

A/C Alternator Kit P/N: 1ACKAPDXDXTDRK (fits KAWASAKI MULE PRO-DX & PRO-DXT)

Must be installed with Curtis Cab:

Pro-DX: 1KAPFXCA-AC (poly windshield) or 1KAPFXCAS1-AC (glass windshield) Pro-DXT: 1KAPFXTCA-AC (poly windshield) or 1KAPFXTCAS1-AC (glass windshield)

Must be installed with Curtis Air Conditioner: 1ACUNIT-TBCOVER

DXT vehicles must also be installed with Alternator Cover Kit: 1ACKAPDXTALTCVR (DXT only, not required for DX)

For vehicles with cabs already installed, order Curtis A/C Roof Kit: 1ACKAPFXDXRFK (for Pro-DX) or 1ACKAPFXTDXTRFK (for Pro-DXT)

Approximate Installation Time *

Experienced Dealer Technician -1 Hour

Average Dealer Technician – 1.5 Hours

Do-It-Yourself - 2 Hours

(*Not including cab & other accessories)

Approximate Product Specifications

Weight: 38 lbs. (DX) & 41.5 (DXT w/ Alt Cover)

The contents of this envelope are the property of the owner. Leave with the owner when installation is complete.

Rev. C, 08/31/2020

TABLE OF CONTENTS

WARNINGS, TIPS, & REQUIRED TOOLS	2
INSTALLATION	
CARE AND MAINTENANCE	15
SERVICE PARTS	16-17
BOLT TORQUE SPECIFICATIONS	18

WARNINGS, TIPS, & REQUIRED TOOLS

Curtis accessories feature an assembly of parts designed for your vehicle which require adjustment and alignment of components to accommodate vehicle variations. For accurate installation, proper operation, and years of satisfaction, please read and understand the installation and owner's manual fully, prior to installing this accessory.

From all of us at Curtis, we thank you for choosing our product.



Curtis Cabs, blades and general accessories add additional weight to the base vehicle. All Curtis accessory weights are listed in product brochures. Deduct the accessory's total weight from the vehicle's rated capacity and never exceed the vehicle's rated capacity including driver and passenger.

California Health and Safety Proposition 65 Warning: This product may contain chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.

GENERAL INFORMATION BEFORE YOU START

HELPFUL HINTS:

- Refer to parts diagram found in the service parts section of this manual to help identify parts during the assembly process.
- To assist with the installation, leave all fasteners loose for later adjustment unless otherwise specified.
- Read and understand all instructions before beginning.
- Use proper personal protective equipment during all phases of installation.
- ALWAYS shut off engine before leaving the operator's seat to perform any portion of the procedures listed in this manual.
- ALWAYS disconnect the ground cable from the battery when working with any electronics components.
- Follow Lock-out / Tag-out procedures to maintain a safe work environment.

TOOLS REQUIRED

- Set of metric & standard sockets (1/4" or 3/8" drive)
- Set of metric & standard open-end wrenches
- Set of standard Allen wrenches
- Ratchet and extensions
- 3/8", 1/2" drive socket and ratchet
- #2 & #3 Phillips screw driver
- Snips

- Scotch-Brite Pad
- Reciprocating Saw
- 9/32" Drill Bit
- Hand Drill
- Flathead screw driver
- Torque wrench

CARE AND MAINTENANCE

- Readjust the belts after the initial 8-10 hours of vehicle use.
- Check and tighten hardware after 20 hours of vehicle operation. Periodically inspect and tighten hardware for the remainder of the unit's life.

STEP 1: (A/C UNIT PREP)

- 1.1 Before removing the A/C Unit from shipping pallet, installation of the (3) related A/C Unit harnesses must be completed. First, remove and save the 10 screws holding the cover onto the A/C. Then remove the dome plug on the side of the A/C Unit per Fig 1.1.
- 1.2 Install 1-7/8" O.D. Grommet onto the end of the Power Supply Wire Harness per Fig. 1.2. Make sure small lip of the grommet is pointed towards this end.
- 1.3 Install A/C Power Supply Wire Harness into the side of the A/C Unit where the dome plug was removed from step 1.1.
- **1.4** Route the Power Supply Harness per fig 1.4.

On Pro-DX: Route harness forward to the power solenoid. Snake it below the refrigerant line making sure nothing is protruding too high above the unit that will interfere with A/C Cap installation and install the grommet into the hole.

On Pro-DXT: Determine how vehicle will be used most often. If in a single seat configuration more often, route harness more like DX. If it will be used in 2 row configuration, route as shown for DXT and install the grommet into the hole..

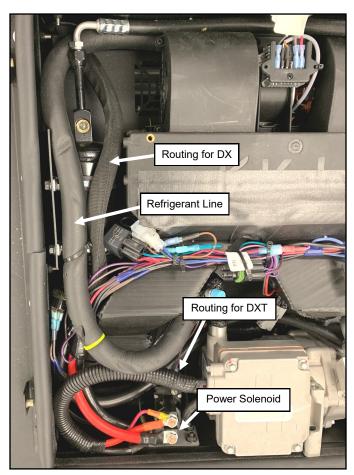


Fig. 1.4 (Route harness inside A/C Unit)

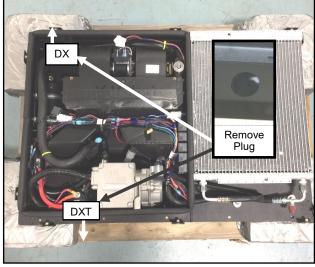


Fig. 1.1 (Remove dome plug from A/C Unit)

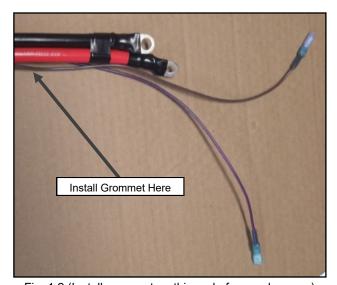


Fig. 1.2 (Install grommet on this end of power harness)

STEP 1: (A/C UNIT PREP CONT'D.)

1.5 Remove the nut securing the ground wires to the solenoid mounting plate, Next, install the Power Supply Wire Harness' black ground wire onto the bolt, re-install the nut and then tighten as shown In fig. 1.5.

Tools

5/32" Allen Wrench 7/16" wrench or socket

1.6 Install the red power wire found on the A/C Power Supply Wire Harness onto the empty terminal found on the solenoid per fig 1.6.

Tools

1/2" wrench or socket

- 1.7 Install Jumper Harness supplied in this alternator kit onto the A/C Unit's main control harness per fig 1.7.
- **1.8** Install the supplied Relay onto the Controller Jumper Harness per fig 1.8.

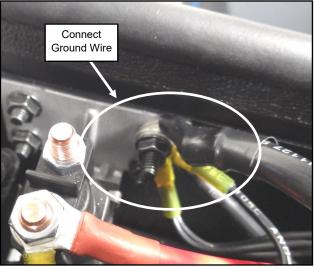


Fig. 1.5 (Connect ground to A/C Unit)



Fig. 1.6 (Connect power wire to A/C Unit)

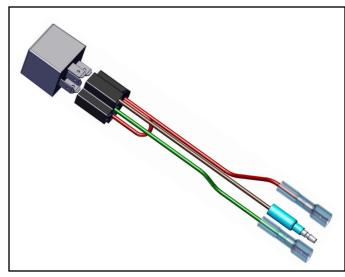


Fig. 1.8 (Install relay into Controller Jumper Harness)

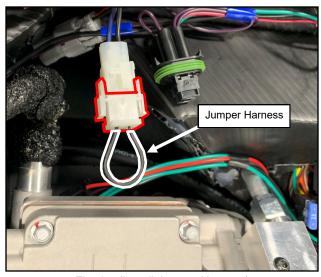


Fig. 1.7 (Install Jumper Harness)

STEP 1: (A/C UNIT PREP CONT'D.)

- 1.9 Connect the Controller Jumper Harness' brown and purple wires to the brown and red wires found on A/C Power Supply Wire Harness per fig. 1.9. Connect the Controller Jumper Harness' green wire to the A/C Unit's main control harness' pink wire as shown in fig. 1.9.
- 1.10 Bundle the wires in the tray formed by the ductwork as shown in fig. 1.10 and use the supplied tie wraps to hold the harnesses together.

Hardware UsedQty8" Wire Ties4

Tools
Diagonal Cutters

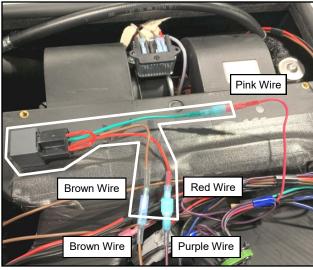


Fig. 1.9 (Connect Controller Jumper Harness)

STEP 2: (VEHICLE PREP) For Mule PRO-DXT

If installing alternator kit on Mule Pro-DX vehicle, proceed to step 2.12 on page 8.

- **2.1** Disconnect the (2) latches on either side of the vehicle in front of the bed and tilt the back seat bottom forwards per fig 2.1.
- 2.2 Grab handles on the side of the bed and tilt the bed backwards per fig. 2.2.

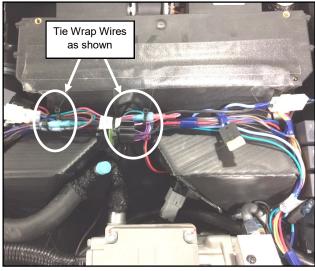


Fig. 1.10 (Tie Wrap Harnesses together)

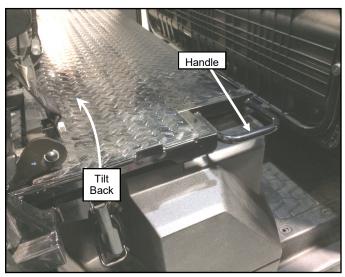


Fig. 2.2 (Tilt Bed, Pro-DXT)

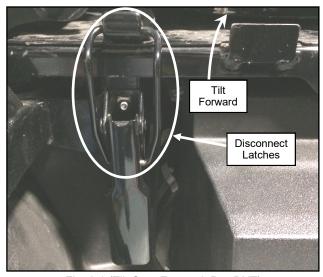


Fig. 2.1 (Tilt Seat Forward, Pro-DXT)

STEP 2: (VEHICLE PREP CONT'D.) For Mule PRO-DXT

- **2.3** Disconnect the (2) small latches found on either side of the battery cover and set aside the cover per fig. 2.3.
- 2.4 Remove and set aside the vehicle's rear seat bottom cushion and frame by removing the (4) bolts holding on the assembly and the base of the Rear Seat Cover per fig. 2.4.

Tools

12mm wrench or socket

2.5 Remove rear seat cover and its mounting hardware which includes (3) plastic rivets, (2) M6X16 screws & (2) spacers per fig. 2.5. Set aside the mounting hardware and place the rear seat cover on a work bench for rework.

Tools

Flathead Screwdriver #3 Phillips Screwdriver

2.6 Locate the alternator cover found in item 1ACKAPDXTALTCVR. Place Alternator Cover (1-7/8") from the edge of the seat cover as shown in Fig 2.6. Using the (4) holes on the cover as reference, mark and drill the holes thru the plastic cover.

<u>Tools</u>

9/32" Drill Bit Hand Drill

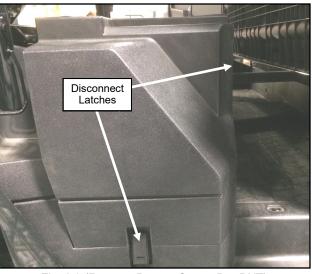


Fig. 2.3 (Remove Battery Cover, Pro-DXT)

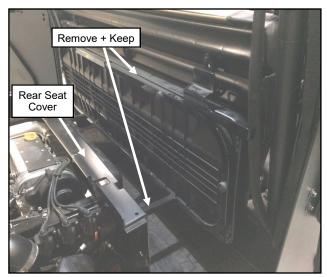


Fig. 2.4 (Remove Seat Bottom Cushion with Frame)

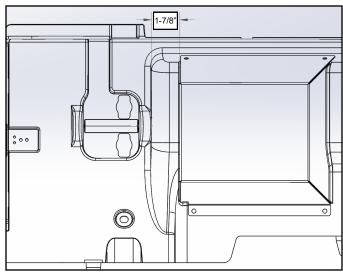


Fig. 2.6 (Rework Rear Seat Cover, Drill)



Fig. 2.5 (Remove Rear Seat Cover)

STEP 2: (VEHICLE PREP CONT'D.)

For Mule PRO-DXT

2.7 Using figure 2.7 as reference, mark-up the passenger side of the rear seat cover and cut out the hole in the cover.

Tools

Reciprocating Saw

2.8 Install alternator cover to rear seat cover per fig. 2.8.

Hardware Used	Q
1/4-20 X 5/8" Panhead Screws	4
1/4-20 Flange Hex Nuts	4

Tools

#2 Phillips Screwdriver 7/16" Wrench or Socket

2.9 Remove (2) pan head screws and washers and (2) plastic rivets from right side cover and set aside. Per figure 2.9.

Tools

Flathead Screwdriver #3 Phillips Screwdriver

2.10 Pull right side cover out enough to replace the foam corner piece with a 1" piece of trim-lok as shown In figure 2.10. Note: cab side A/C Power Supply harnesses will be routed as noted in figure 2.10.

<u>Tools</u>

Snips

2.11 Cut marked corner (2-1/4" X 1-1/4") of the plastic located on the rear side of the panel under the front passenger seat as shown on figure 2.11. Cut and apply 3-3/4" long trim-lok onto the bottom edge of the center ROPS tube per fig. 2.11 to protect the wire.

Tools Snips



Fig. 2.11 Front Seat Cover, Right

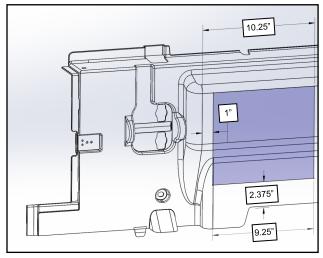


Fig. 2.7 (Rework Rear Seat Cover, Cut)

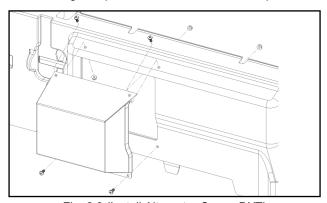


Fig. 2.8 (Install Alternator Cover, DXT)

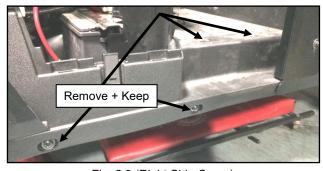


Fig. 2.9 (Right Side Cover)

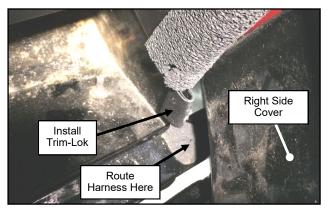


Fig. 2.10 (Remove Foam Corner + Install Trim-Lok)

STEP 2: (VEHICLE PREP CONT'D.) For Mule PRO-DX

If installing alternator kit on Mule Pro-DXT vehicle, proceed to step 2.15.

- **2.12** Disconnect the (2) latches on either side of the vehicle in front of the bed and tilt the back seat bottom forwards per fig 2.12.
- **2.13** Disconnect the (2) small latches found on either side of the battery cover and set aside the cover per fig. 2.13.
- **2.14** Remove and set aside seat back cover with its (6) Plastic Rivets & (3) Screws per fig. 2.14.

Tools Flathead Screwdriver #3 Phillips Screwdriver

For both Mule PRO-DX & PRO-DXT

2.15 Disconnect the ground from the battery as shown in fig. 2.15.

Tools 1/2" Wrench

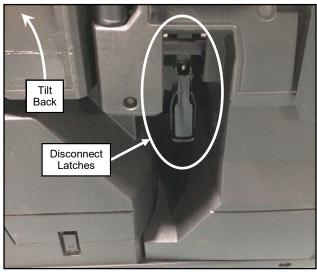


Fig. 2.12 (Tilt Bed, Pro-DX)

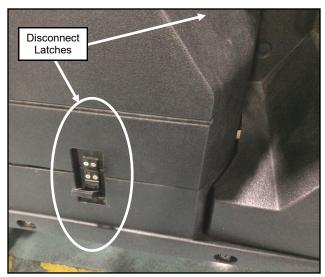


Fig. 2.13 (Remove Battery Cover, Pro-DX)

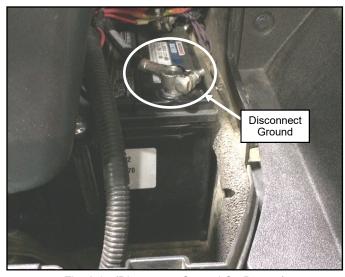


Fig. 2.15 (Disconnect Ground On Battery)

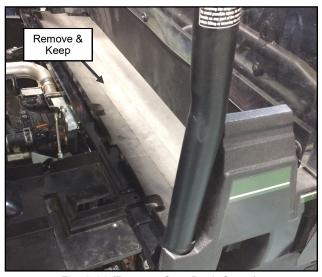


Fig. 2.14 (Remove Seat Back Cover)

STEP 2: (VEHICLE PREP CONT'D.)

- **2.16** Un-latch the (4) small latches found on the side of the Air Filter Cover, remove and set aside the cover and filter per fig. 2.16.
- **2.17** Remove fan cover and mounting hardware from engine and set aside per fig 2.17.

Tools

10mm wrench or socket 12mm wrench or socket

2.18 Disconnect both the alternator power wire and 2-pin connector from the back of the alternator per fig 2.18.

Tools

10mm wrench or socket

2.19 Loosen alternator mounting hardware per fig. 2.19.

<u>Tools</u>

12mm wrench or socket 14mm wrench or socket



Fig. 2.16 (Remove Air Filter & Cover)



Fig. 2.17 (Remove Fan Cover)

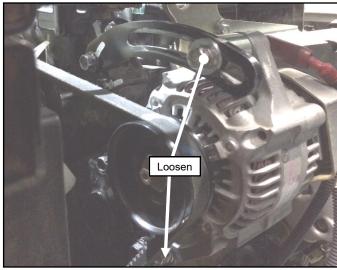


Fig. 2.19 (Loosen Alt Hardware)

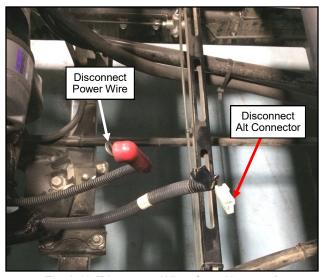


Fig. 2.18 (Disconnect Wires from Alternator)

STEP 2: (VEHICLE PREP CONT'D.)

- **2.20** Remove V-belt by sliding belt over fan blades as shown in fig. 2.20.
- **2.21** Remove top alternator mounting plate, spacer and mounting hardware per fig. 2.21.

Tools

12mm wrench or socket 14mm wrench or socket

2.22 Remove alternator per fig. 2.22.

Tools

14mm wrench or socket

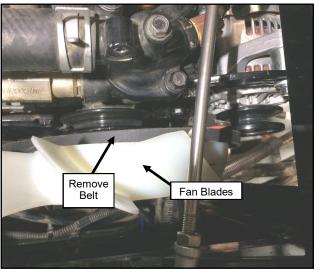


Fig. 2.20 (Remove Belt)

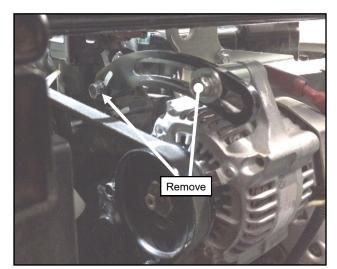


Fig. 2.21 (Remove Alt Hardware & Bracket)

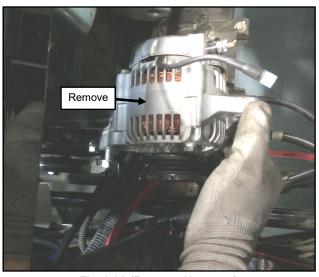


Fig. 2.22 (Remove Alternator)

STEP 3: (ALTERNATOR INSTALLATION)

3.1 Remove two bolts from the cover as shown in Figure 3.1. With Scotch-Brite Pad, remove rust from non-painted surfaces on the mounting surfaces.

Tools

Scotch-Brite Pad

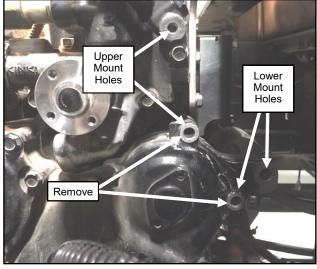


Fig. 3.1 (Alt Bracket Holes)

3.2 Install Lower Alternator Mounting Weldment with Spacer (.630" lg.) onto engine block. See figures 3.1 and 3.2. With the bolts loose, lift the alternator mounting hole upwards as shown in Figure 3.2 to remove all slack and tighten the bolts to the following torque; 10mm BHCS 34-40 ft-lb (46-54 Nm) and 8mm Flange Bolt 20-26 ft-lb (27-35 Nm).

Tools

13mm socket 6mm Allen wrench socket Torque Wrench

Hardware Used	Qty
M8X1.25 X 45 Flange Bolt (Clear Zinc)	1
M10X1.5 X 45 BHCS (Clear Zinc)	1
SPACER, 5/8" OD X .630" lg.	1

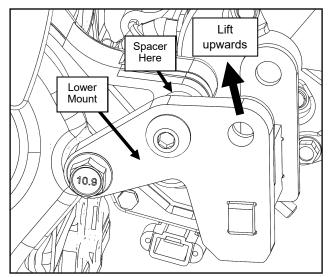


Fig. 3.2 (Lower Mount Weldment)

3.3 Install Upper Alternator Mounting Weldment w/ Adjustment Plate onto engine block per figures 3.1 and 3.3. Do not tighten 3/8-16 Flange Bolt fully at this time. Tighten M8 bolts to the following torque; 8mm Flange Bolt 20-26 ft-lb (27-35 Nm) and 8mm BHCS 17-22 ft-lb (23-30 Nm).

<u>Tools</u>

13mm wrench or socket 9/16" wrench or socket 5mm Allen wrench socket Torque Wrench

Hardware Used	<u>Qty</u>
M8X1.25 X 25 BHCS (Clear Zinc)	1
M8X1.25 X 45 Flange Bolt (Clear Zinc)	1
3/8-16 X 1" Flange Bolt (Clear Zinc)	1

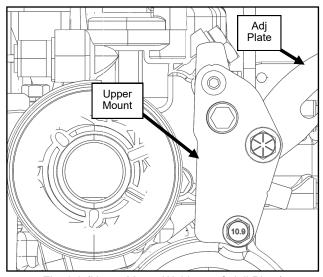


Fig. 3.3 (Upper Mount Weldment & Adj Plate)

STEP 3: (ALTERNATOR INSTALL)

Install Alternator into the recently installed Alternator Mounting Brackets per fig 3.4. Lower bolt is 3-1/2" long and upper bolt is 3" long. Note: Only hand tighten lower locking nut, the A/C Unit's ground to be installed at a later step.

Tools 7/32" Allen Wrench 9/16" wrench or socket

Hardware Used	<u>Qty</u>
3/8-16 X 3-1/2" BHCS (Clear Zinc)	1
3/8-16 X 3" BHCS (Clear Zinc)	1
3/8-16 Flange Lock Nut (Clear Zinc)	2

3.5 Loosely install new V-Belt provided in kit per fig 3.5.

Note: Before moving onto the next step, start the installation of the vehicle's cab and the A/C Roof Kit.

STEP 4: (ALTERNATOR WIRING)

Install Ground Wire from the A/C Unit power supply harness to the back of lower alternator mounting screw as shown in fig 4.1. Tension the V-belt and tighten the 3/8" screws that secure the alternator to the following torque; 3/8" Flange Bolt 38-46 ft-lb (52-62 Nm) and 3/8" BHCS 35-42 ft-lb (48-57 Nm).

Tools

7/32" Allen Wrench 9/16" wrench or socket 13mm wrench or socket 9/16" wrench or socket Flathead Screwdriver or Small Prybar Torque Wrench

Ensure that the V-belt has clearance from dipstick and dipstick guard. If it is tight, loosen the nut that secures the guard and take out the slop to push it away from the belt. If necessary, loosen the two fasteners securing the dipstick to the bracket and push it away from the belt as well. Re-tighten hardware.

Tools

12mm socket 10mm wrench or socket

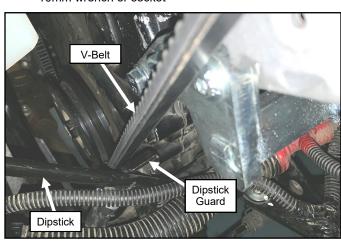


Fig. 4.2 (Ensure Belt Clearance)

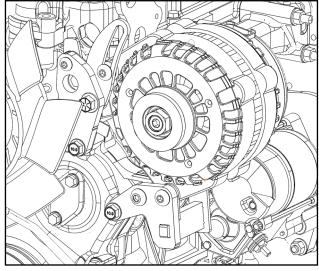


Fig. 3.4 (Install Alternator)

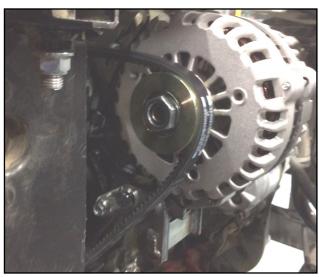


Fig. 3.5 (Install Belt)

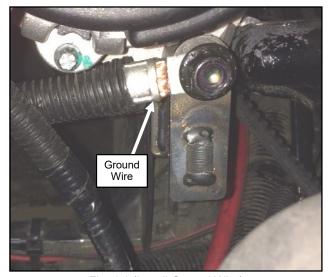


Fig. 4.1 (Install Ground Wire)

STEP 4: (ALTERNATOR WIRING)

4.3 Install Fuse Mounting Bar and the vehicle's power wire (disconnected on step 2.17) to the back of the alternator power stud as shown in fig 4.3.

Tools

10mm wrench or socket

For Mule PRO-DX

If installing alternator kit on Mule Pro-DXT vehicle, proceed to step 4.6.

4.4 Install 100 amp fuse, red wires from both the cab and engine side A/C Power Supply harnesses onto the Fuse Mounting Bar's Fuse Stud as shown in fig. 4.4.

Tools

7/16" wrench or socket

4.5 Install Fuse Mounting Bar, 100 amp fuse and engine side A/C Power Supply harness to the positive terminal found on the vehicle's battery. See fig 4.5.

Tools

7/16" wrench or socket

For Mule PRO-DXT

If installing alternator kit on Mule Pro-DX vehicle, proceed to step 4.8 on the next page.

4.6 Install Fuse Mounting Bar and the vehicle's power wire (disconnected on step 2.17) to the back of the alternator power stud as shown in fig 4.6.

Tools

10mm wrench or socket

4.7 Install Fuse Mounting Bar, 100 amp fuse and both engine and cab side A/C Power Supply harnesses to the positive terminal found on the vehicle's battery. See fig 4.7.

<u>Tools</u>

7/16" wrench or socket

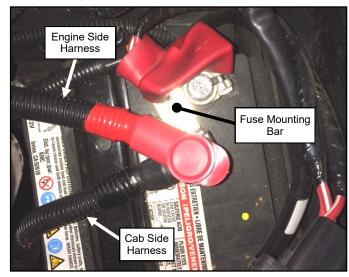


Fig. 4.7 (Install A/C Power Supply Harnesses, Battery Side, DXT)

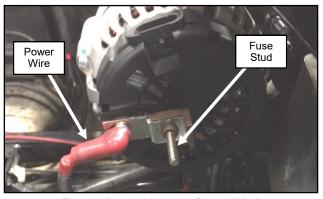


Fig. 4.3 (Install Vehicle's Power Wire)

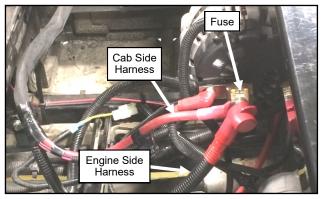


Fig. 4.4 (Install A/C Power Supply Harnesses)

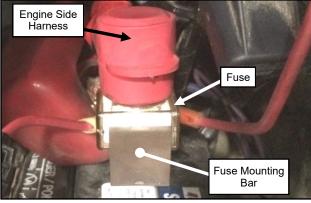


Fig. 4.5 (Install A/C Power Supply Harnesses, Battery Side)

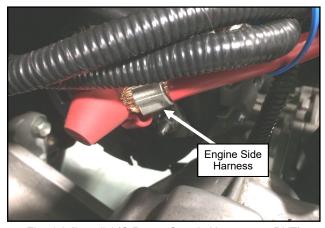


Fig. 4.6 (Install A/C Power Supply Harnesses, DXT)

STEP 4: (ALTERNATOR WIRING CONT'D.)

For both Mule PRO-DX & PRO-DXT

- 4.8 Connect 2-pin alternator end of Alternator Harness to the Vehicle's Alternator Connector found on Step 2.17. Next, connect male push-on terminal to A/C Power Supply Cab Harness' female push-on terminal. See figures 4.8a and 4.8b.
- **4.9** Connect 4-pin connector found on the Cab Side A/C Power Supply Harness to the back of the alternator as shown in fig. 4.9.

STEP 5: (FINISHING TOUCHES)

- **5.1** Inspect all belts for tightness, adjust as necessary.
- **5.2** Inspect all fasteners, they should be fully tightened before starting the vehicle.
- 5.3 Inspect all wires to make sure they are sufficiently tied down and away from hot or moving parts.
- **5.4** Reconnect the negative battery terminal.
- 5.5 Re-install Air Filter & Cover, which was previously removed in Step 2 section.

For Mule PRO-DXT

If installing on Mule Pro-DX vehicle, proceed to step 5.9.

5.6 Re-install right rear side cover hardware previously removed in Step 2 section, per fig. 5.6.

Tools

Flathead Screwdriver #3 Phillips Screwdriver

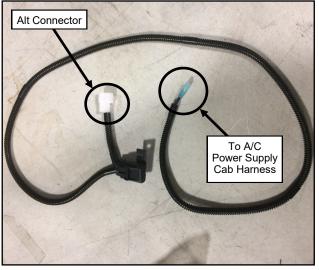


Fig. 4.8a (Connect Alternator Harness)

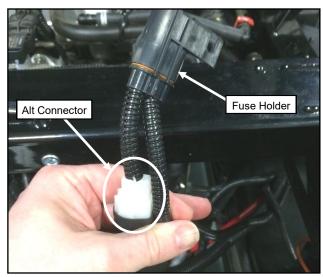


Fig. 4.8b (Connect Alternator Harness, Fuse Holder)

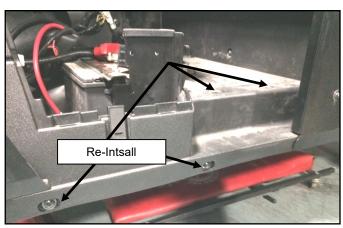


Fig. 5.6 (Right Side Cover)

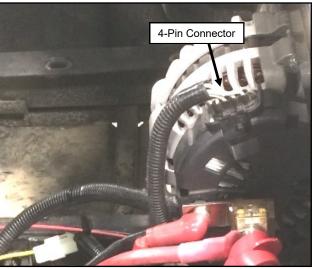


Fig. 4.9 (4-Pin Connector, A/C Power Supply Harness (Cab))

STEP 5: (FINISHING TOUCHES)

5.7 Re-install the previously removed rear seat cover.

Tools

Flathead Screwdriver #3 Phillips Screwdriver

5.8 Re-install the previously removed rear seat cushion and frame.

Tools

12mm wrench or socket

For Mule PRO-DX

If installing alternator kit on Mule Pro-DXT vehicle, proceed to step 5.11.

5.9 Re-install the previously removed seat back cover with its (6) Plastic Rivets & (3) Screws.

Tools

Flathead Screwdriver #3 Phillips Screwdriver

5.10 Install 6" strip of trim-lok provided in kit to the sheetmetal lower rear panel's upper flange as shown in fig. 5.10 to keep the wire from being chaffed.

For both Mule PRO-DX & PRO-DXT

5.11 Re-install fan cover and mounting hardware onto the engine. Check for clearance to the belt and trim the front edge if required. Be sure to re-install spacer (Figure 5.11) into cover when securing rear cover fastener.

Tools

10mm wrench or socket 12mm wrench or socket

- **5.12** Re-install the air filter and battery cover.
- 5.13 Tilt the vehicle's bed back down and re-latch the bed.
- 5.14 Start the vehicle and turn on the air conditioner. Run the engine at idle. Cool air should begin to flow after 60 to 90 seconds. Verify that the air conditioner is functioning. If it is not functioning, refer to the troubleshooting section in the A/C manual.
- **5.15** Alternator kit is now complete. Continue with the completion of the cab and roof kit installations.

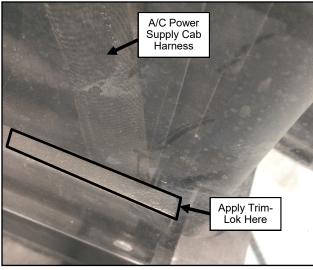


Fig. 5.10 (Apply Trim-Lok Lower Rear Panel, Pro-DX)

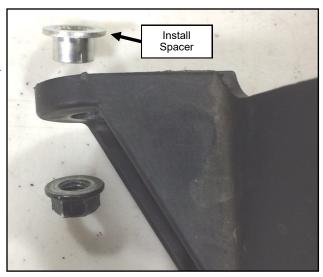
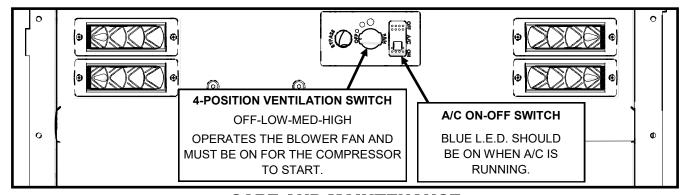


Fig. 5.11 (Re-Install Fan Cover)



CARE AND MAINTENANCE

- Readjust the belts after the initial 8-10 hours of vehicle use.
- Check and tighten hardware after 20 hours of vehicle operation. Periodically inspect and tighten hardware for the remainder of the unit's life.

KAWASAKI MULE PRO-DX & PRO-DXT A/C ALTERNATOR KIT SERVICE PARTS

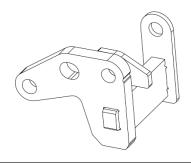
ALT. MOUNTING WELDMENT, UPPER, ZC, PRO-DX; P/N: 8SV-WA-00290-ZC



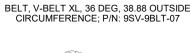
ALTERNATOR ADJ PLATE WELDMENT, ZC, PRO-DX; P/N: 8SV-WA-00288-ZC



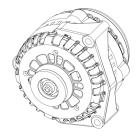
ALT. MOUNTING WELDMENT, LOWER, ZC, PRO-DX; P/N: 8SV-WA-00289-ZC



ALTERNATOR, AD244 FRAME W/ 2.33" DIA V-BELT XL PULLEY: P/N: 8SV-114-00029

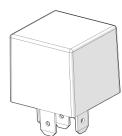


PULLEY, V-BELT XL, 2.33" DIA, 17MM BORE, STEEL; P/N: 9SV-MP-00032





SPACER, .402 ID X .625 OD X .630 LG P/N: 9SV-T-00214

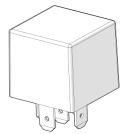


RELAY, 12V, 20/40A, SPDT, MINI ISO

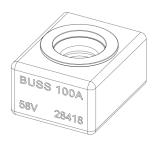
P/N: 9SV-85-01-0022

CONTROLLER JUMPER HARNESS P/N: 9SV-WH-00095

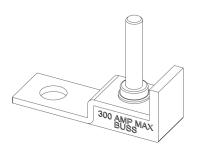




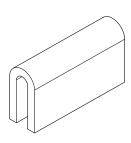
FUSE, 100 AMP, 58 VOLT, MARINE RATED BATTERY, IP66; P/N: 9SV-85-00-0050



FUSE MOUNTING BAR, 58 VOLT, 1/4" STUD, 3/8" MOUNTING HOLE; P/N: 9SV-85-16-0051



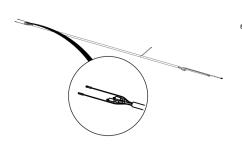
TRIM-LOK, STD, 1/16" - 1/8" GRIP P/N: 9SV-PRO1-20

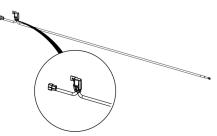


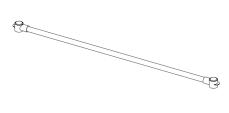
KAWASAKI MULE PRO-DX & PRO-DXT A/C ALTERNATOR KIT SERVICE PARTS

WIRE HARNESS, A/C POWER SUPPLY, CAB SIDE, ACMRX; P/N: 9SV-WH-00096

ALTERNATOR HARNESS, KAWASAKI MULE PRO-FX; P/N: 9SV-WH-00116 WIRE HARNESS, A/C POWER SUPPLY, ENGINE SIDE, MULE PRO-FX P/N: 9SV-WH-00117



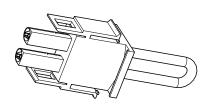




JUMPER HARNESS P/N: 9SV-WH-00094

TUBE CAPS (BAG OF 10) 9SV-74-01-0010

DRAIN HOSE 9SV-AC-00019-15







BOLT TORQUE

BOLT TORQUE SPECIFICATIONS

GENERAL TORQUE SPECIFICATION TABLE

Use the following torques when special torques are not given. These values apply to fasteners as received from suppliers, dry, or when lubricated with normal engine oil. They do not apply if special graphited or moly disulphide greases or other extreme pressure lubricants are used. This applies to both UNF and UNC threads. Remember to always use grade five or better when replacing bolts.

IMPORTANT: On all PLATED GRADE 8 bolts, reduce torque 15% from listed bolt torque specification.

SAE Grade No. Bolt head identification mark as per grade.	2	5	
NOTE: Manufacturing Marks Will Vary			

			TORG	QUE		TORQUE			TORQUE				
Bolt	Size	Pound	s Feet	Newtor	n-Meters	Pound	s Feet	Newton	-Meters	Pounds Feet		Newton-Meters	
Inches	Millimeters	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1/4	6.35	5	6	7	8	9	11	12	15	12	15	16	20
5/16	7.94	10	12	14	16	17	20.5	23	28	24	29	33	39
3/8	9.53	20	23	27	31	35	42	48	57	45	54	61	73
7/16	11.11	30	35	41	47	54	64	73	87	70	84	95	114
1/2	12.70	45	52	61	70	80	96	109	130	110	132	149	179
9/16	14.29	65	75	88	102	110	132	149	179	160	192	217	260
5/8	15.88	95	105	129	142	150	180	203	244	220	264	298	358
3/4	19.05	150	185	203	251	270	324	366	439	380	456	515	618
7/8	22.23	160	200	217	271	400	480	542	651	600	720	814	976
1	25.40	250	300	339	406	580	696	787	944	900	1080	1220	1464
1-1/8	25.58	-	-	-	-	800	880	1085	1193	1280	1440	1736	1953
1-1/4	31.75	-	-	-	-	1120	1240	1519	1681	1820	2000	2468	2712
1-3/8	34.93	-	-	-	-	1460	1680	1980	2278	2380	2720	3227	3688
1-1/2	38.10	-	-	-	-	1940	2200	2631	2983	3160	3560	4285	4827

*Thick Nuts must be used with Grade 8 bolts

8*

METRIC BOLT TORQUE SPECIFICATIONS

 5.6

 8.8

 10.9

			Course Thread		Fine Thread			
Size of Screw	Property Class	Pitch (mm)	Pounds Feet	Newton-Meters	Pitch (mm)	Pounds Feet	Newton-Meters	
	5.6		3.6-5.8	4.9-7.9		-	-	
M6	8.8	1.0	5.8-9.4	7.9-12.7	-	-	-	
	10.9		7.2-10	9.8-13.6		-	-	
	5.6		7.2-14	9.8-19		12-17	16.3-23	
M8	8.8	1.25	17-22	23-29.8	1.0	19-27	25.7-36.6	
	10.9		20-26	27.1-35.2		22-31	29.8-42	
	5.6		20-25	27.1-33.9		20-29	27.1-39.3	
M10	8.8	1.5	34-40	46.1-54.2	1.25	35-47	47.4-63.7	
	10.9		38-46	51.5-62.3		40-52	54.2-70.5	
	5.6		28-34	37.9-46.1		31-41	42-55.6	
M12	8.8	1.75	51-59	69.1-79.9	1.25	55-68	75.9-92.1	
	10.9		57-66	77.2-89.4		62-75	84-101.6	
	5.6		49-56	66.4-75.9		52-64	70.5-86.7	
M14	8.8	2.0	81-93	109.8-126	1.5	90-106	122-143.6	
	10.9		96-109	130.1-147.7		107-124	145-168	
	5.6		67-77	90.8-104.3		69-83	93.6-112.5	
M16	8.8	2.0	116-130	157.2-176.2	1.5	120-138	162.6-187	
	10.9		129-145	174.8-196.5		140-158	189.7-214.1	
	5.6		88-100	119.2-136		100-117	136-158.5	
M18	8.8	2.0	150-168	203.3-227.6	1.5	177-199	239.8-269.6	
	10.9		175-194	237.1-262.9		202-231	273.7-313	
	5.6		108-130	146.3-176.2		132-150	178.9-203.3	
M20	8.8	2.5	186-205	252-277.8	1.5	206-242	279.1-327.9	
	10.9		213-249	288.6-337.4		246-289	333.3-391.6	