align it neatly against the chassis rail as shown in Figure 1.3 and use a permanent marker to mark the drilling location.



**Figure 1.3**

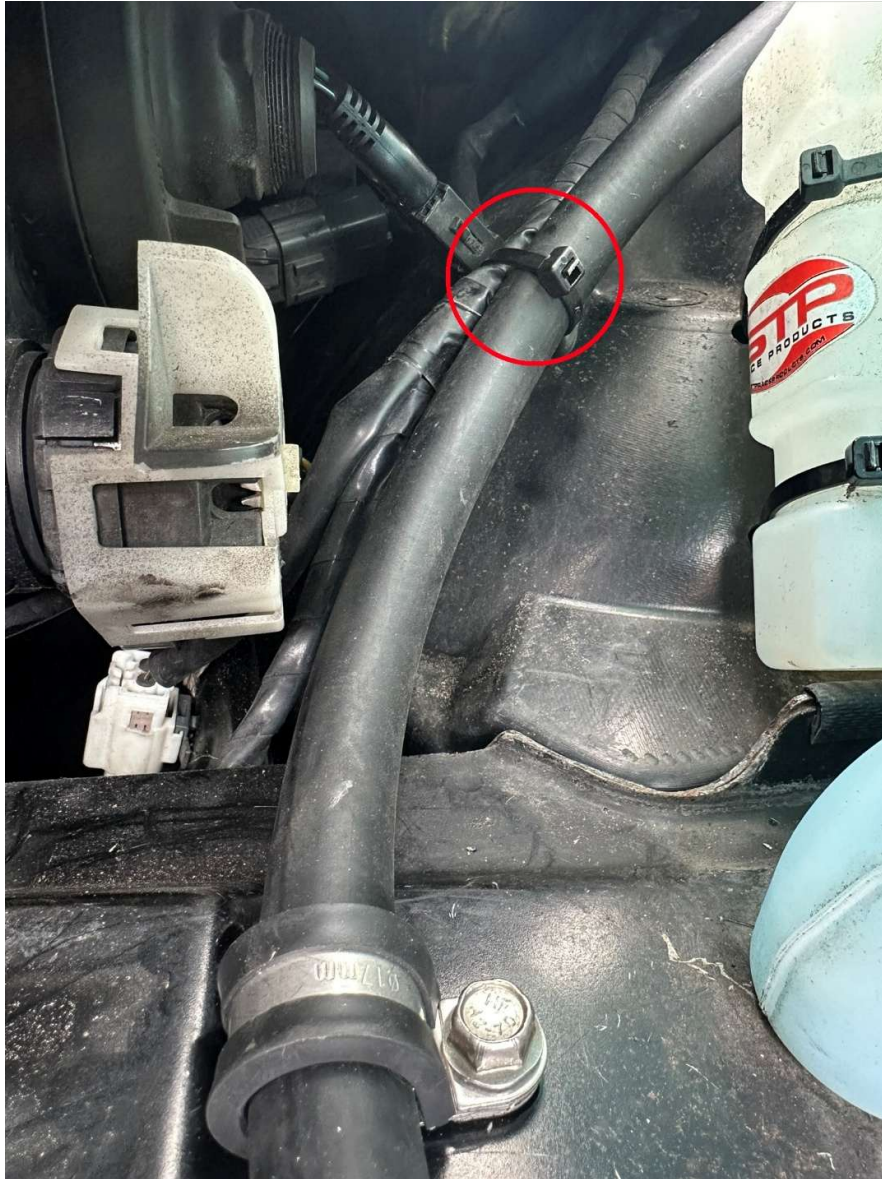
**Step 2: Choose Mounting Method**

**Choose your preferred installation method based on your available tools:**

- **Option A (Riv-Nut):** Drill a pilot hole and progressively open it until the provided M6 riv-nut fits snugly. Deburr both sides of the hole using a needle file, then install the riv-nut using a specialized riv-nut tool.
- **Option B (Self-Tapper):** Use the supplied self-tapping screw to slowly drill and tap the hole into the chassis rail. Remove the screw to clear away the metal shavings.
- **Rust Prevention:** Regardless of the method, apply a small dab of paint or primer to the bare metal circumference of the hole to prevent future corrosion.

**Step 3: Finalize Mounting**

Align the P-clip straight with the chassis rail and tighten your hardware down until it is flush and secure. (Refer to Figure 1.4).



**Figure 1.4**

**Step 4: Custom Cut the Hose**

Determine the required length for your specific setup (factory expansion tank position vs. a relocated aftermarket tank). Measure twice and cut the hose cleanly using a utility knife, hose cutters, or a fine-tooth hacksaw. Ensure the cut is perfectly straight to maintain a proper seal.

**Step 5: Expansion Tank Connections**

Slide a supplied hose clamp onto the open end of the new coolant hose. Push it completely onto the 10mm barb on the coolant expansion tank and tighten using the clamp driver.

#### Step 6: **Secondary Hose Update**

To keep the installation clean and uniform, remove the remaining factory coolant hose from the adjacent 10mm barb. Swap the tired old factory spring clamp for the new upgraded worm-drive clamp provided in the kit, push the hose back on, and tighten. (See Figure 1.5)



**Figure 1.5**

#### Step 7: **Leak Check and Final Inspection**

Start the engine with the centre cowling piece still removed. Allow the engine to warm up at idle for several minutes and inspect the area around the rear coolant barb and expansion tank for any signs of seepage or leaks.

##### **If you are satisfied the system is sealed:**

1. Reassemble all cowling pieces, plastic trim, and indexed wiper arms.
2. Complete a short test drive to bring the engine fully up to operating temperature.
3. Park the car and allow it to cool completely until the engine is stone cold.
4. Remove the expansion tank cap and check the fluid level.
5. Because only a very small amount of residual coolant was lost during the installation, top the tank back up to the Full mark using either straight deionised water, an FL22 pre-mix bottle, or a splash of neat FL22 coolant.

**Job done!**