

Installation manual power upgrade kit

Yamaha Sidewinder / Arctic Cat ZR 9000

Stage 1 / 225 hp and stage 2 / 250 hp

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Supreme of the extreme !

Sidewinder / AC ZR 9000

power upgrade kits

Thank you for choosing the MC Xpress power upgrade kit to your Yamaha Sidewinder / Arctic Cat ZR 9000 snowmobile.

The upgrade kits are designed for racing use only.

The upgrade kits are designed to give you the best performance possible together with reliability.

During the development work we have tried to keep the snowmobile as stock as possible to make the installation easy and to keep the sled as untouched as possible.

Read this manual before you start with the installation.

We hope you will get much joy with your new investment.

The turbo snowmobile is only recommended to be used by experienced riders and for racing use only.

- This upgrade kit greatly enhances the performance of the vehicle it is installed upon!
- Professional training should be received by anyone that operates this modified vehicle.
- Installation of this upgrade kit may void any warranty that is provided by the vehicle manufacturer.
- A one (1) year warranty is provided on the parts only. This warranty does not cover any other parts even if the damage is caused by the installation of the upgrade kit.
- MCXpress AB, its distributors, dealers, nor installers will not be held liable for any personal or physical damaged obtained in association with the installation or use of this product.

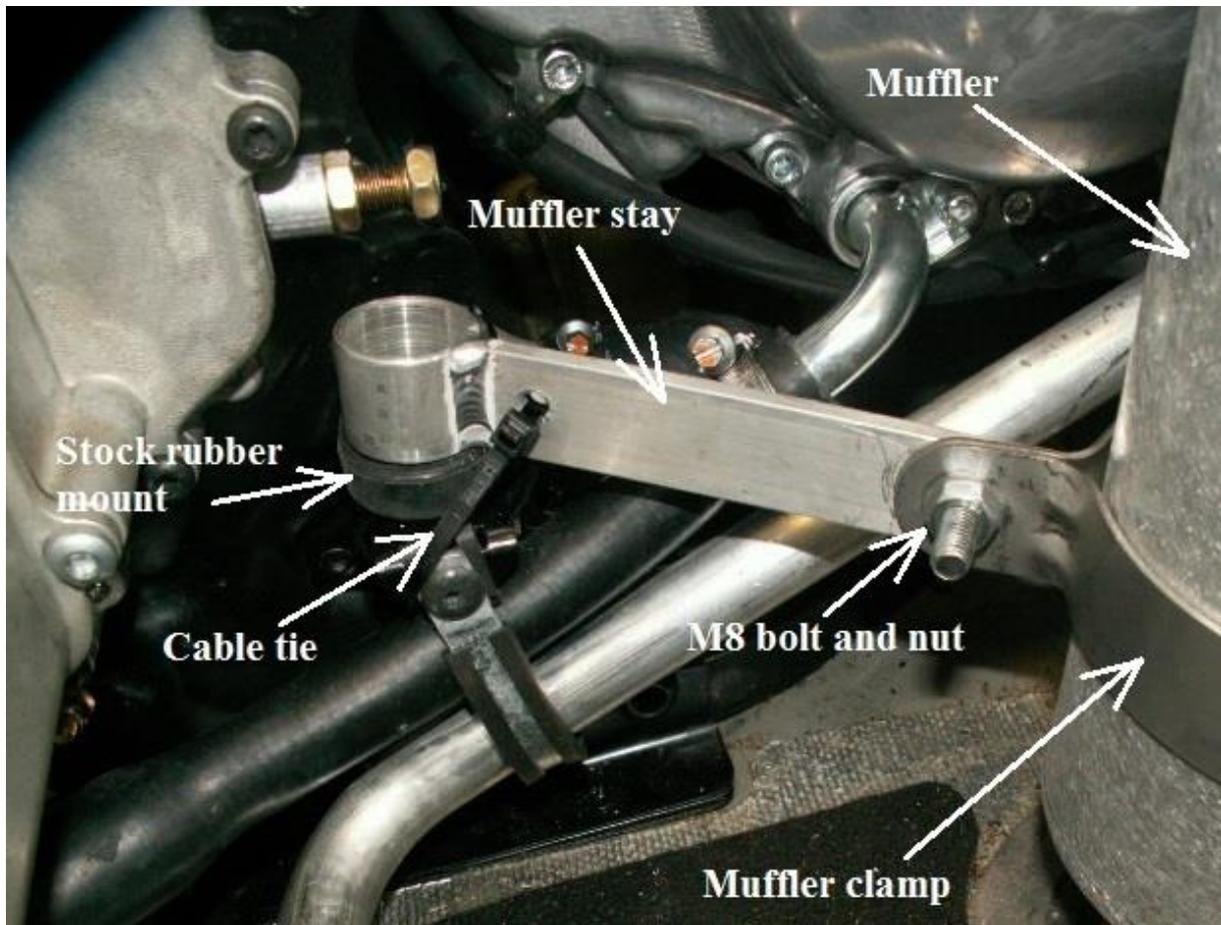
By installation or purchase of this product, the end user and or installer agree that the end user has been informed of this information.

Begin the installation by removing the plastic side fairings and the hood.
Remove the heat shield above the turbo and stock muffler from the turbo.

Installation of the race Alu muffler

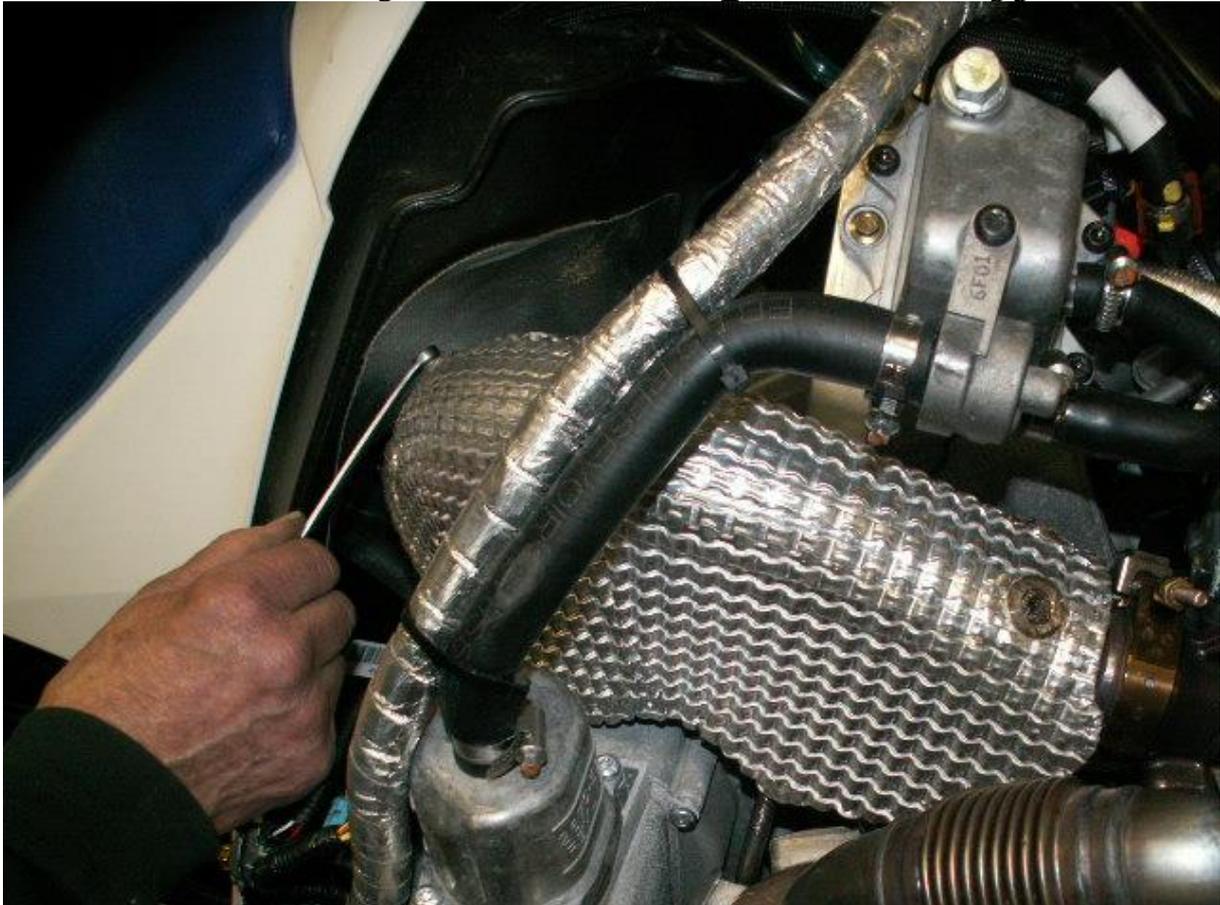
Install the new aluminum muffler and exhaust pipe to the turbo.
Use the stock exhaust gasket between the turbo and the exhaust pipe.
Use the stock bolts also.

Install the muffler stay between the chassis and the muffler like the picture below.
Use the stock rubber mount.
Strap down the muffler stay with a cable tie to keep it in place.



Install the stock heat shield above the turbo.

Installation of the race “quiet” muffler:



Remove the heat shield above the stock exhaust pipe. (see picture above)
Remove the front / upper muffler stay (see picture below)





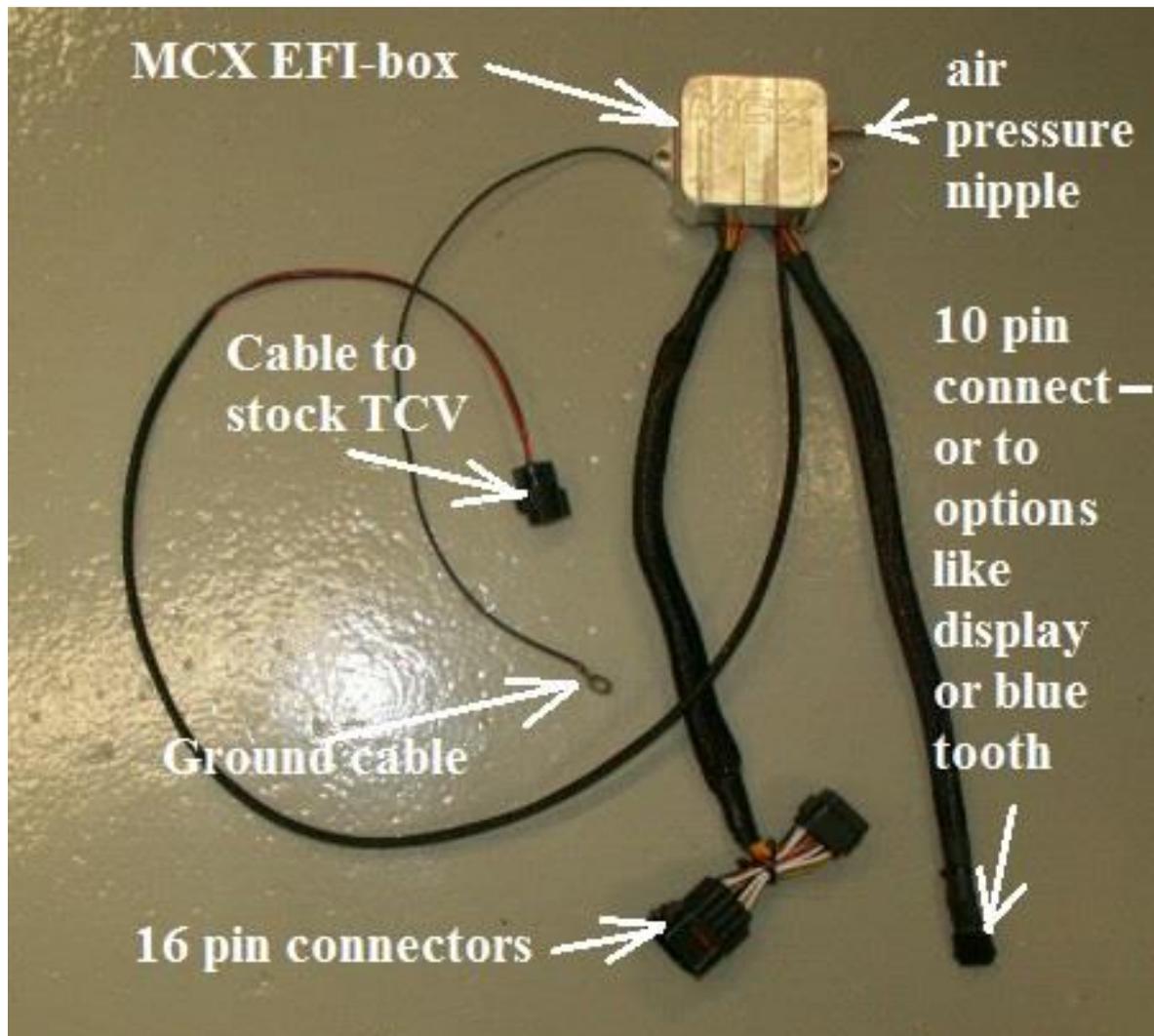
Install the new muffler.

Use stock the stock exhaust gasket and the stock bolts except on the rear/mid bolt.

Here, use the M8 bolt supplied with the kit.

Install the heat shield above the exhaust pipe and the turbo.

Installation of MCX EFI-box



The stock ECU is left untouched.

The opening time of the injectors and the TCV (=Turbo Control Valve) are controlled by the MCX EFI-box.

The 16 pin connector shall be connected to the stock wire harness.

The air nipple on the MCX EFI-box shall be connected to a hose leading pressure from the stock air intake manifold.

The two pin connector shall be connected to the stock TCV valve.

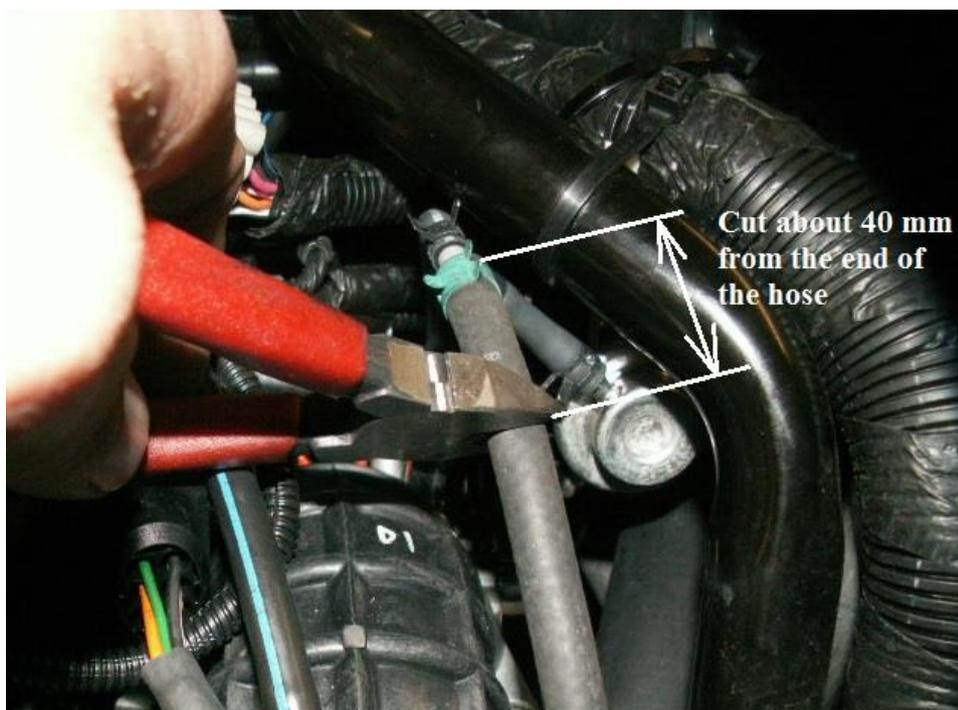
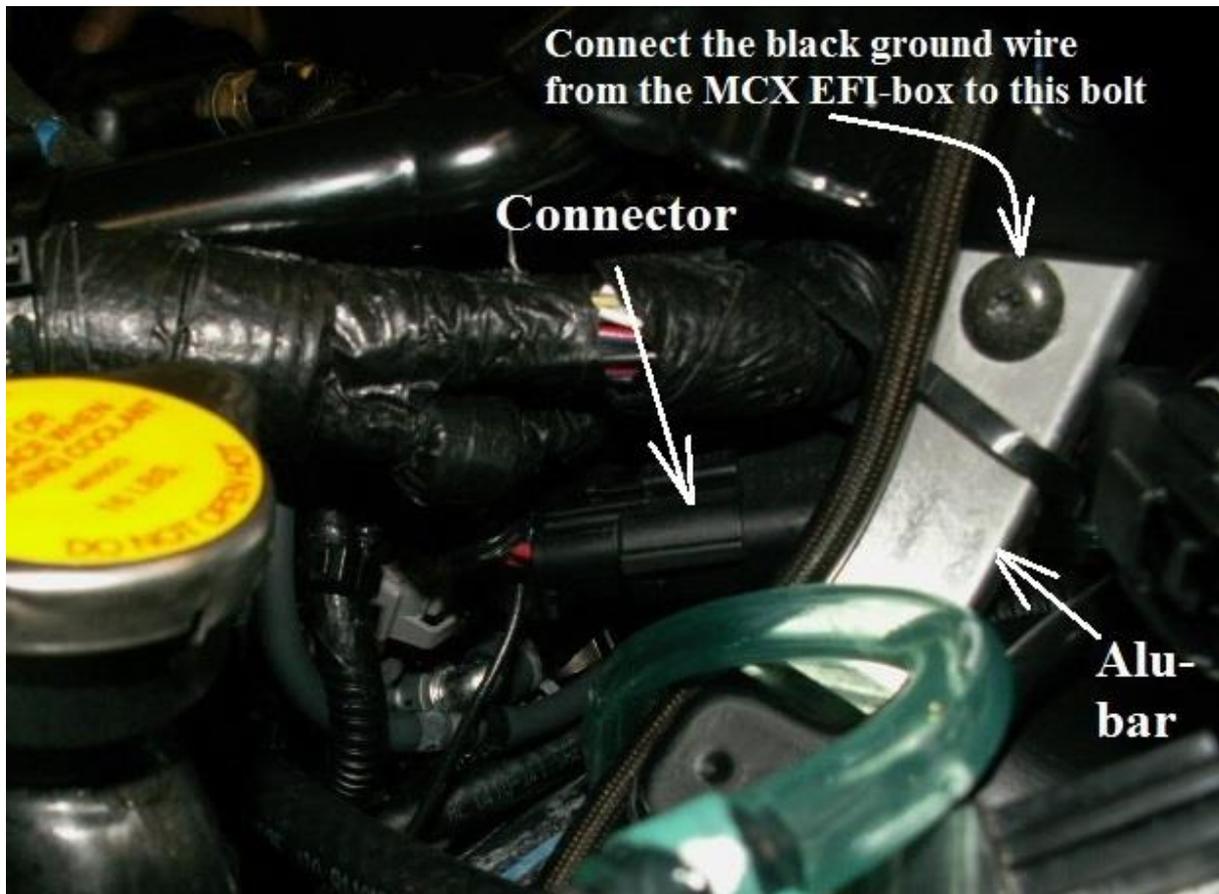
The small 10 pin connector shall not be connected to the stock wire harness.

It is made for options like the blue tooth unit or the MCX display and log unit.

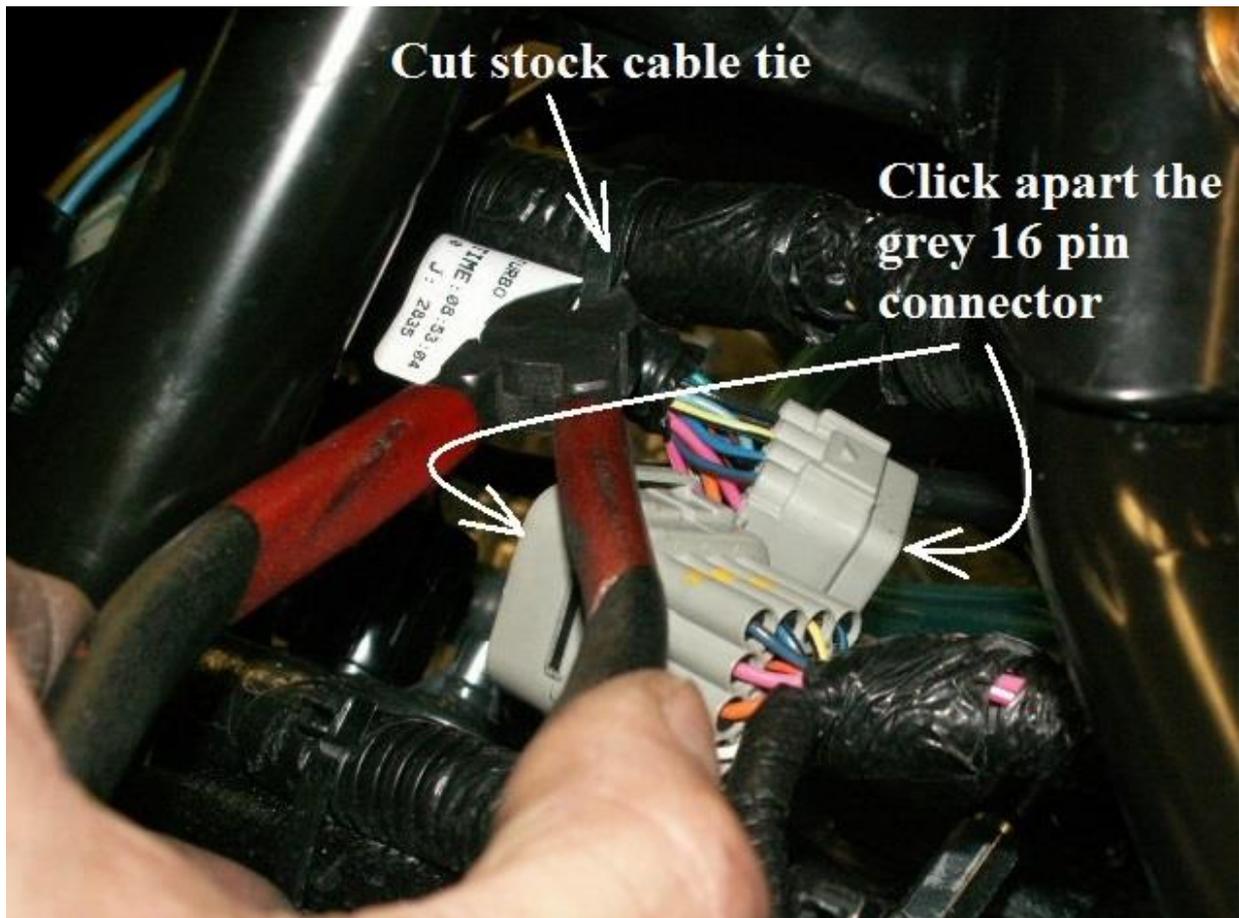


We recommend to place the MCX EFI-box like the picture above.
(More details will follow on the next pages)

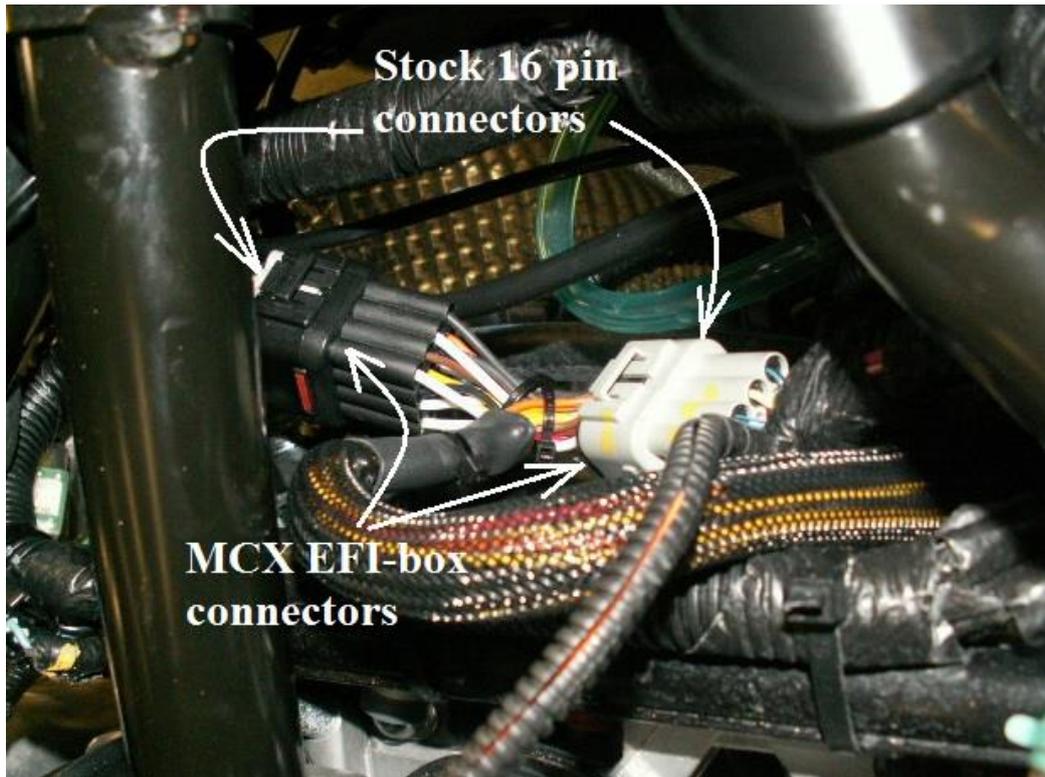
To make more space for the EFI-box, we recommend to move the connector behind the aluminum bar as we have done on the picture below. (This connector is usually in front of the alu-bar)



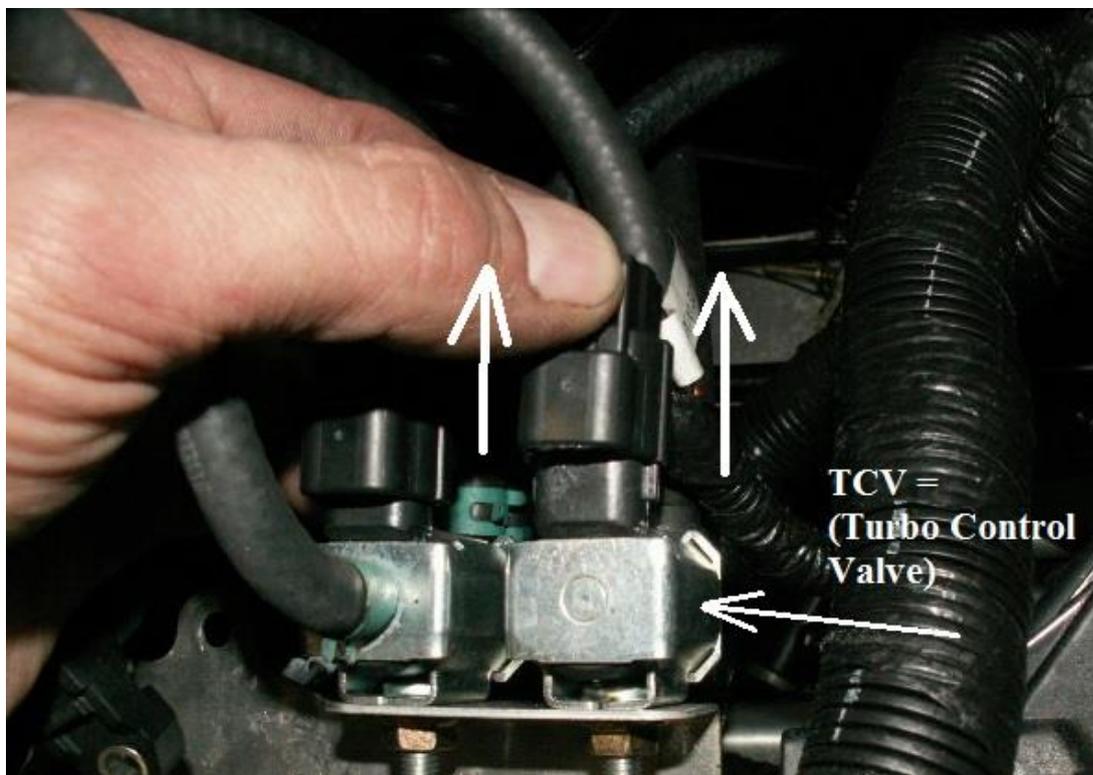
The MCX EFI-box shall be pressurized. Cut the small air hose like the picture. The T fitting on the Hose to the MCX EFI-box is supposed to be installed here.



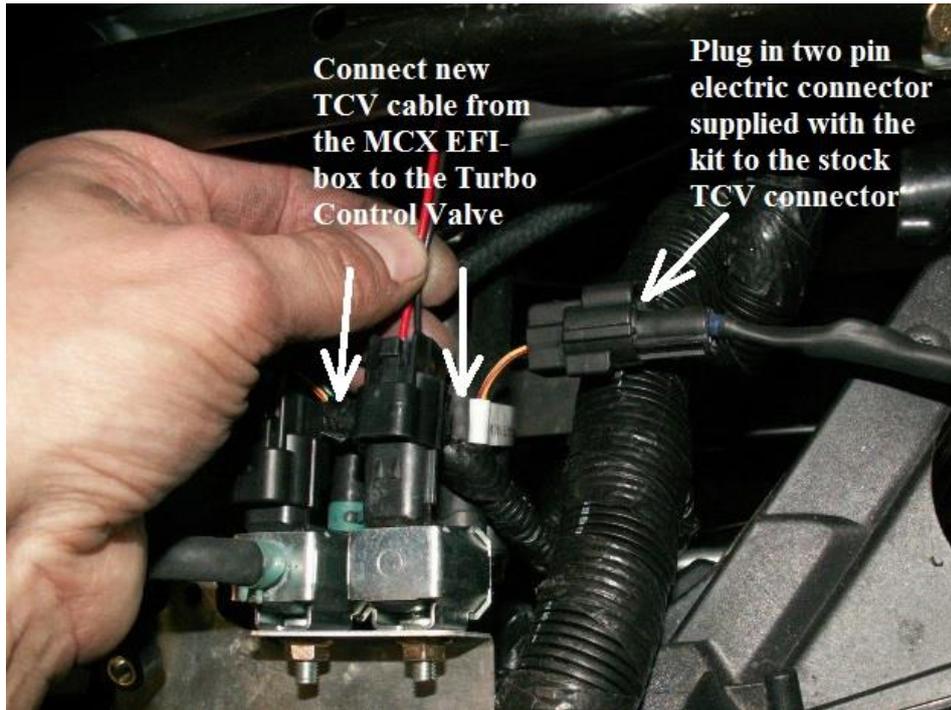
Plug in the MCX EFI-box into the grey 16 pin connectors on top of the throttle body.
Avoid bending the connectors on the MCX EFI-box.
We suggest to place them like the picture below.



Install the black ground cable form the MCX EFI-box to ground of the chassis.
(Connect to bolt on alu bar see picture 2 pages ago)



Disconnect the stock two pin connector from the TCV



Plug in the two pin adapter-connector supplied with the upgrade kit to the stock TCV cable. (This is installed to avoid error codes on the dashboard)

Connect the two pin connector from the MCX EFI-box to the TCV on the snowmobile. Strap the wires with cable ties.

Stage 2 upgrade kit:

(The info on the following two pages are only for the stage two kit)

Two pressure- sensor voltage converters must be installed to the snowmobile.

One is located in the front, close to the TCV valve.

Just remove the stock connector from the sensor, and plug in the voltage converter between the stock connector and the sensor.



The other voltage converter shall be installed to the pressure sensor on top/ the right side of the throttle body (seen from the drivers view)



Install new high temperature silicone air hoses to and from the intercooler.
Use stock hose clamps.

Install the headlight/hood and the side fairings.
Start the snowmobile.

Check the turbo pressure

On the stage 1 kit, the proper pressure is supposed to be 180 kPa absolute pressure. This is 80 kPa = (0,8 bar or 11,5 PSI) turbo pressure at sea level.

We recommend to check the turbo pressure during the first test run.

On the stage 2 kit, the proper pressure is supposed to be 200 kPa absolute pressure.

Clutch modification:

On the Yamaha, we recommend to make the stock clutch weights heavier.

Stage one kit:

Remove one rivet and replace it by a 15 mm long M6 bolt and nut.

Use thread sealant like LocTite or similar.

On the stage two kit, remove two rivets on the 162" model and replace it by M6x15 bolts and nuts.

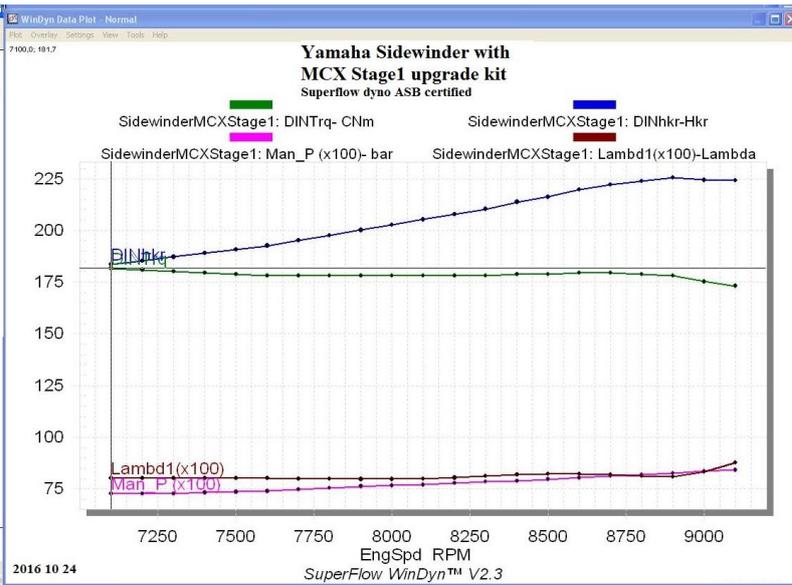
On the 153 model, we have found that it might be best to replace all three stock rivets by M6 bolts and nuts.



Test drive the snowmobile.

The rpm at full throttle is supposed to be between 8700 and 9000 rpm on both the stage one and two turbo upgrade kit.

EngSpd RPM	DINtrq Cm	DINHkr Hkr	Man bar	HKR Lambda	Exhaust manifold pressure	Muffler back pressure	Air temp out of turbo	Air temp after intercooler
7100	181.7	183.53	0.73	0.802	0.60	0.05	77	26
7200	181.8	183.38	0.73	0.802	0.61	0.05	78	26
7300	180.2	187.22	0.73	0.802	0.62	0.05	78	27
7400	179.5	189.83	0.73	0.802	0.64	0.05	79	27
7500	178.8	190.83	0.74	0.802	0.65	0.05	79	28
7600	178.1	192.60	0.74	0.802	0.67	0.06	80	28
7700	178.1	195.13	0.75	0.800	0.68	0.06	80	29
7800	178.1	197.67	0.75	0.800	0.70	0.07	81	30
7900	178.1	200.19	0.76	0.797	0.73	0.07	82	30
8000	178.1	202.73	0.77	0.797	0.75	0.07	83	31
8100	178.1	205.26	0.77	0.800	0.77	0.08	83	31
8200	178.1	207.80	0.78	0.805	0.79	0.08	84	32
8300	178.1	210.33	0.79	0.812	0.81	0.09	85	33
8400	178.8	213.71	0.79	0.820	0.82	0.09	86	34
8500	178.8	216.26	0.80	0.822	0.84	0.10	88	35
8600	179.5	219.08	0.80	0.822	0.86	0.10	90	36
8700	179.5	222.23	0.81	0.820	0.86	0.10	90	36
8800	178.8	223.89	0.82	0.812	0.87	0.11	91	37
8900	178.1	225.53	0.83	0.810	0.88	0.11	92	38
9000	175.2	226.42	0.83	0.822	0.90	0.11	92	40
9100	173.1	224.15	0.84	0.877	0.91	0.12	93	40



EngSpd RPM	DINtrq Cm	DINHkr Hkr	Man_P bar	HKR Lambda	Exhaust manifold pressure	Muffler back pressure	Air temp out of turbo	Air temp after intercooler
7000	185.8	185.07	0.77	0.795	0.60	0.05	84	30
7100	184.4	186.26	0.76	0.792	0.60	0.05	84	31
7200	182.9	187.90	0.76	0.792	0.61	0.05	84	31
7300	181.5	188.51	0.76	0.792	0.62	0.05	84	32
7400	180.8	190.33	0.76	0.795	0.64	0.06	85	32
7500	180.8	192.14	0.77	0.795	0.67	0.06	86	33
7600	180.8	194.78	0.78	0.792	0.70	0.06	87	33
7700	180.8	198.85	0.79	0.790	0.73	0.07	88	34
7800	182.2	202.22	0.81	0.790	0.76	0.08	90	34
7900	182.9	205.62	0.83	0.790	0.79	0.08	92	35
8000	185.1	210.68	0.86	0.790	0.86	0.08	93	36
8100	187.2	215.81	0.88	0.792	0.90	0.08	95	36
8200	188.7	220.15	0.90	0.800	0.94	0.09	97	37
8300	190.1	224.54	0.91	0.805	0.97	0.09	99	38
8400	191.6	228.96	0.93	0.815	1.00	0.10	102	40
8500	193.7	234.30	0.96	0.817	1.03	0.11	104	41
8600	195.9	239.71	0.98	0.817	1.06	0.12	106	42
8700	197.3	244.28	1.01	0.815	1.08	0.13	108	44
8800	198.8	248.89	1.03	0.810	1.11	0.14	110	45
8900	198.1	250.80	1.05	0.802	1.12	0.14	112	47
9000	196.6	251.78	1.06	0.805	1.14	0.14	113	48
9100	195.2	252.71	1.07	0.817	1.15	0.14	114	49

MCX alu race muffler,
MCX EFI-box controls the fuel and boost,

2x voltage converter,
Stock turbo, injectors and fuel pump

Page 1

