

INSTALLATION INSTRUCTIONS

MAZDA ROTARY FUEL RAILS

13B-REW, 13B-RE, 20B-REW, 26B

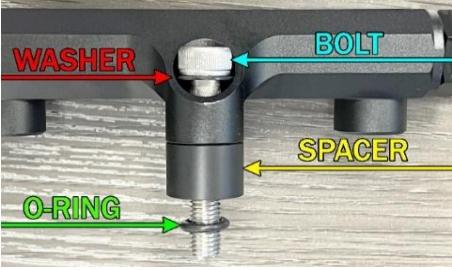
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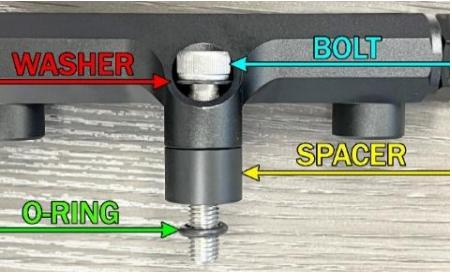
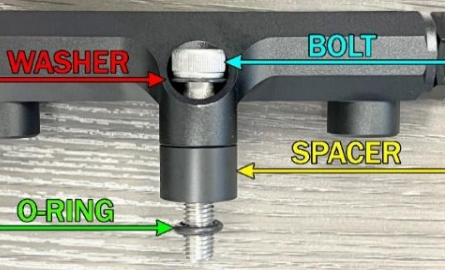
| FOR 13B-REW ENGINES | | CAUTION | |
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| follow "13B-REW" below | | Only a qualified technician following applicable safety procedures should perform the installation of this product. One must have knowledge in repair and modification of fuel systems and general vehicle modifications to install this product. Gasoline and other fuels are flammable and can be explosive. Only install in a well-ventilated location to minimize buildup of fuel vapors. No sparks, open flames, smoking or other ignition sources are to be present. Draining and removal of all fuel from the fuel system is recommended. Proper eye and personal protection is required at all times during installation. | |
| FOR 13B-RE ENGINES | | CAUTION | |
| follow "13B-RE" below | | | |
| FOR 20B-REW ENGINES | | CAUTION | |
| follow "20B-REW" below | | | |
| FOR 4-ROTOR 26B ENGINES | | CAUTION | |
| follow "26B" below | | The fuel system is under pressure! Do not loosen any connections until relieving the fuel system pressure. Consult a service manual for instructions on relieving fuel pressure safely. This product is designed for off-highway and racing use only. Fuel system components may not be legal for sale or use on emissions controlled motor vehicles. Consult local, state, and federal laws. | |
| STEP | TOOLS NEEDED | INSTRUCTIONS | PHOTO |
| 13B- REW 1 | 10mm Wrench | 13B-REW FUEL RAILS (ALL) NOTE: Because this instruction manual covers vehicles with various modifications, there may be differences not shown. | |
| 13B- REW 2 | 17mm Wrench Pliers 12mm Wrench | If there is residual pressure in the fuel lines, it is recommended to disconnect the green fuel pump relay (shown) in the fuse box next to the battery. Run the engine until it stalls. Disconnect the negative battery terminal. | |
| 13B- REW 3 | | Reference the Factory Service Manual to remove the upper intake manifold and all associated vacuum lines, oil lines, solenoids, etc. The lower intake manifold can remain installed. Disconnect the fuel lines with a 17mm wrench and pliers. Unscrew the fuel rail mounting bolts using a 12mm wrench. Remove the fuel rail assembly from the vehicle and drain all of the remains in a fuel safe container. Place the assembly on a work bench. For protection, cover the intake manifold and injector ports to prevent debris from accidentally falling into the engine. | |
| 13B- REW 4 | | It is recommended to reuse the OEM fuel injector diffusers to prevent wall wetting and permit optimal driveability. To inspect, shine a light down into the ports to be sure the diffusers are still in good condition. NOTE: The diffusers are not absolutely necessary and many will argue they are not required. If removal is required, gently apply pressure to the inner walls with needle nose pliers or use a pick to pull out as shown. | |
| 13B- REW 4 | Oil Lubrication | 20-1113 Fuel Rail, Top Feed Conversion, 13B Primary Clean the OEM primary fuel injector ports. Lubricate the provided injector seat O-rings and firmly push the injector seats into place, as shown. NOTE: Older discontinued primary injector seats will be black in color. | |

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| 13B- REW 5 | Oil Lubrication Prepare the fuel rail for installation. 8AN ORB fittings will be required for all ports. A wide selection of adapters are available at www.radiumauto.com . Lubricate the O-rings prior to installing. | |
| 13B- REW 6 | Oil Lubrication Reference the product page at www.radiumauto.com to find appropriately sized top feed fuel injectors. Lubricate the upper O-rings on the fuel injectors. Press the fuel injectors in each port. | |
| 13B- REW 7 | If applicable, the OEM fuel rail mounting spacer (shown) will NOT be reused. | |
| 13B- REW 8 | Oil Lubrication Press the small end of the spacers (YELLOW) into the underside of the fuel rail mounting bosses, as shown. Place the small washers (RED) under the heads of the mounting bolts (BLUE). Insert the bolts through the fuel rail and spacers. Roll the O-ring (GREEN) up the bolt threads. Lubricate the lower injector O-rings. Lineup and press the fuel rail down until the injectors are fully secure in the injector seats and secure. Install Complete: 20-1113 Fuel Rail, 13B Primary | |
| 13B- REW 9 | 10mm Socket 20-0449 ACV Delete, Mzada 13B-REW The ACV (Air Control Valve) must be permanently removed if installing Radium P/N: 20-0447 Fuel Rail, Top Feed Conversion, 13B-REW Secondary into the OEM lower intake manifold. NOTE: This product is sold separately. Remove the three M6 nuts and pull the ACV off the intake manifold. | |
| 13B- REW 10 | 10mm Wrench 10mm Socket To remove the OEM ACV mounting studs, install two of the OEM M6 nuts onto each stud. Mate the flange sides together. Next, lock them together, as shown. | |

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| 13B- REW 11 | 10mm Wrench Unscrew the lower nut to loosen and remove each stud from the intake manifold, as shown. | |
| 13B- REW 12 | Inspect the ACV gasket (shown). Replace if necessary. Mazda P/N: N3A3-13-996 | |
| 13B- REW 13 | 4mm Allen Wrench Place the ACV gasket down and then the Radium delete plate. Tighten using the supplied screws. Installation Complete for 20-0449 ACV Delete, Mazda 13B-REW | |
| 13B- REW 14 | 20-0447 Fuel Rail, Top Feed Conversion, 13B-REW Secondary If this fuel rail will be installed on the OEM 13B-REW (2-port) lower intake manifold, the provided 2AN ORB plugs need to be installed into the 2 center injector ports, as shown. First lubricate the O-rings. If this fuel rail will be installed on an aftermarket 13B-REW 4-port lower intake manifold, the provided 2AN ORB plugs are NOT needed. | |
| 13B- REW 15 | Oil Lubrication Clean the fuel injector ports. For OEM Mazda (2-port) and Elite Rotary Shop (4-port) intake manifolds, lubricate the provided injector seat O-rings and firmly push the injector seats into place, as shown. NOTES: 1. For Elite Rotary Shop 4-port intake manifolds, 2 extra injectors seats must be purchased separately (P/N: 20-0444, Quantity: 2) 2. The Xcessive Manufacturing 4-port intake manifold does not require the injectors seats as they are already machined to accept 14mm lower injector O-rings. | |
| 13B- REW 16 | 19mm Socket Install the two included M8 x 1.25mm extension mounts to the threaded fuel rail bosses, as shown. | |

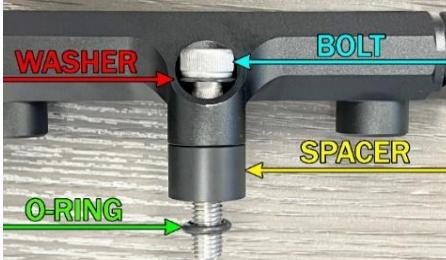
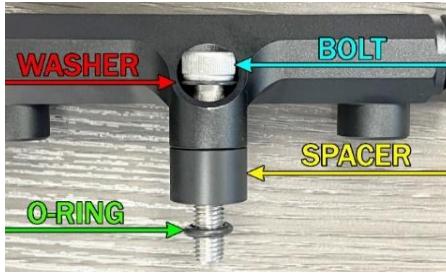
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| 13B- REW 17 | <p>Prepare the fuel rail by installing the necessary adapter fittings and accessories. 8AN ORB fittings will be required for all ports. A wide selection of adapters are available at www.radiumauto.com. Lubricate the O-rings prior to installing. Check for clearance with other components before final installation of the fuel rail.</p> |  |
| 13B- REW 18 | <p>Oil Lubrication</p> <p>Reference the product page at www.radiumauto.com to find appropriately sized top feed fuel injectors.</p> <p>Lubricate the upper O-rings on the fuel injectors. Press the fuel injectors in each port (2-port variation shown).</p> |  |
| 13B- REW 19 | <p>Oil Lubrication</p> <p>6mm Allen Wrench</p> <p>Press the small end of the spacers (YELLOW) into the underside of the fuel rail mounts, as shown. Place the small washers (RED) under the heads of the bolts (BLUE). Insert the bolts through the fuel rail and spacers. Roll the O-ring (GREEN) up the bolt threads.</p> <p>NOTE: The OEM and Elite manifolds require the 20mm spacers. The Xcessive manifold (that doesn't need the injector seats) requires the 11mm spacers. Lubricate the lower injector O-rings. Lineup and press the rail down until the injectors are secure in their respective seats. Secure the bolts to the extension mounts.</p> <p>Installation Complete: 20-0447 Fuel Rail, 13B-REW Secondary</p> |  |
| 13B- REW 20 | <p>10mm Socket</p> <p>Plumbing will still need to be configured and adapted to the fuel rail(s). Reinstall all components in reverse order. Reconnect the battery.</p> <p>Cycle the ignition switch a few times (without starting engine). CHECK FOR LEAKS! If no leaks are found, start the engine and check again while the engine is running.</p> <p>Installation Complete</p> |  |

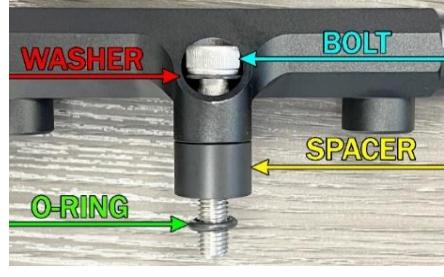
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| 13B- RE 1 | 10mm Wrench NOTE: Because this instruction manual covers vehicles with various modifications, there may be differences not shown. If there is residual pressure in the fuel lines, it is recommended to disconnect the green fuel pump relay (shown) in the fuse box next to the battery. Run the engine until it stalls. Disconnect the negative battery terminal. |  |
| 13B- RE 2 | Pliers 12mm Wrench Reference the Factory Service Manual to remove the upper intake manifold and all associated vacuum lines, oil lines, solenoids, etc. The lower intake manifold can remain installed. Disconnect the fuel lines with pliers. Unscrew the fuel rail mounting bolts using a 12mm wrench. Remove the fuel rail assembly from the vehicle and drain all of the remains in a fuel safe container. Place the assembly on a work bench. For protection, cover the intake manifold and injector ports to prevent debris from accidentally falling into the engine. |  |
| 13B- RE 3 | It is recommended to reuse the OEM fuel injector diffusers to prevent wall wetting and permit optimal driveability. To inspect, shine a light down into the ports to be sure the diffusers are still in good condition. NOTE: The diffusers are not absolutely necessary and many will argue they are not required. If removal is required, gently apply pressure to the inner walls with needle nose pliers or use a pick to pull out as shown. |  |
| 13B- RE 4 | Oil Lubrication 20-1113 Fuel Rail, Top Feed Conversion, 13B Primary Clean the OEM primary fuel injector ports. Lubricate the provided injector seat O-rings and firmly push the injector seats into place, as shown. NOTE: Older discontinued primary injector seats will be black in color. |  |
| 13B- RE 5 | Oil Lubrication Prepare the fuel rail for installation. 8AN ORB fittings will be required for all ports. A wide selection of adapters are available at www.radiumauto.com . Lubricate the O-rings prior to installing. |  |
| 13B- RE 6 | Oil Lubrication Reference the product page at www.radiumauto.com to find appropriately sized top feed fuel injectors. Lubricate the upper O-rings on the fuel injectors. Press the fuel injectors into each port. |  |

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| 13B- RE 7 | | <p>If applicable, the OEM fuel rail mounting spacer (shown) will NOT be reused.</p>  |
| 13B- RE 8 | <p>Oil Lubrication 6mm Allen Wrench</p> <p>Press the small end of the spacers (YELLOW) into the underside of the fuel rail mounting bosses, as shown. Place the small washers (RED) under the heads of the mounting bolts (BLUE). Insert the bolts through the fuel rail and spacers. Roll the O-ring (GREEN) up the bolt threads.</p> <p>Lubricate the lower injector O-rings. Lineup and press the fuel rail down until the injectors are fully secure in the injector seats and secure.</p> <p>Install Complete: 20-1113 Fuel Rail, 13B Primary</p> |  |
| 13B- RE 9 | <p>Oil Lubrication</p> <p>20-0446 Fuel Rail, 13B-RE Secondary</p> <p>If OEM style fuel injectors are to be used, the spacing that the OEM diffusers produce is required as they provide a mechanical stop. Otherwise the stock injector will fall down and out of the fuel rail port.</p> <p>If aftermarket injectors are used, the included injector seats provide the actual mechanical stop. Furthermore, the injector seats were designed for flexibility as the OEM diffusers can be either reused or removed (as shown) with no change in fitment. This decision is up to the installer.</p> |  |
| 13B- RE 10 | <p>Oil Lubrication</p> <p>If installing injectors that are NOT stock replacements (or equivalents), reference the product page at www.radiumauto.com to find appropriately sized top feed fuel injectors. These aftermarket injectors have a 14mm lower O-ring which require the included injector seats to be installed. Do NOT perform this step if using OEM style injectors.</p> <p>First, clean the OEM injector ports. Lubricate the provided injector seat O-rings and firmly push the injector seats into place, as shown.</p> |  |
| 13B- RE 11 | <p>Oil Lubrication</p> <p>Prepare the fuel rail for installation by installing the necessary fittings and adapters. 8AN ORB fittings will be required for all ports. A wide selection of adapters are available at www.radiumauto.com.</p> <p>Lubricate both the fitting and upper injector O-rings prior to installing. Press the fuel injectors into each port.</p> |  |
| 13B- RE 12 | <p>Oil Lubrication 6mm Allen Wrench</p> <p>For aftermarket injectors that require the injector seats, press-in the spacers (YELLOW). NOTE: With OEM equivalent injectors, the insulating spacers are NOT required. Place the small washers (RED) under the heads of the bolts (BLUE). Insert the bolts through the fuel rail and spacers. Roll the O-ring (GREEN) up the bolt threads.</p> <p>Lubricate the lower fuel injector O-rings. Lineup and press the fuel rail down until the fuel injectors are fully secure in their respective seats. Next, secure to the lower intake manifold.</p> <p>Installation Complete: 20-0446 Fuel Rail, 13B-RE Secondary</p> |  |

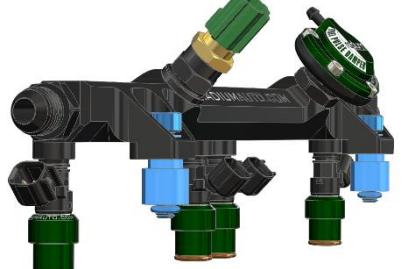
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| 13B- RE 13 | 10mm Socket | Plumbing will still need to be configured and adapted to the fuel rail(s). Reinstall all components in reverse order. Reconnect the battery. |  |
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| | | Cycle the ignition switch a few times (without starting engine). CHECK FOR LEAKS! If no leaks are found, start the engine and check again while the engine is running. | |
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| | | Installation Complete | |
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| 20B- REW 1 | 10mm Wrench NOTE: Because this instruction manual covers vehicles with various modifications, there may be differences not shown. If there is residual pressure in the fuel lines, it is recommended to disconnect the green fuel pump relay (shown) in the fuse box next to the battery. Run the engine until it stalls. Disconnect the negative battery terminal. |  | |
| | 20B- REW 2 | Pliers 12mm Wrench Disconnect the fuel lines and unscrew the fuel rail mounting bolts. Remove the fuel rail assembly from the vehicle and drain all of the remains in a fuel safe container. Place the assembly on a work bench. For protection, cover the intake manifold and injector ports to prevent debris from accidentally falling into the engine. |  |
| | | It is recommended to reuse the OEM fuel injector diffusers to prevent wall wetting and permit optimal driveability. To inspect, shine a light down into the ports to be sure the diffusers are still in good condition. NOTE: The diffusers are not absolutely necessary and many will argue they are not required. If removal is required, gently apply pressure to the inner walls with needle nose pliers or use a pick to pull out as shown. |  |
| | | Oil Lubrication 20-1120 Fuel Rail, Top Feed Conversion, 20B-REW Primary Clean the 3 OEM primary fuel injector ports. Lubricate the provided injector seat O-rings and firmly push the injector seats into place, as shown. NOTE: Older discontinued primary injector seats will be black in color. |  |
| | 20B- REW 5 | Oil Lubrication Prepare the fuel rail by installing adapters or accessories into the open ports. 8AN ORB fittings will be required for all ports. A wide selection of adapters are available at www.radiumauto.com . Lubricate the O-rings prior to installing. |  |
| | | Oil Lubrication Reference the product page at www.radiumauto.com to find appropriately sized top feed fuel injectors. Lubricate the upper O-rings on the fuel injectors. Press the fuel injectors into each port. |  |

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| 20B- REW 7 | If applicable, the OEM fuel rail mounting spacers will NOT be reused. |  |
| 20B- REW 8 | <p>Oil Lubrication</p> <p>6mm Allen Wrench</p> <p>Press the small end of the spacers (YELLOW) into the underside of the fuel rail mounts, as shown. Place the small washers (RED) under the heads of the bolts (BLUE). Insert the bolts through the fuel rail and spacers. Roll the O-ring (GREEN) up the bolt threads.</p> <p>Lubricate the injector O-rings. Lineup and press the rail down until the injectors are fully secure in the injector seats. Secure to the engine.</p> <p>Install Complete: 20-1120 Fuel Rail, Conversion, 20B-REW Primary</p> |  |
| 20B- REW 9 | <p>Oil Lubrication</p> <p>20-0465 Fuel Rail, 20B-REW Secondary</p> <p>If OEM style fuel injectors are to be used, the spacing that the OEM diffusers produce is required as they provide a mechanical stop. Otherwise the stock injector will fall down and out of the fuel rail port.</p> <p>If aftermarket injectors are used, the included injector seats provide the actual mechanical stop. Furthermore, the injector seats were designed for flexibility as the OEM diffusers can be either reused or removed (as shown) with no change in fitment. This decision is up to the installer.</p> |  |
| 20B- REW 10 | <p>Oil Lubrication</p> <p>If installing injectors that are NOT stock replacements (or equivalents), reference the product page at www.radiumauto.com to find appropriately sized top feed fuel injectors. These aftermarket injectors have a 14mm lower O-ring which require the included injector seats to be installed. Do NOT perform this step if using OEM style injectors.</p> <p>First, clean the OEM injector ports. Lubricate the provided injector seat O-rings and firmly push the injector seats into place, as shown.</p> |  |
| 20B- REW 11 | <p>Oil Lubrication</p> <p>Prepare the fuel rail by installing the necessary adapter fittings or fuel system accessories. 8AN ORB fittings will be required for all ports. A wide selection of adapters are available at www.radiumauto.com.</p> <p>Lubricate both the fitting and upper injector O-rings prior to installing. Press the fuel injectors into each port.</p> |  |
| 20B- REW 12 | <p>Oil Lubrication</p> <p>6mm Allen Wrench</p> <p>For aftermarket injectors that require the included injector seats, press-in the spacers (YELLOW). NOTE: With OEM equivalent injectors, the spacers are NOT required. Place the small washers (RED) under the heads of the bolts (BLUE). Insert the bolts through the rail and spacers. Roll the O-ring (GREEN) up the bolt threads.</p> <p>Lubricate the lower fuel injector O-rings. Lineup and press the fuel rail down until the injectors are fully secure in their respective seats. Secure to the lower intake manifold.</p> <p>Installation Complete: 20-0465 Fuel Rail, 13B-REW Secondary</p> |  |

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| 20B- REW 13 | <p>19mm Socket</p> <p>20-0466 Fuel Rail, 20B-REW Secondary, 6-Port</p> <p>Install the two M8 x 1.25mm extension mounts included to the threaded fuel rail bosses, as shown.</p> |  |
| 20B- REW 14 | <p>8AN ORB fittings will be required for all ports. A wide selection of adapters are available at www.radiumauto.com. Lubricate the O-rings prior to installing.</p> |  |
| 20B- REW 15 | <p>Oil Lubrication</p> <p>Reference the product page at www.radiumauto.com to find appropriately sized top feed fuel injectors.</p> <p>Lubricate the upper O-rings on the fuel injectors. Press the fuel injectors in each port.</p> |  |
| 20B- REW 16 | <p>Oil Lubrication</p> <p>6mm Allen Wrench</p> <p>Press the small end of the spacers (YELLOW) into the underside of the fuel rail mounts, as shown. Place the small washers (RED) under the heads of the bolts (BLUE). Insert the bolts through the fuel rail and spacers. Roll the O-ring (GREEN) up the bolt threads.</p> <p>Lubricate the lower injector O-rings. Lineup and press the rail down until the injectors are fully secure in their respective seats. Secure to the extension mounts.</p> <p>Installation Complete: 20-0466 Fuel Rail, 20B-REW Secondary, 6-Port</p> |  |
| 20B- REW 17 | <p>10mm Socket</p> <p>Plumbing will still need to be configured and adapted to the fuel rail(s). Reinstall all components in reverse order. Reconnect the battery.</p> <p>Cycle the ignition switch a few times (without starting engine). CHECK FOR LEAKS! If no leaks are found, start the engine and check again while the engine is running.</p> <p>Installation Complete</p> |  |

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| 26B 1 | 10mm Wrench | <p>26B PRIMARY FUEL RAIL</p> <p>20-1126 Fuel Rail, Top Feed Conversion, 26B Primary</p> <p>NOTE: Because there are custom modifications to build this 4-rotor engine, many of these instructional steps will not apply.</p> <p>If there is residual pressure in the fuel lines, it is recommended to disconnect the green fuel pump relay (shown) in the fuse box next to the battery. Run the engine until it stalls. Disconnect the negative battery terminal.</p> |  |
| | 26B 2 | | <p>As shown, remove the upper intake manifold and all associated vacuum lines, oil lines, solenoids, etc.</p> <p>NOTE: For protection, cover the intake manifold and injector ports to prevent debris from accidentally falling into the engine.</p> |
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| 26B 3 | | <p>It is recommended to reuse the OEM fuel injector diffusers to prevent wall wetting and permit optimal driveability. To inspect, shine a light down into the ports to be sure the diffusers are still in good condition.</p> <p>NOTE: The diffusers are not absolutely necessary and many will argue they are not required. If removal is required, gently apply pressure to the inner walls with needle nose pliers or use a pick to pull out as shown.</p> |  |
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| 26B 4 | Oil Lubrication | Clean the 4 OEM primary fuel injector ports. | |
| | | Lubricate the provided injector seat O-rings and firmly push the injector seats into place, as shown. NOTE: Older discontinued primary injector seats will be black in color. |  |
| 26B 5 | Oil Lubrication | Prepare the fuel rail by installing adapters or accessories into the open ports. 8AN ORB fittings will be required for all ports. A wide selection of adapters are available at www.radiumauto.com . | |
| | | Lubricate the O-rings prior to installing. |  |
| 26B 6 | Oil Lubrication | Reference the product page at www.radiumauto.com to find appropriately sized top feed fuel injectors. | |
| | | Lubricate the upper O-rings on the fuel injectors. Press the fuel injectors into each port. |  |

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| 26B 7 | If applicable, the OEM fuel rail mounting spacers will NOT be reused. |  |
| 26B 8 | <p>Press the insulating spacers into the bottom side of the fuel rail mounts.</p> <p>Next, place the provided insulating washers under the head of the M8x1.25mm bolts.</p> <p>Next, insert the M8x1.25mm bolts through the fuel rail and spacers.</p> <p>Push the included O-rings over each of the M8x1.25mm bolt threads.</p> |  |
| 26B 9 | <p>Oil Lubrication</p> <p>6mm Allen Wrench</p> <p>Lubricate the lower injector O-rings. Lineup and press the fuel rail down until the injectors are fully secure in the Radium injector seats.</p> |  |
| 26B 10 | <p>10mm Socket</p> <p>Plumbing will still need to be configured and adapted to the fuel rail. Reinstall all components in reverse order. Reconnect the battery.</p> <p>Cycle the ignition switch a few times (without starting engine). CHECK FOR LEAKS! If no leaks are found, start the engine and check again while the engine is running.</p> <p>Install Complete: 20-1126 Fuel Rail, Conversion, 26B Primary</p> |  |