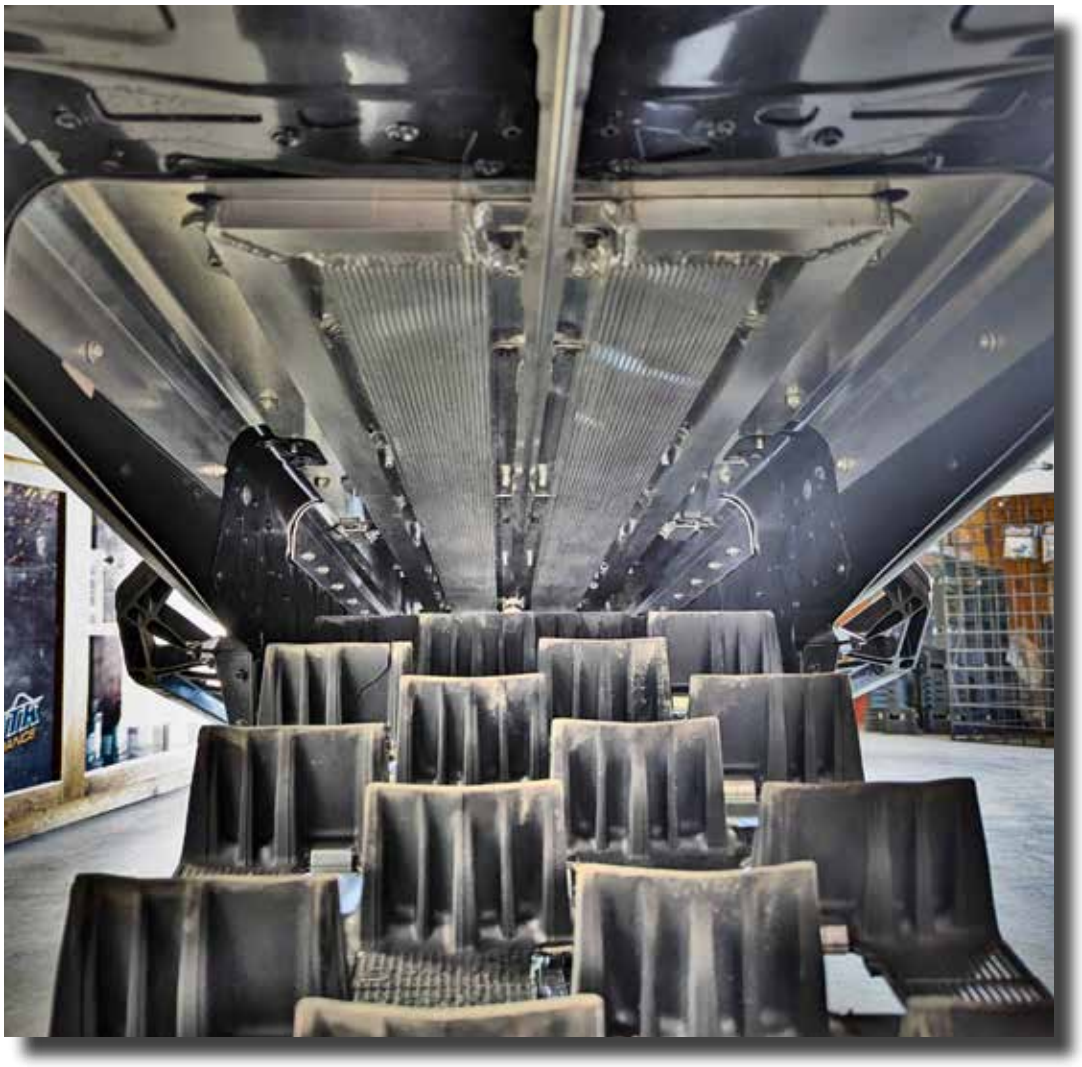
MTNTK PERFORMANCE

POLARIS MATRYX CHASSIS

10956/10957 ACCESSORY TUNNEL COOLER INSTALLATION INSTRUCTIONS



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These instructions are subject to change based on future information or changes to the product. We reserve the right to make changes to improve the product and provide additional clarity as we gain experience in this modificaton and receive customer feedback.

PLEASE READ ALL THE WAY THROUGH THE INSTRUCTIONS AND DISCLAIMER first and make sure you understand each step and have a good overall understanding before starting. This is a major modification to the chassis of the snowmobile. If for some reason you do not understand any of the steps, please consult someone who can help and/or call us and we will help you and clarify. It does require some special tools and it is recommended to use the tools we have specified to perform the step with the best possible outcome. You may choose to print this manual at full size or 2-6 pages per sheet or view online.

THESE INSTRUCTIONS ARE IN FULL COLOR AND MAY BE BEST VIEWED ON A DIGITAL DEVICE

Disclaimer

MTNTK Performance has gone to great lengths to ensure this product works correctly as a performance enhancer for your sled. MTNTK Performance will not be held responsible for any injuries to persons or property while using this product. This product and the skill in which it is installed can affect engine performance and handling characteristics of the snowmobile and re-sale value of the snowmobile. MTNTK Performance will not be held responsible for any unforeseen circumstances related to safety concerns when using this product. Failure to follow the instructions carefully can result in personal injury and damage to the snowmobile. This modification can also result in loss of control and change handling characteristics of the snowmobile. Installer and or operator take all responsibilities for any adverse results or issues that may arise after installing this product. Do not install this product if you are unwilling to take the responsibility for any adverse effects from performing a modification of this caliber to your vehicle. We do not provide any type of warranty or length of service life either implied or stated on this modification/product.

Parts List

- (1) Welded Tunnel Cooler Assy
- (20) 1/4” Black Hemlock Rivet
- (20) 3/16” Black Long Rivet
- (10) 3/16” Black Short Rivet
- (5) Nylon Cable Tie
- (1) #1 Drill Bit
- (1) 1/4” Drill Bit
- (2) Self Adhesive Foam Pad 4” x 26” x 1/4”

Recommended additional parts and tools not provided

- Clear silicone
- 3/16” Drill bit
- Electric Drill
- Masking Tape
- Rivet gun capable of pulling high strength 1/4” rivets
- Step Drill that can go to 3/4”

STEP 1

A. Remove both side panels.

B. Remove console screws (A).

C. Remove hood Dzus fasteners (B).

D. Disconnect hood electrical connector (C).

E. Lift Hood off of sled, taking care to pull up on the front tabs (D).

STEP 2

A. Loosen and remove fuel tank console nut, if you get one of our Fuel Nut Tools Part#10961 it will make it easier and you won't scar up the nut with your pliers (A).

B. Remove the switch console and let it hang out. Replace the fuel cap to prevent fuel leak or debris getting into the tank (B).

C. Remove the console close-off panel Tufflok rivets, and push the panel towards the steering post to release. Remove from sled (C).

D. Pull the starter rope out fully to gain slack and tie an overhand not above the guide. This will allow us to remove and move the main console out of the way without disconnecting the starter rope (D).

STEP 3

A. Remove the clutch key (A).

B. Remove the Tufflok rivets holding the console.

1. By the air intakes on both sides (B)
2. Near the belt drive (C).

C. Remove screws by footrest securing console(D).

STEP 4

A. Remove seat hold down screw (A) and account for the seat mount clip (B)

B. Pull the console away from the air intakes and then lift it up off the fuel tank and if you have enough slack in the pull rope (step 2D) you can move it forward and set on the front of the sled (D).

STEP 5

A. Remove the front fuel tank hold down screw (A).

B. Remove the rear fuel tank hold down nuts, also remove the Lock & Ride Flex mount bar (B). Retain bolts and nuts for reassembly (C). Lock and Ride Flex bar bolts will require holding from the back side to remove nut.

C. Remove any accessories mounted to the tunnel (D).

STEP 6

A. Disconnect the fuel pump electrical connector (A).

B. Disconnect the fuel line connections.

1. Lift the retaining tab (both sides at the same time) (B).
2. Slide lock back and fuel line can be removed (C).

C. Remove fuel tank.

1. We have found that the tank can be very stuck to the foam underneath. Gentle continuous force with a flat pry bar will help to release the tank.
2. Lift the back of the tank and move it sideways to clear the front chassis supports around fuel tank

STEP 7

A. Loosen the rear axle on the left side (A).

B. Back off the track tension jam nuts and loosen adjuster bolts until track is fully loose (B).

C. Remove all suspension bolts (4) (C). Sometimes thread locking compound installed on the bolts will cause the inner threaded shaft to spin instead of the bolt coming out. Alternately loosening and tightening each side several times will help to release the thread locking agent.

D. Pull track forward under the sled to give room for further work. While driveshaft/track removal is not required to install the cooler, you may pull the driveshaft and remove track to allow more room if you like.

STEP 8

A. Remove spring hose clamps from factory cooler. We recommend using a clean vacuum set up for liquid to remove the coolant and save for filling later (A).

B. Remove both hoses completely, so as to make more room (B).

C. Remove bolt from LH fender near driven clutch and pull fender down for clearance (C).

D. Using clutch belt key remove drive belt. Remove driven clutch retaining bolt and account for aluminum spacer and alignment washers (D).

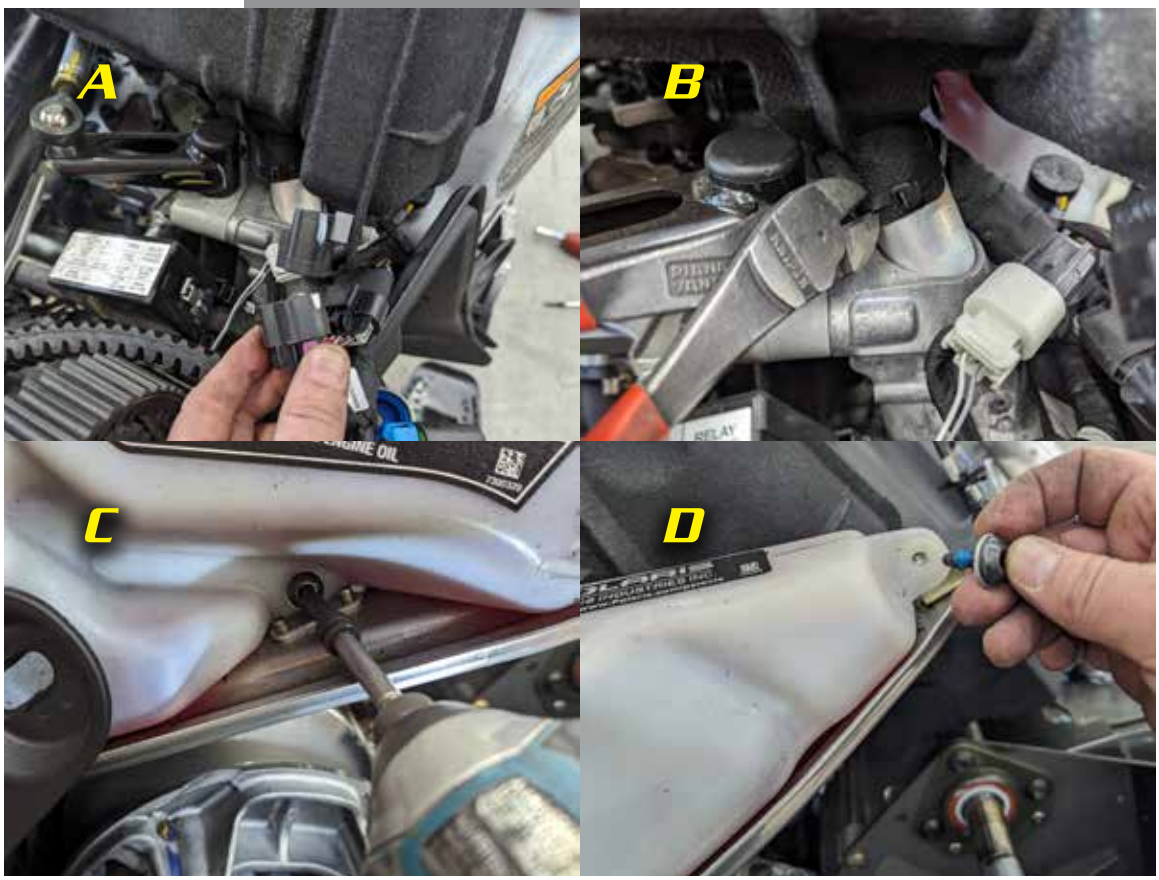
STEP 9

A. Remove driven clutch. Account for shim alignment washers on the back side of the clutch (A). Frequently they stick to the clutch. If you lose these you will have belt alignment issues.

*The following steps 9B-13A are for non turbo sleds. Patriot boost models skip to step 13B.

B. Remove screw securing air intake adapter into air box. This is located directly above the previously removed clutch (B).

C. Remove tufflok rivets from intake adapter (both sides)(C,D).

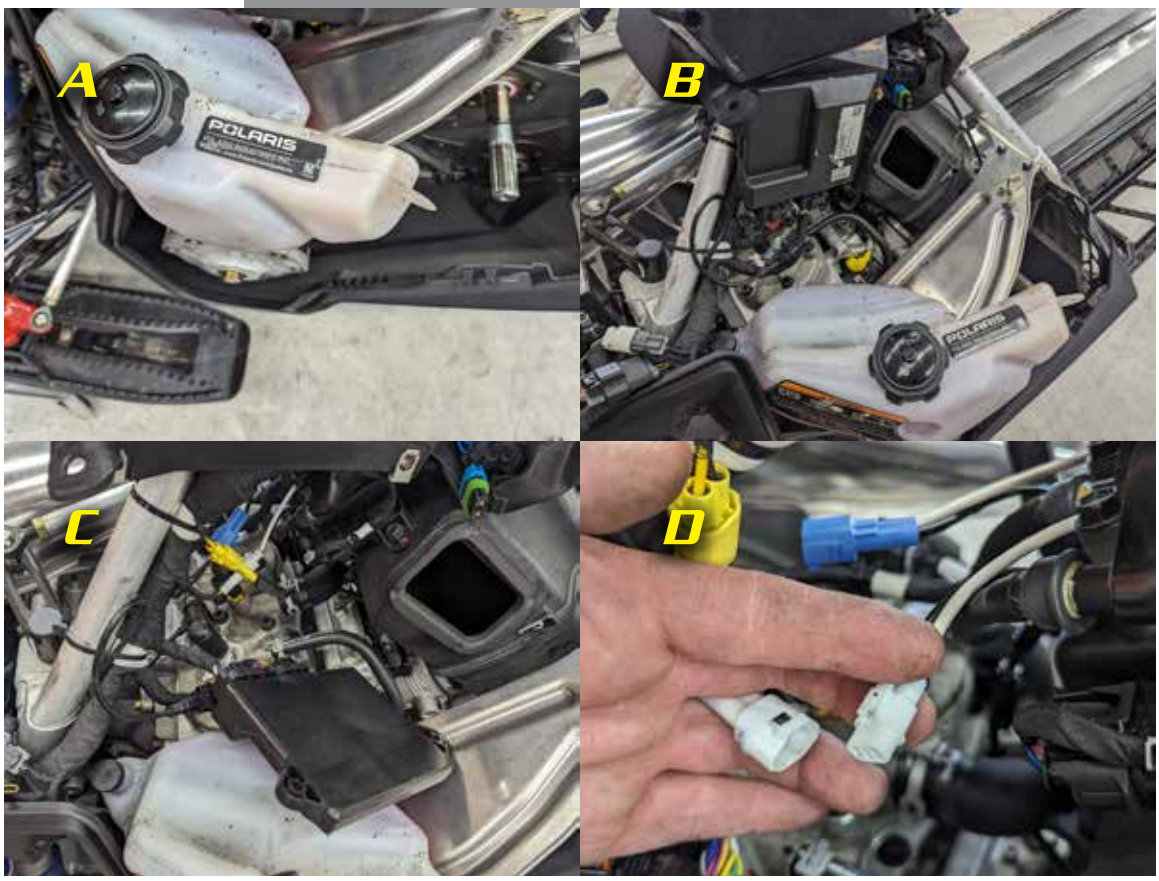


STEP 10

A. Disconnect diagnostic connector from dead end plug cap mounted on air intake adapter tube (A).

B. Cut nylon tie holding air intake adapter to chassis overstructure (B).

C. Remove both bolts securing the oil tank to the clutch guard (C,D).



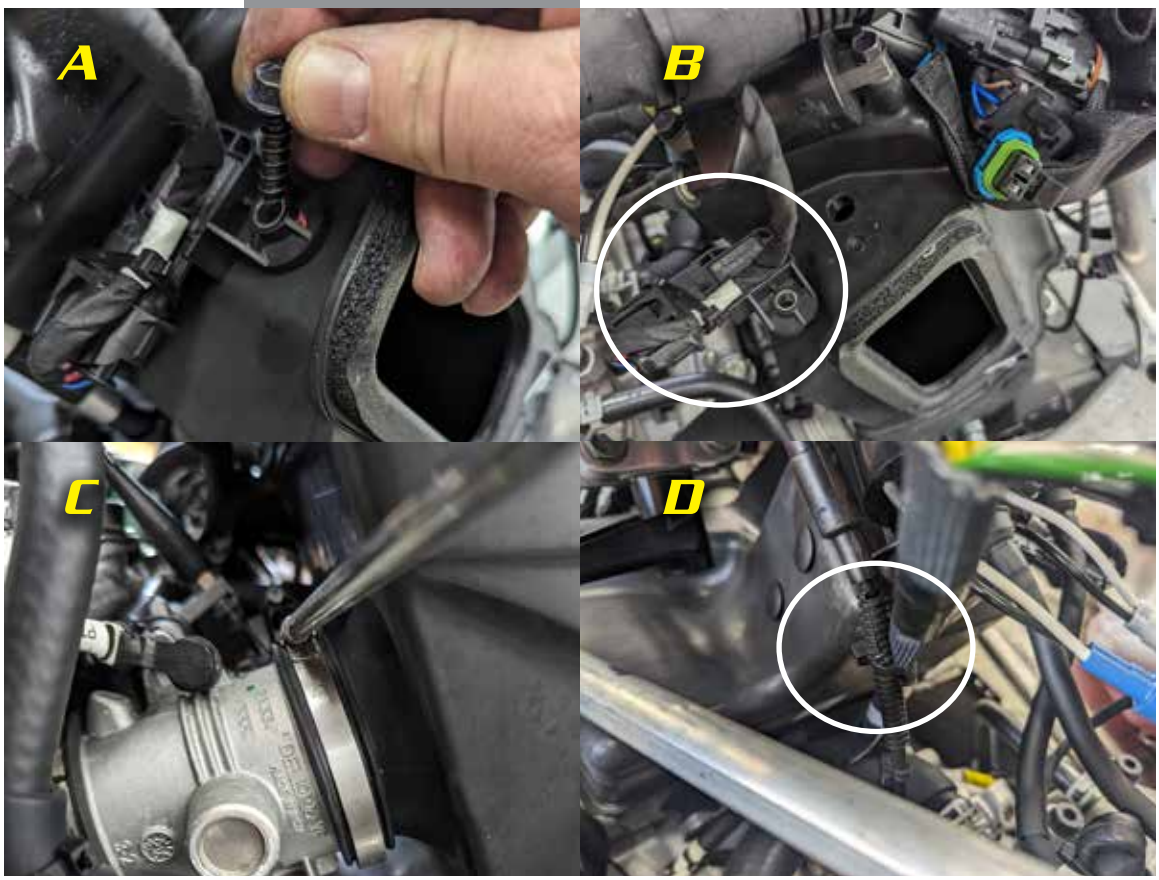
STEP 11

A. Let the oil tank hang out a bit (A) so there is room to remove the air intake adapter tube (B).

B. Remove both screws securing the ECU (Engine Control Unit) to the air intake plenum. Let the ECU lay down on the oil tank. There is no need to disconnect the electrical connections.

C. Locate the blue and white ignition coil connections and disconnect them both.

D. Remove both of the spark plug caps from the sparkplugs.



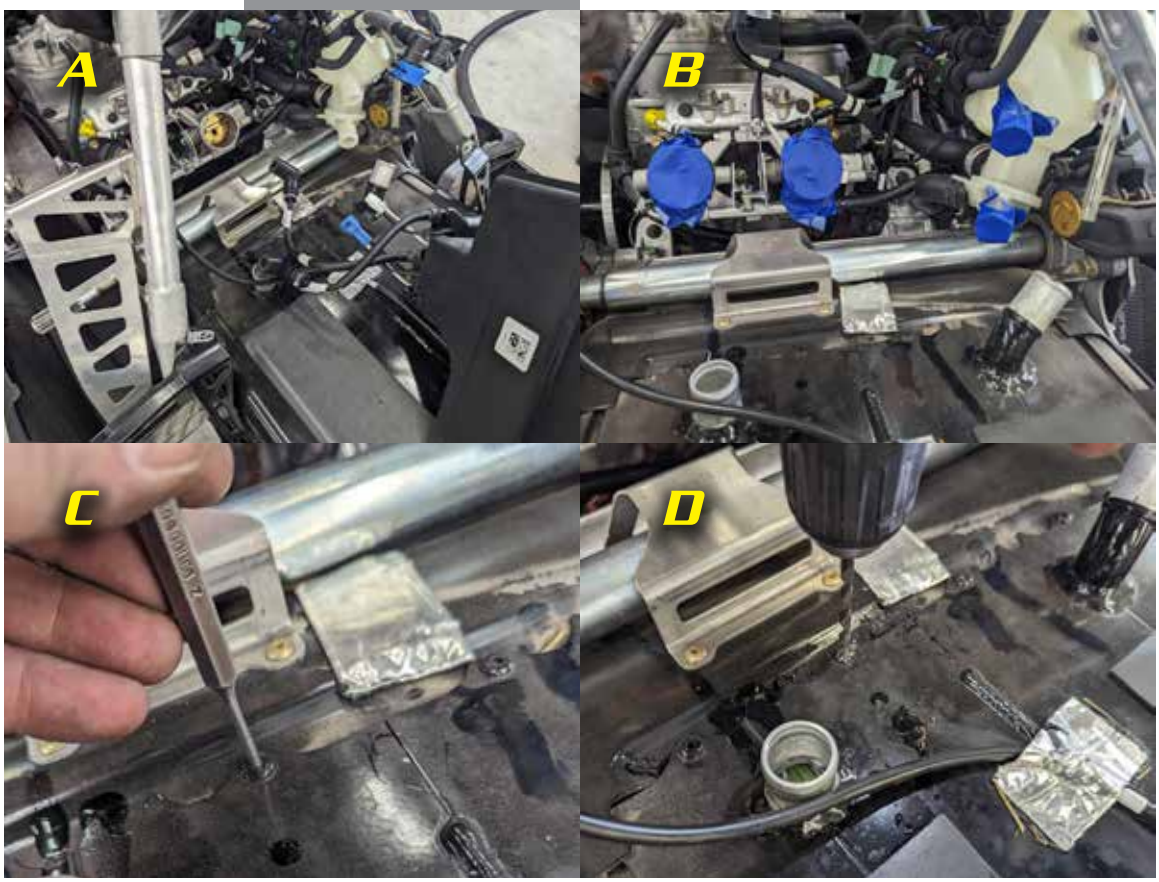
STEP 12

A. Remove the screw on the top of the air box plenum that secures the TBAP sensor (A).

B. Remove the TBAP sensor and let it hang out (B).

C. Using a long phillips screw driver loosen the clamps securing air box plenum to the throttle bodies (C).

D. Cut nylon cable tie securing throttle cable to air box plenum (D).



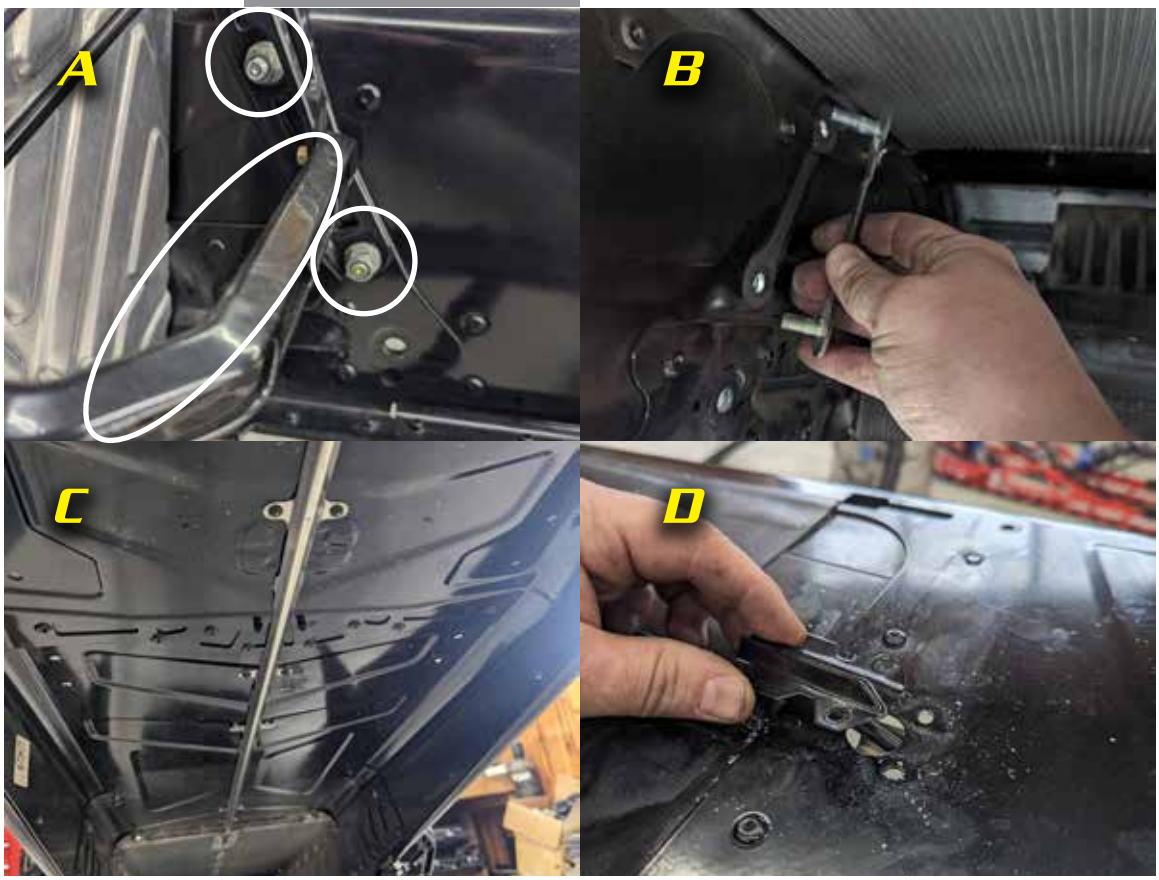
STEP 13

A. Gently work the air box plenum out of the engine compartment taking care to guide the wires out (A).

B. Use masking tape and tape up the throttle body inlets, and the connections for the cooling on the coolant bottle to prevent drill shavings/chips from contaminating the intake and cooling system (B). Patriot Boost models, tape up the aux reed cage air intake.

C. Using a suitable punch, drive the inner rivet mandrels down/out of the (4) rivets across the front of the cooler (C). This will make drilling the rivets much easier.

D. Using a 3/16” drill bit remove the four rivets across the front of the factory cooler (D).



STEP 14

A. We have found it best to remove both foot stirrups from the sled to make room to remove and install rivets (A).

B. Remove the two nuts in figure (A) to allow the removal of the dogbone stud plate (B). Remove from both sides.

C. Remove the taillight wire guide pieces (C,D) from both sides of the tunnel. This is easiest accomplished by using a punch to drive the inner mandrel down/out and drilling the rivet with a 3/16" drill bit. Use caution when driving the mandrel out, it is easy to bend/dent the tunnel as it is not supported. Go to the next step (15) for tips on how to do this.

STEP 15

A. To successfully remove the mandrel from the rivet, you must support the opposite side to resist the force applied by the hammer. A wood prop made from a 2x4 piece of lumber works when aligned very close to the rivet and supported to a concrete floor. This will allow all the force to be concentrated to the mandrel and not into the flexible sheet metal of the tunnel. Check frequently that the board is in the correct location. A second person is invaluable in this position and is a huge help when doing this.

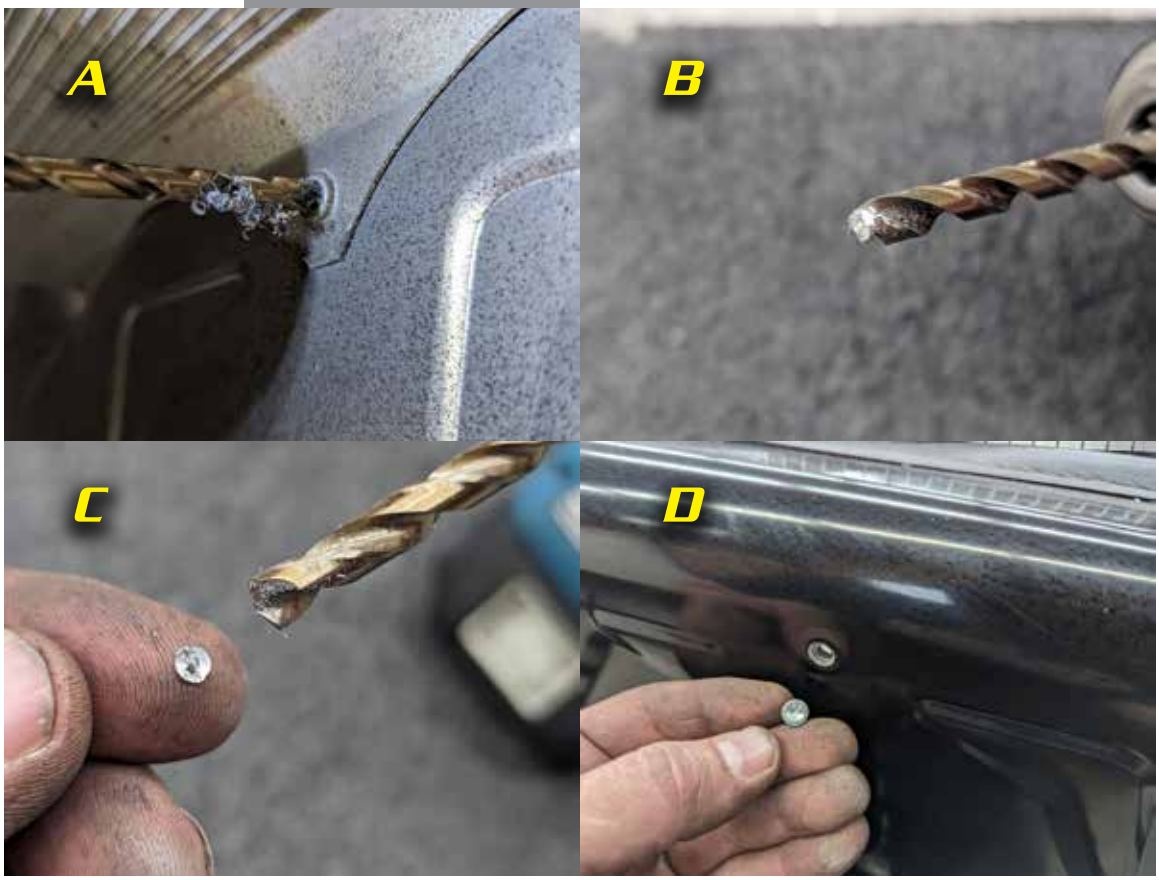
B. Sometimes the rivet will just spin and clamping it to prevent rotation with pliers will allow the rivet to be removed. Spinning the rivet excessively will only damage the tunnel/drill bit/or the wire guides.

STEP 16

A. Using a combination of grinding, driving the mandrel out with a punch and bracing and drilling, remove expanding/pop style rivets from the OEM cooler first. Picture (A) shows the rivets before removal. Picture (B) shows grinding the back side off.

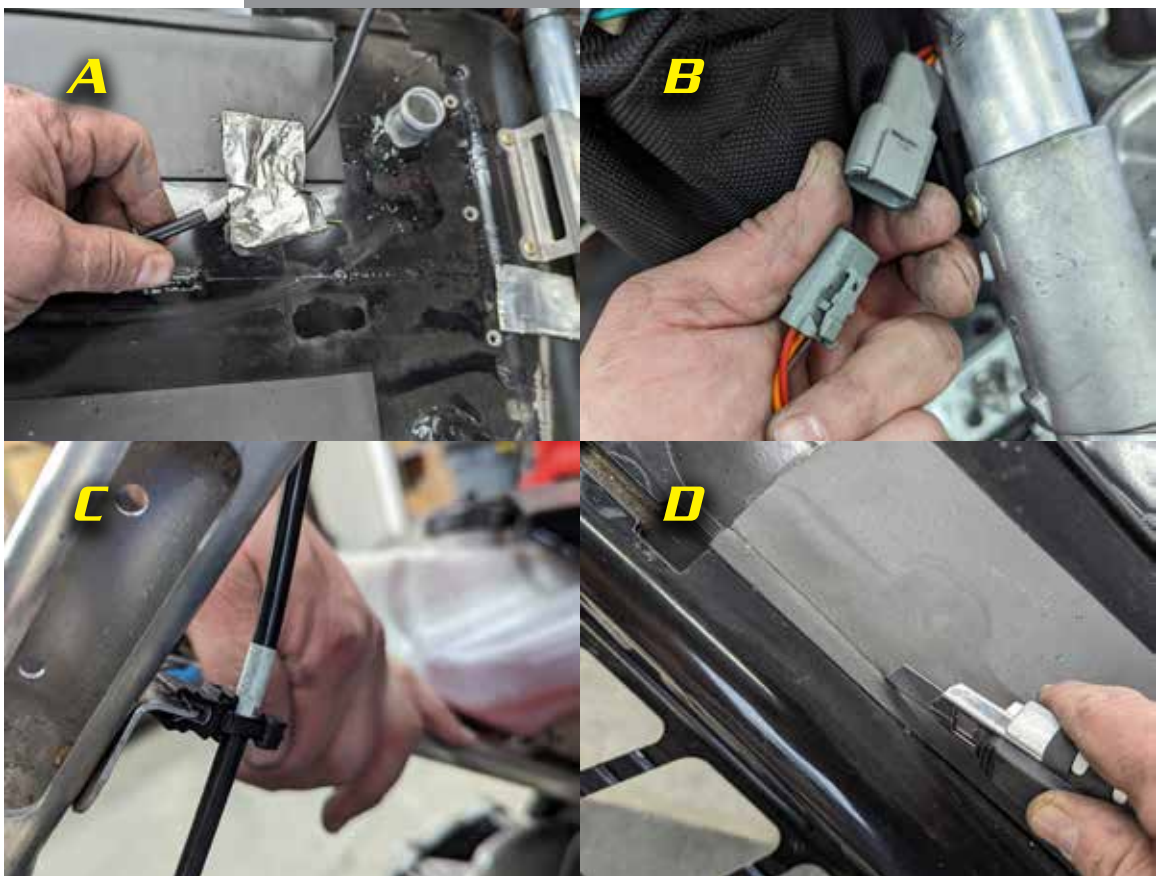
B. The use of another 2x4 cut with a slight angle on one end helps to provide support when driving the rivet mandrels out. Cut slightly long to allow it to be wedged into place (C).

C. At the front of the cooler is 1 rivet that is extremely hard to get to and is in a very tight spot on both sides. We will not be putting a rivet back into this location. It is not a structural component. Just grind off the back and try to get the mandrel pushed back and then try and drill it from the inside (D).



STEP 17

A. Next drill out the self piercing structural rivets. We have provided 2 sizes of drill bits to aid in this process. The first drill bit you should use is the one marked #1 on the shank. It is the correct size to sever the internal crimped part and release the rivet. Start drilling from the inside of the tunnel where there is a raised bump with a conical depression in the center (A). The center pin in this style of rivet is made of stainless steel. The provided drill bit is a cobalt alloy bit that will drill this very easily. Turn the drill bit slowly(approx 300 rpm or less). You will find that it drills very easily for a short time and then stops. Retract the bit and you will find a small piece of metal on the end of the drill bit preventing forward cutting (B). Remove this piece (C)and then resume drilling. This may happen up to 3 times each hole. When you have drilled through the rivet the outer cap will fall off easily (D). Continue on all rivets of this style. DO NOT DRILL from the outer tunnel side or damage can occur that will compromise install.



STEP 18

A. Peel up the sticky foil tape holding the tailight wire to the cooler. Try to save it for reinstallation, it will stick down again (A).

B. Disconnect the taillight wire connector (B).

C. Cut nylon cable tie holding taillight wire to chassis upright (C). Pull wire out through hole in tunnel toward the back of the sled to make room to remove cooler.

D. Cut the foam on top so it will not fight against you pulling the cooler out of the chassis (D).

STEP 19

A. Gently pry with a flat screwdriver at each location where the rivets were located (B). You are trying to lift the tab over the bump from the rivet (C). Excessive force will mark/dent the tunnel and could be seen from the outside. Work around the cooler spreading the gap until you can get the cooler to drop down.

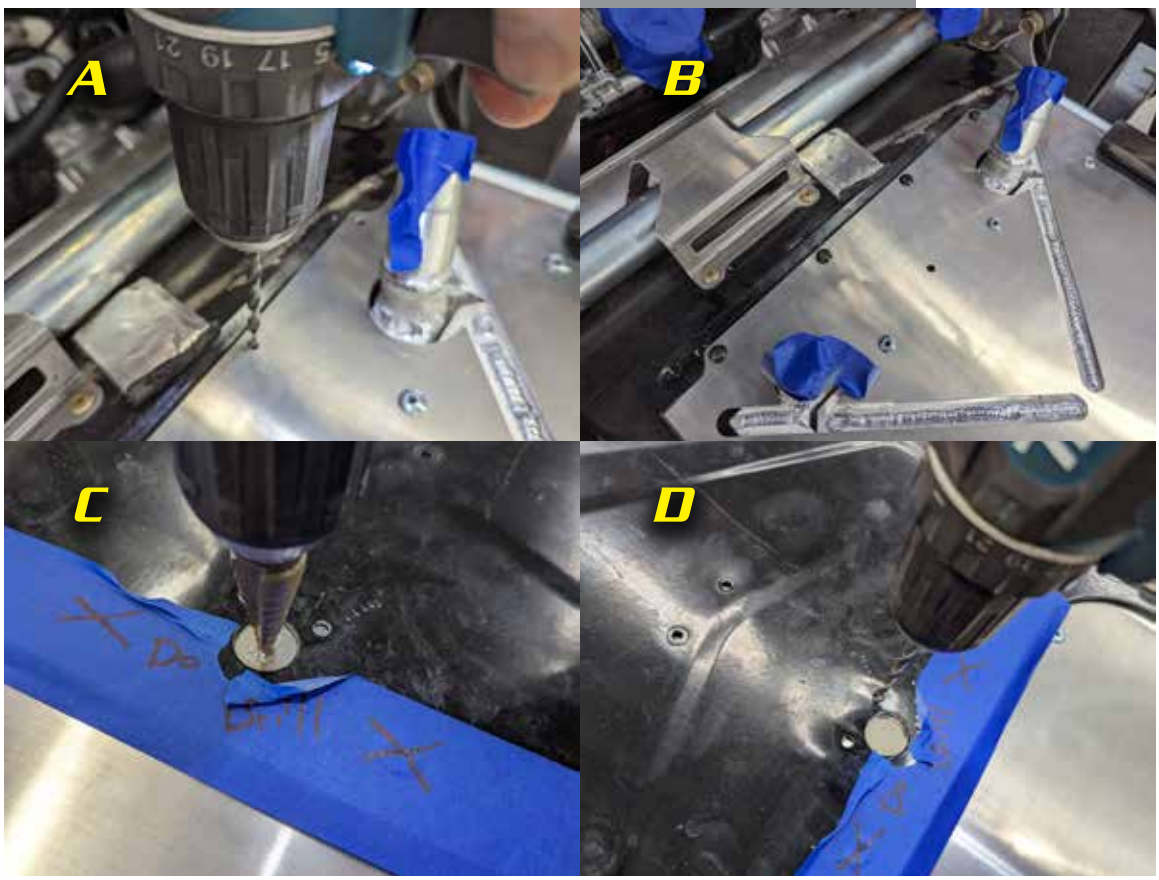
B. Congratulations, if you stop now (D) you have completely destroyed your sled. Now lets put this thing back together even better than before!

STEP 20

A. Each one of the rivet locations that were drilled with the #1 drill bit (A) will need to be ground flat (B). Do not over grind, we do not want to reduce the thickness of the surrounding metal. Just grind until it is flush with the surrounding sheet metal.

B. Insert the new tunnel cooler up into the hole. The front flange will go over the bulkhead flange. If it looks good and fits properly remove the prop stick from the suspension brackets installed in step 19A. This will let the tunnel flex back and help hold it in place while aligning and installing (C).

C. Tape the new cooler water connections to keep it clean while drilling. IMPORTANT - Place a piece of tape over the four holes shown in picture (D). These holes will not be reused and cannot be drilled or they will penetrate the new cooler and leak.



STEP 21

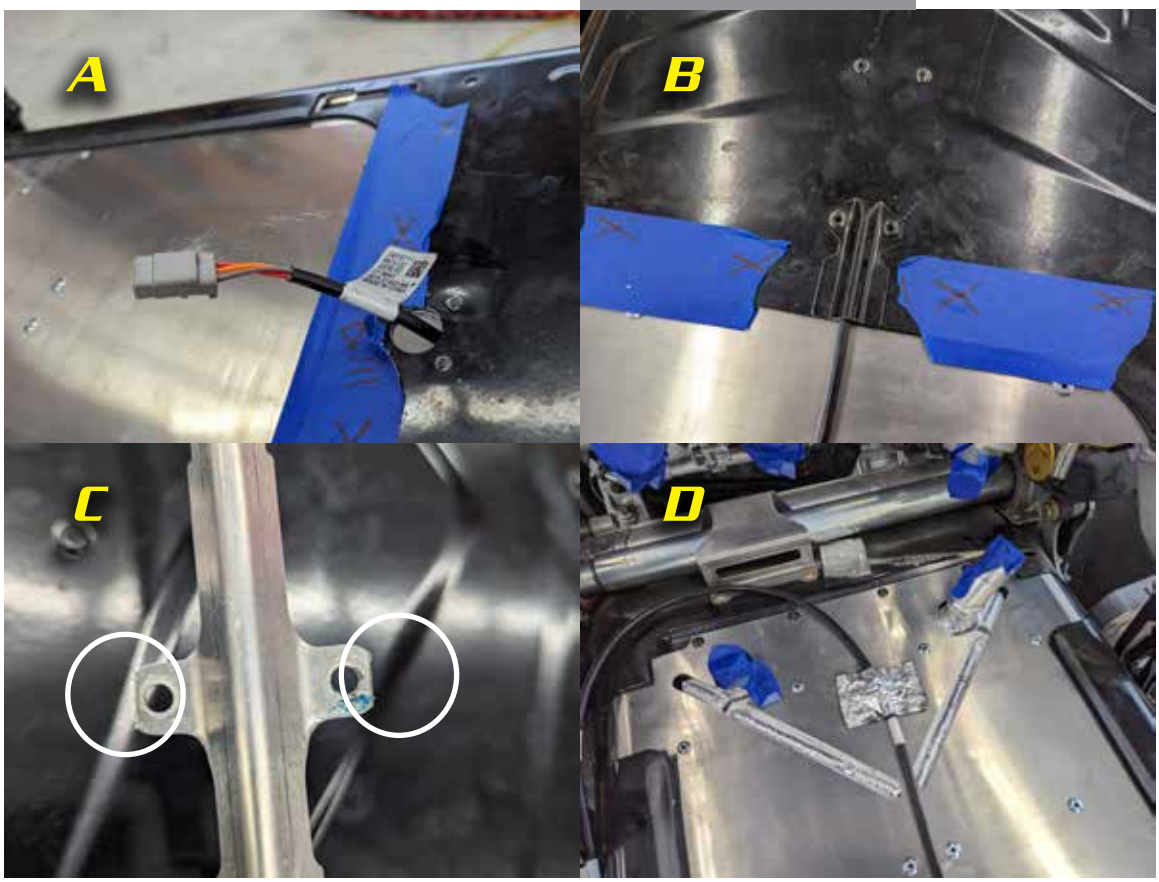
A. Align the cooler as perfectly as possible with the front (4) rivet holes that go across the tunnel. These holes then can be reamed out with a 3/16" Drill bit (A).

B. Install (4) short 3/16" black pop style rivets (B).

C. We recommend using a prop stick to hold the cooler up into the sled fully against the tunnel. The weight of the sled will hold it in place better than clamping or holding while drilling.

D. Using a suitable tool such as a stepped bit, drill the taillight wire hole out to the same size as the original in the tunnel (C).

E. Drill the two 3/16" holes on either side of the taillight wire hole (D).



STEP 22

A. Debur the hole for the wire and then insert the taillight wire up through the hole (A).

B. Install the guide cap using (2) long black 3/16” pop style rivets (B).

C. Install the taillight wire guide on the under side of the tunnel, first drilling the holes with a 3/16” bit. If the wire guide has any interference with the cooler/welds, trim the sides of the guide slightly with a pair of side cutter pliers to give clearance (C).

D. Stick the taillight wire down with the previously removed rubber coated aluminum tape (D).

STEP 23

A. Install the taillight wire back onto the mount point with a nylon cable tie (A).

B. Using the provided 1/4” drill bit from the outside of the tunnel, drill through the holes that we drilled to separate the self piercing rivets using the #1 drill bit. This will provide a nice clean hole through both the tunnel and cooler. We want this connection very tight with no gaps between the cooler and tunnel. Use the previously used wedging technique (C) and/or a large clamp to ensure a tight fit while drilling and riveting. Drill and rivet with 3/16” long rivets in the locations that previously used 3/16” rivets.

C. Clean excess foam from tunnel top, and clean with alcohol or similar solvent. Install provided foam to tunnel (D).

STEP 24

A. Re-install the dogbone stud plate, and stirrups (A).

B. (4) 1/4” rivets should be installed on each side in the back section of the tunnel cooler. These are not critical in the location, but we recommend placing one as far back as the flange will allow. Removal of the reflector is usually required. The other rivet can be adjusted to fit around the decal (B,C).

C. Using the 1/4” drill bit, drill the holes for accessories and the Lock & Ride Flex bar (D). All Polaris accessories are compatible as long as the mount holes on the edges of the tunnel are used. Aftermarket accessories that mount differently, may interfere with cooler and caution should be used when drilling holes. You may need to advise future installers of products of the change to your snowmobile.

A. Before reassembly we recommend using clear silicone to seal around the front of the cooler and around the water fitting welds to prevent snow from entering. Don't have to go crazy here, but it will prevent water and ice build up.

B. Re-Assemble the sled using reverse order of the steps. Before removing tape from inlets and hose connections, clean the shavings from the chassis using compressed air.

C. Use extra care when installing the fuel tank and lines. Fuel lines can be difficult to install if seal ring inside the line has become dry. Wet the inside with gasoline and it will snap on easily. After installation, check fuel connections again for any leaks and possible problems.

D. Fill the sled with coolant. It will hold slightly more than what was removed. We have found that elevating the front can help. Check that the throttle has normal operation and returns fully. Start the sled and continue filling the system as needed with the cap off. When the cooling system seems full, place the pressure cap on and elevate the rpm. Once the engine warms above 85 deg F then the thermostat will open and coolant will start flowing through new cooler and you should feel it getting warm. It may take several cycles of heating and cooling before the system stops taking coolant.

E. DO NOT REMOVE THE PRESSURE CAP IF COOLING SYSTEM IS HOT!