

THUNDER PRODUCTS #1

The World Leader in High-Performance Fuel Systems
and Air-Flow Devices For Carbureted Small Engines

U.F.O.

Ultimate Flow Optimizer
PATENT #5,942,159

Works on snowmobiles, motorcycles, ATVs, and more!

U.F.O. is a simple, trouble-free, aerodynamic piece that fits Mikuni VM series round-slide carburetors from 24 through 44mm.

Here's what you can expect with UFO—FACTS, NOT FICTION:

- More horsepower with less fuel
- Broader powerband
- Engine will be less sensitive to altitude or temperature changes
- Works great with stock or modified engines
- Easier starting and warm-ups
- "Best bang for the buck" anywhere!
- Eliminates cold pipe syndrome
- Consistent engine and pipe temperature
- Common sense product that works exceptionally well
- Simple installation

Out-of-this-world
technology!



Get ready for throttle response you never knew existed! -SnowTech

Here are a few things that magazines and others have to say about UFOs:

"Every now and then a new product comes along with the potential to be a "must-have" item in every snowmobile where it will fit. We strongly suspect this may be the case with the Ultimate Flow Optimizer (UFO). The end result was simply awesome. The UFO was probably the most significant new product release of the year!" - Snow Tech Magazine

"Installed UFO in carbs, absolutely incredible performance..." - R. Beehm, NY

"Installed UFOs and saw big improvements from them" - D. Miner, NY

"The throttle response and power increase from a set of UFOs is unreal!" - D. Hooker, MN

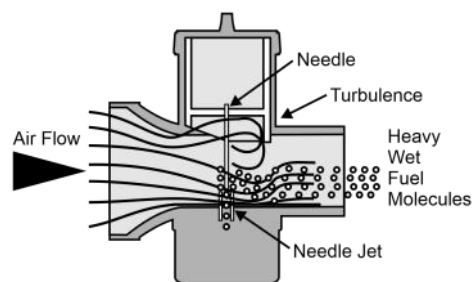
"With UFOs my sleds run great without rejetting for altitude or temperatures." - J. McCloud, SD

"If they say that UFOs don't work, they've never experienced them." -Maximumsled.com Magazine



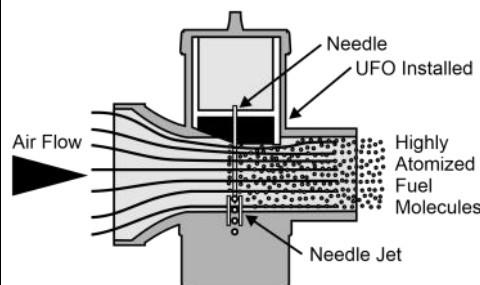
The following will explain how a UFO equipped carburetor works.

Standard Round Slide Carb
Fig. 1



In Fig. 1, without the UFO, the air hits the forward wall of the slide cavity creating rolling air turbulence which forces the poorly atomized fuel droplets to the lower portion of the carb bore resulting in poor fuel atomization and performance.

Standard Round Slide Carb with UFO
Fig. 2



In Fig. 2, with the aerodynamic UFO filling the slide cavity, the rolling air turbulence is eliminated. The higher velocity airflow pulls the fuel further up the needle and higher in the carburetor bore resulting in superior fuel atomization and performance.



Ultimate Flow Optimizer

This chart shows the airflow in cubic feet per minute (CFM)

THROTTLE POSITION	38MM ROUND SLIDE STOCK	38MM ROUND SLIDE W/UFO	38MM FLAT SLIDE
	WOT	147.1	147.1
15/16	131.4	138.8	142.5
7/8	125.8	131.4	133.2
13/16	116.6	124.0	122.1
3/4	109.2	114.7	112.9
11/16	96.2	103.6	98.1
5/8	83.3	92.5	90.7
9/16	62.6	71.0	71.4
1/2	56.3	63.8	64.7
7/16	47.9	52.9	50.4
3/8	42.0	46.2	44.5
5/16	34.4	37.8	37.8
1/4	23.2	26.4	25.5
3/16	17.7	19.0	18.9
1/8	14.5	14.5	14.5
1/16	8.0	7.8	6.1
IDLE	5.4	4.2	6.1

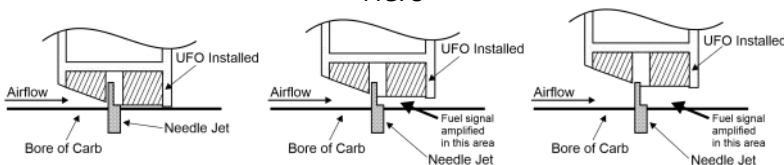
The UFO carb even beats the flatslide carb until 7/8 throttle opening.

Increased airflow through the same size bore increases velocity producing more power and quicker throttle response.

The UFO produces stronger fuel signals earlier in the powerband giving you a much stronger hole shot and midranges as well as a modest increase on top end. The UFO produces significant power gains for several reasons, one of which is improved airflow. The other reason is improved fuel delivery and atomization that normally cannot be achieved at lower throttle settings. A round slide carburetor has a needle jet and a round slide like in Fig. 3. When a UFO is installed, the engine vacuum or pressure drop is centralized on the needle jet nozzle. This allows the engine to pull an extremely strong fuel signal. The engine utilizes this highly atomized fuel charge to develop significant power gains at low and midrange throttle settings that were not formerly possible. Typical power increase is 1 HP per 100cc of engine size or more.

UFO Pressure Drop

FIG. 3



A CARBURETOR WITHOUT UFOs WILL EXPERIENCE AN EXTREME LEAN CONDITION UNDER DECELERATION FROM HIGH SPEEDS. This is due to the engines inability to produce a fuel signal of adequate strength against the needle jet. Temperature typically will increase 250 to 350 degrees F when decelerating from a high speed. This has caused many engine seizures. The experienced rider learns to pump the throttle a number of times while decelerating. This delivers fuel to cool the engine. **WHEN A UFO IS INSTALLED, A STRONG FUEL SIGNAL IS CREATED DURING DECELERATION ACTUALLY COOLING THE ENGINE 150 TO 250 DEGREES.**

The following chart indicates the pressure drop (fuel signal) difference in carburetors with and without U.F.O.s. This strong fuel signal produces a highly atomized fuel charge that yields healthy increases in torque and horsepower. The largest gains are in low and midrange with modest gains on top end.

THROTTLE POSITION	MANOMETER		
	38MM ROUND SLIDE STOCK	38MM ROUND SLIDE W/UFO	38MM FLAT SLIDE
WOT	3.25"	3.25"	3.65"
3/4	3.125"	3.625"	3.25"
1/2	2"	3"	2.5"
1/4	1.25"	2.5"	1.75"
IDLE	0.0625"	1.5"	0.5"



We wanted to find out, on the dyno, what kind of effect the UFO had on the power levels of an engine. **We knew they made our sleds pull incredibly hard through the midrange,** but was it simply because of lower fuel consumption numbers? Could we get the same results just by leaning out the stock carb jetting? The UFO Installed only way to find out was to make "before and after" dyno runs with similar Brake Specific Fuel Consumption numbers, then we could be sure. Our Signaler Fuel test mule was a stock '95 ZRT 800.



Ultimate Flow Optimizer

UFO Horsepower: Fact or Fiction?

Note: All Dyno runs were at 70° F

Run #1 - Full throttle w/o UFOs (all stock).

Our first dyno run was with the stock engine, stock pipes and carb jetting as follows: Main Jet 350. Needle Jet QO, Jet Needle position #3, Pilot Jet 35. Dyno run was at wide open throttle. Peak power of 150.41 HP occurred at 8250 RPM, with peak torque of 96.87 foot pounds at 8000 RPM. The EGT's were slow to respond when running under partial load, and temps were uneven under full load. Cylinder 1: 1187 F, cylinder 2: 1155 F, cylinder 3: 1145. Brake Specific Fuel Consumption under full load was .66 demonstrating a safe jetting combination.

FULL THROTTLE		Dyno Run #1		w/o UFO	
RPM	CBT	CBHP	BMEP		
6000	56.78	64.87	87.15		
6500	64.58	79.92	99.11		
6750	72.37	93.02	111.07		
7000	79.05	105.36	121.33		
7250	84.62	116.81	129.87		
7500	89.07	127.20	136.71		
7750	94.64	139.66	145.25		
8000	96.87	147.55	148.67		
8250	95.75	150.41	146.96		
8500	92.41	149.57	141.83		
8750	87.96	146.55	135.00		
9000	83.51	143.10	128.16		

Run #4 - Full throttle w/ UFOs (all stock).

UFO's installed: Main jets back to 350. Now we dropped the pilot jet from #35 down to #20 (MJ 350, NJ QO, JN #2, PJ 20). Peak power increased to 153.91 HP at 8250, peak torque of 97.98 at 8000 rpm, but the engine was running leaner with a BSFC of .57 and the temps went up - cylinder 1 to 1230 F, cylinder 2 to 1225 F, cylinder 3 to 1235 F. This demonstrated the fact that reducing the pilot jet 3 sizes affected the fuel flow at wide open throttle, reducing the BSFC from .68 to .57. We then increased the main jets up from 350s to 360s and reran, which raised the BSFC up to .62 and lowered the EGT temps by 15-degrees.

FULL THROTTLE		Dyno Run #4		with UFO	
RPM	CBT	CBHP	BMEP		
6000	60.12	68.69	92.28		
6500	67.92	84.06	104.24		
6750	75.71	97.31	116.20		
7000	83.51	111.30	128.16		
7250	89.07	122.96	122.96		
7500	92.41	131.97	141.83		
7750	96.87	142.94	148.67		
8000	97.98	149.25	150.38		
8250	97.98	153.91	150.38		
8500	94.64	153.17	145.25		
8750	89.07	148.40	136.71		
9000	84.62	145.01	129.87		

Half throttle runs. This is the area that the UFOs really do their work! Compare the dyno numbers!

Dyno run #2: Exact same carb specs as run #1. This dyno run was made at %throttle. Peak HP of 105.00 at 7500 rpm, peak torque 73.53 at 7500 rpm, EGT's were again slow to climb and uneven. BSFC @ .67

1/2 THROTTLE		Dyno Run #2		w/o UFO	
RPM	CBT	CBHP	BMEP		
6000	54.62	62.40	83.83		
6500	59.87	74.10	91.89		
6750	66.18	85.05	101.56		
7000	70.38	93.80	108.01		
7250	72.48	100.05	111.23		
7500	73.53	105.00	112.85		
7750	70.38	103.85	108.01		
8000	66.18	100.80	101.56		
8250	58.82	92.40	90.28		

Dyno run #5: This is where it gets interesting. Jetting was the same as run #1 (MJ 350, NJ QO, JN #2, PJ 20). While the UFOs didn't show much of a difference at wide open throttle (we didn't really expect them to) they should really wake up the numbers at half throttle. This run was again at half throttle with UFOs installed. Peak power of 117.66 @ 7500 rpm, peak torque of 82.39 also @ 7500 rpm (compare to 105 HP and 73.53 ft lbs of torque w/o UFO's at the same RPM). BSFC was .65 (compare to .67 w/o UFOs @ 1/2 throttle), temps at #1 1210, #2 1200, #3 1195. **There was over 12 HP more at half throttle, and nearly 9 more foot pounds of torque! The engine had excellent throttle response, and the EGT's were quick to respond and stabilize.**

NOTE: At 7250 RPM (at 1/2 throttle with UFO) there was 21HP more and nearly 9 more ft/lbs torque!

1/2 THROTTLE		Dyno Run #5		with UFO	
RPM	CBT	CBHP	BMEP		
4000	44.54	33.92	68.35		
5000	54.56	51.94	83.73		
6000	61.24	69.96	93.98		
6500	65.69	81.30	100.82		
6750	73.49	94.45	112.78		
7000	77.94	103.88	119.62		
7250	81.28	121.20	124.74		
7500	82.39	117.66	126.45		
7750	79.05	116.65	121.33		
8000	74.60	113.63	114.49		
8200	69.03	108.44	105.95		

Conclusions:

We felt the testing on this engine was fairly conclusive, showing good horsepower and torque gains using UFOs at mid throttle positions and little power gains once the throttle is brought to wide open.

We were also able to demonstrate what we had been finding in the field on what to change in the overall jetting with the UFOs installed.

SnowTech

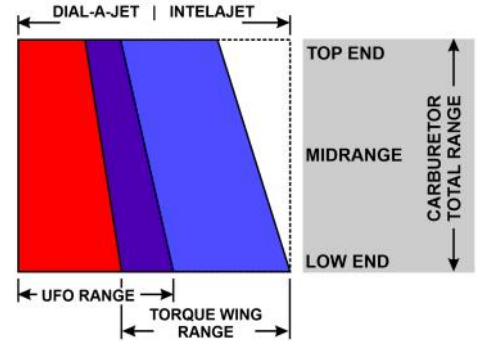




UFO, Torque Wing, and Dial-A-Jet or IntelaJet

EFFECTIVITY RANGE

We are frequently asked how or if the UFO works with a Torque Wing, Dial-A-Jet or IntelaJet. The answer is they work great together. Due to the carburetor's newfound ability to atomize fuel more efficiently, plus the high-speed laminar airflow, your engine can produce maximum horsepower and torque under all conditions without changing jets. The graph shows where each product is most effective. Using these products together gives you a multiplying effect. Each product is doing something different, however, we designed them to work together.



DIAL-A-JET

Power Fuel Systems

Accurate Jetting in Seconds!

Accurate jetting in seconds. Works with any type of carburetor, stock or modified engines. Improves fuel efficiency and provides peak horsepower with instant throttle response. Delivers pre-atomized fuel to the engine; no moving parts or electronics to fail. Proven performance and reliability since the 1970s.

[Check price online](#)

INTELAJET

Power Fuel Systems for all carbureted small engines

Quick and easy jetting on the fly. IntelaJet has a broader range of pre-atomized fuel from lean to rich. The fuel module that mounts on the carburetor is smaller to accommodate tight clearance areas. The control unit mounts near the rider, looks neat, clean and high-tech.

MXA RATING
★★★★★

MOTOCROSS ACTION

[Check price online](#)

QUAD-FLOW TORQUE WING

Too many models to list! We have over 32 different Torque Wings, including 4 sizes for fuel-injected carbs on motorcycles. We fit most popular carburetors!

The Quad-Flow Torque Wing has horizontal and vertical air flow stabilizers which increases air flow, air speed, and fuel atomization, thereby increasing performance across the powerband.

MXA RATING
★★★★★

MOTOCROSS ACTION

[Check price online](#)

TPI VALVES

PAT.PEND.

TPI Valves increase airflow to your restrictive stock airbox, improving power and throttle response. TPI Valves are adjustable, giving you several more jet sizes for tuning, while filtering the air passing through. Closing the TPI Valve returns you to a stock airbox. Easy to install and use.

[Check price online](#)

FLOAT BOWL EXTENDER

Increase your float bowl capacity by 20%.

Great for use with alcohol or big engines that need extra fuel for long hard pulls. Great for carbs that have lost float bowl capacity due to being mounted at a steeper angle. Fits Mikuni VM Roundslide 32m-44mm.

[Check price online](#)

THUNDER POWERJET

Get more horsepower and throttle response, plus quickly adjust for altitude or temperature changes!

Eliminate changing jets and improve performance. Works on any type or brand carburetor. Works great with turbos, blowers, nitrous oxide or any naturally aspirated engine.

[Check price online](#)

100% MADE IN USA



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