V5.0 Update Details and Changelist
December 22 2024

5.0 Major Updates

- **NEW MACHINES!:** In the alternate version of the mod, there are three new machines! Full credit to chmcl for the creation of these wonderful models!
    - **Super Falcon**, replacing the Blue Falcon. It boasts both a strong top speed and booster with a great for its weight MTS. Its weight is the same as it is in the X Expansion pack at 780 KG, which has more drawbacks than strengths in this game.
    - **Hot Violet**, replacing Bunny Flash. It's an easy-to-use and well-rounded mid-weight machine with great acceleration and strong top speed for its acceleration. However, its booster is both short and not that powerful
    - **Hyper Death Anchor**, replacing Death Anchor. It's a slightly faster, heavier, and more durable version of Death Anchor. It trades away acceleration and grip level for those buffs.
- Due to these new machines, the Climax Unleashed version of the mod has been renamed to **_Legends Unleashed_**
    - The Legends Unleashed version now displays the correct pilot and machine names, and display images of them across the game.
    - Replacing the 3D models of the pilots however would require a whole project of its own.
- **Legendary Parts no longer legendary:** Based on the feedback I've received, the 6 intentionally overpowered Legendary Parts are no longer OP. This grants me an opportunity to make even more unique and interesting custom parts!
    - This affects Rage Knight, Silver Sword, Megalo Crusier, Devilfish RX, Punisher-4X and Bazooka-YS
- **Base GX Meta Custom Parts Buffed:** Titan-G4, Thunderbolt-V2, Speedy Dragon, Dread Hammer, and Combat Cannon have been slightly buffed for the first time! Maximum Star is the only part remaining that has not been given a buff.

- **Light-Weights Buffed:** Many lightweight machines received buffs since Rainbow Phoenix greatly outshone them in version 4.0.
- **Middle-Weights Buffed:** Due to Queen Meteor being a tad stronger than other machines in a similar weight class, many middle-weight machines, particularly those that are good with advanced tech, have been buffed.
- **More custom parts suited for casual+newer players:** I adjusted certain body parts so there are more options suited for newer/intermediate-level players that focus more on pure speed and better handling at the cost of advanced tech proficiency.
- **Wider cockpit variety:** There is more variation in the cockpits' strengths and weaknesses and archetypes. Rush Cyclone is the main example as it is both light and has poor MTSing capability, but it gives a big reduction in drag in return.
- **More varied booster parts stats:** There is some more variation with booster parts too in addition to general buffs and adjustments.
- **More interesting Machine Setting Decisions:** I gave more booster parts and certain non-custom machines a drift accel value of over 1.0. By coupling that with a base accel of around 0.35 to 0.39, those booster parts now have a more interesting decision with which setting to use:
  - At 100%, its top speed is considerably higher than at 80% or lower settings, but it would lose a lot of speed when quick turning.
  - At lower settings, it'll sacrifice a lot of top speed for extra acceleration and less speed loss (potentially gain speed for some parts+machines) from quick turning.
- **Body and Cockpits parts modifying new stats:** There are now body and cockpit parts that modify the Max Speed, Boost Strength, and Boost Duration stats. Some body parts also buff the acceleration stats slightly.
  - This means the only way to have a boost duration greater than 1.9 seconds is to utilize certain body and cockpit parts, up to a max of 2.0 seconds
- **In-Game Grades, Weight and Settings Graph are now (more) accurate!:** At long last, the Body/Boost/Grip grades plus the weight that are displayed in the game menus have been adjusted! By extension this also makes the graph shown in the Settings screen accurate for all machines now. A few things about the grades I assigned to keep in mind when evaluating machines solely off these grades (Max Speed styled play only):
  - The likely top tier machines that utilize all tech well will have poor-looking Body/Boost/Grip grades.
  - Whereas machines with a seemingly amazing set of grades will almost certainly be great choices for non-advanced players and courses that don't rely on advanced tech, but they will generally have a lower ceiling due to getting less benefit from shift boosts, MTS related tech, side attacks and large jumps.
  - Weight is the most important stat in this game. Be sure to consider weight when evaluating machines based on just what's shown in the Machine Select screen.
    - Heavier machines get more speed from dives and tech, but tend to have lower top speeds (standard and boosting top speed) and other various drawbacks

- - - ■ Whereas lighter machines benefit less from techniques, but tend to have higher top speeds, better cornering and other extra benefits, such as gaining speed from quick turning.
    - ○ Quick guide on machine selection to try to go fast and win
        - ■ If you're a newer/less advanced player: You will have more immediate success with machines with <u>higher grades</u> (particularly a high Boost and Grip grade) and with lower to mid weight machines
        - ■ If you are an intermediate player who knows some or all of the tech and want to use them: Try out the machines with <u>middle of the road grades</u>.
            - ● Don't want to MTS, or Shift Boost? You'll likely do better with highly graded machines
        - ■ If you are an expert of the game or want to go fast with tech: You'll likely get the best times with machines with the <u>worst grades and/or very high weight</u>, but you may do just as well if not better with machines with better looking grades depending on the course.
    - ○ **<u>Disclaimer</u>**: While the Body grades are accurate, I did not have a 100% objective method when assigning grades for Grip. A machine's grip can be heavily influenced by the setting. As for the Booster grades, I tried my best to grade them based on boost top speed, and all other factors, but it does not fully convey its effectiveness in every scenario.

Universal Machine Changes

#1 - Dash Plate Boost Length Formula Modified!

- ● Thanks to the efforts of TwilightPB, the Dash Plate Boost Length formula has changed from half of the Boost Duration to the following, which affects every machine:
    - ○ **<u>0.5 of a second plus 25% of the machine's Boost Duration</u>**
    - ○ This means Fat Shark still has a 1 second DP boost duration.
    - ○ Blue Falcon now has a 0.875 second DP boost duration. Which is the same duration as a 1.75 Boost Duration machine in the base game
    - ○ Silver Rat and his 1.15 Boost Length has about a 0.79 second DP boost length. This is the same duration as a 1.58 sec duration machine in the base game.
    - ○ This was a change I wanted to make for some time but didn't know how it was done. This makes machines with short boost durations more viable on courses with several dash plates while still contributing to the distinctiveness of each machine by not having every machine get the same amount of boost length from dash plates.

Boost Duration	GX Dash Plate Duration	Unleashed Dash Plate Duration	Difference (sec)	% Difference	GX Bst Dur equivalent
1.00	0.5000	0.7500	0.2500	150%	1.500
1.05	0.5250	0.7625	0.2375	145%	1.525
1.10	0.5500	0.7750	0.2250	141%	1.550
1.15	0.5750	0.7875	0.2125	137%	1.575
1.20	0.6000	0.8000	0.2000	133%	1.600
1.25	0.6250	0.8125	0.1875	130%	1.625
1.30	0.6500	0.8250	0.1750	127%	1.650
1.35	0.6750	0.8375	0.1625	124%	1.675
1.40	0.7000	0.8500	0.1500	121%	1.700
1.45	0.7250	0.8625	0.1375	119%	1.725
1.50	0.7500	0.8750	0.1250	117%	1.750
1.55	0.7750	0.8875	0.1125	115%	1.775
1.60	0.8000	0.9000	0.1000	113%	1.800
1.65	0.8250	0.9125	0.0875	111%	1.825
1.70	0.8500	0.9250	0.0750	109%	1.850
1.75	0.8750	0.9375	0.0625	107%	1.875
1.80	0.9000	0.9500	0.0500	106%	1.900
1.85	0.9250	0.9625	0.0375	104%	1.925
1.90	0.9500	0.9750	0.0250	103%	1.950
1.95	0.9750	0.9875	0.0125	101%	1.975
2.00	1.0000	1.0000	0.0000	100%	2.000

#2 - NO MORE 9999 KM/H SPEED LIMIT

- Once again due to TwilightPB's efforts, the 9999 KM/H speed limit is no more! Machines now have truly been UNLEASHED with this change!
- Players who have hit this annoying wall in the past will no longer have to worry about holding back to avoid this speed limit.
- Folks who create TASs for the game will especially have a field day with this change. I will provide a version of the line_rel file that will be suitable to use on the unaltered ROM for those who want to try it on the base game.

#3 - MORE BOOST POWER

- Energy consumption rate per frame while boosting has gone done from 0.166666 of a unit per frame to 0.15 per frame (A 10% decrease).
- This makes it so a **full energy bar** provides **11 seconds of boost** now instead of **10 seconds**.
- This was truly a last second change to the update (Mid December). I only very recently found out from Twilight that this was something that can be modified. This plus the changes to dash plate boost duration makes Unleashed truly stand out on its own compared to the base game.

- This was a change I did not make lightly. While this change basically makes the staff ghosts be heavily disadvantaged and makes most preexisting Time Attack runs in this game be much more improvable now, the positives far outweigh any drawbacks IMO
  - First and foremost, boosting is simply fun. It is still going to be a limited resource you have to carefully manage in most courses. It will allow for one extra boost per lap, which really helps make courses with very limited energy refillers be a bit more exciting. On such courses, there will be slightly less reliance on MTS chaining during boost laps in high level Time Attack runs which is always a good thing IMO.
  - The faster speeds of this mod means less time spent going over refillers. This change can be seen as a way to combat this by providing slightly more boost to accommodate for the higher speeds.
  - It makes taking damage from opponents and mines be slightly less punishing. It allows players to be a bit more aggressive with their boosting. Plus players have less of a chance of getting taken out due to inadvertently running out of energy from boosting too much.
  - I believe this change helps lower acceleration machines more than higher acceleration machines at high level play. There is now more boost available to let machines like Space Angler, Fire Stingray Big Fang and Hyper Speeder to build up their speed and and sustain high boosting speeds for longer.
  - I don't have the foresight to say whether or not this helps with the balance of the game.
  - There are some potential cons though:
    - While I do think this helps low accel machines with regards to boosting, this change means they will spend less time utilizing their superior deceleration rate and higher top speeds in boost laps in energy scarce tracks.
    - There's the risk that boosting strategies will be more straightforward and provide less interesting decisions in some courses. But at the same time, this increases the leeway players will have with managing their energy which might be a welcome change in an already difficult to optimize game.
    - Maybe in some niche cases it'll be more challenging to set up an explosive finish.
    - And sure, this plus the other boosting related universal change may throw off veteran players somewhat for sometime, myself included. Oh well *shrug*

New Machines Summary

Hot Violet

Weight	1540
Accel	0.57
Drift accel	0.64
Turn movement	155
Strafe turn	35
Strafe	39
Turn reaction	4
Grip 2	0.61
Boost strength	17.0
Boost duration	1.47
Turn decel	0.015
Drag	0.01
Body	0.65
Top Speed (100%)	1120.1
Boost Top Speed (100%)	1751.4
Top Speed (80%)	1111.9
Boost Top Speed (80%)	1743.3

Introducing Hot Violet, the featured machine of F-Zero Maximum Velocity! Hot Violet is one of the starter machines for MV and is meant to be an easier-to-use machine for newer players,

thus in this mod, it is a more forgiving machine to use while still being fully capable of utilizing all advanced tech.

Its weight is slightly below average, but it has above-average durability, acceleration, and top speed, all things suited for newer players. Plus it can use all advanced tech pretty well! However, its main weakness is its below-average boost duration and booster top speed. I recommend this machine to anyone who is starting to learn how to MTS, and MTS chaining and are still improving their machine control.

Super Falcon
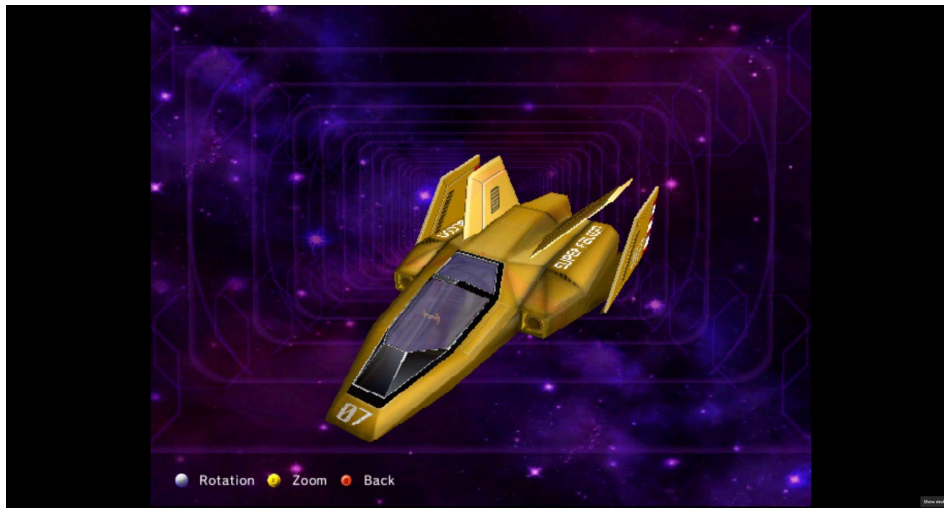
Weight	790
Accel	0.442
Max speed	0.605
Drift accel	0.500
Turn movement	100
Strafe turn	25
Strafe	47
Turn reaction	0
Grip 2	0.48
Boost strength	20.1
Boost duration	1.5
Turn decel	0.0210
Drag	0.0097
Body	0.95
Top Speed (100%)	1150.6

Boost Top Speed (100%)	1888.1
Top Speed (80%)	1143.0
Boost Top Speed (80%)	1880.1

Yes, you are not misreading, chmcl has graciously accepted my request to create a model based on the Super Falcon from the X Expansion Pack!

One of the key things about Super Falcon from X is its surprisingly low weight of 790 KG, which makes it the second lightest machine in the game only ahead of Twin Noritta. It boasts both impressive top speed, and booster top speed, with passable acceleration and a strong MTS. However, it won't be the easiest machine to pilot as its lightweight nature means it has super responsive cornering. It also loses some speed when quick turning, and I made sure that its MTS chaining ability is severely limited in use and effectiveness. It should be a strong contender to take on Rainbow Phoenix, if you can pilot it well.

Hyper Death Anchor
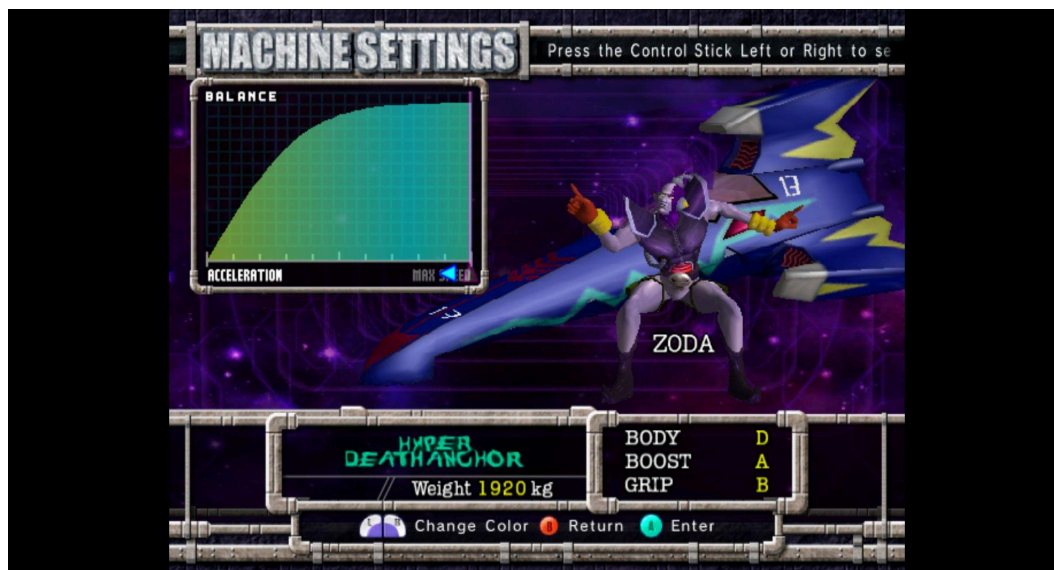
Weight	1920
Accel	0.378
Max speed	0.360
Drift accel	2.000
Turn movement	230
Strafe turn	50
Strafe	44
Turn reaction	9
Grip 2	0.63

Boost strength	27.8
Boost duration	1.68
Turn decel	0.0270
Drag	0.0095
Body	0.98
Top Speed (100%)	1165.5
Boost Top Speed (100%)	1877.2
Top Speed (80%)	1145.2
Boost Top Speed (80%)	1858.8

Hyper Death Anchor, featured in F-Zero Climax, is the evolution of Death Anchor! It trades away grip, ease of use and acceleration for more speed, durability and some extra weight. Its MTS is also better and it is more MTS chainable. The extended length of the machine will prove to be a bit cumbersome on tracks where you need to land jumps on slopes. However, if you can tame this beast it will yield higher rewards.

Another notable thing is its Drift Accel stat. While you can go for 100% settings for the maximum top speed, that would mean when it quick turns, it loses a lot of speed. This can be mitigated by reducing its machine setting, but at 80%, it'll lose out on about 20 KMH top speed and booster top speed. Is that worth the trade-off on the right course?

Machine and Parts Changes Summary

New Machines

Reworked and Buffed

Large Buff

Buff

Minor Buff

Adjustment

No Stat Changes

Body Parts: Only Brave Eagle did not receive any stat changes
Cockpit Parts: Only Maximum Star did not receive any stat changes
Booster Parts: Only Boxer -2C and Scorpion -R did not receive any stat changes

Machine Changelist

Dark Schneider (Handling adjustment and slight buff)

Dark Schneider			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 1	0.8000	1.3000	0.5000
Drift accel	0.8000	0.8700	0.0700
Strafe turn	70.0000	90.0000	20.0000
Strafe	47.0000	42.0000	-5.0000
Turn reaction	15.0000	10.0000	-5.0000

Back in version 3.1 I nerfed its Grip 1 thinking it would address the difficulty of initiating its MTS. But honestly that did pretty much nothing for that while making it lose grip more easily at higher speeds. Now its grip is stronger than ever, keeping the machine stable at extremely high speeds, perfect for tracks like Trident and Dragon Slope.

Given the buffs given to Fire Stingray, I decided its Drift Accel should be slightly improved so it loses less speed when quick turning.

I gave it a hefty strafe turn increase to counteract the effect of extra weight and the turn movement reduction has on aerial steering.

I decided to lower its strafe to make it slightly easier to handle and so it won't fall off as easily in courses like Trident when performing shift boosts. To compensate for the reduced MTS potential this change would cause, I gave it a lower turn reaction, which will also make it easier to control and further increases its grip.

Red Gazelle (Buff)

Red Gazelle			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	1630.0000	1701.0000	71.0000
Strafe	42.0000	40.0000	-2.0000
Boost strength	24.0000	25.8000	1.8000
Turn decel	0.0160	0.0180	0.0020
Top Speed (100%)	1105.5000	1106.3000	0.8000
Boost Top Speed (100%)	1773.8000	1791.7000	17.9000
Top Speed (80%)	1094.8000	1095.6370	0.8370

| Boost Top Speed (80%) | 1760.0000 | 1777.7000 | 17.7000 |

Seeing how Red Gazelle compared to other similar machines, particularly Queen Meteor, I felt it needed some kind of buff. Prior to the buff, Queen Meteor had better acceleration, slightly higher top speed, a fairly significant advantage in booster top speed, and can gain speed from quick turning at all settings, while Red Gazelle loses speed from quick turning at higher settings.

I decided to give it some extra weight, particularly to separate itself more in terms of weight from Blue Falcon (Red Gazelle had a 70 KG advantage over Falcon in the base game. In GXU 4.0 it was just 10 KG). The additional weight raised its top speed slightly. With the 1.8 increase in boost strength, its booster top speed is now higher than Queen Meteor's at 100%.

The weight increase made its MTS a little too strong, nearly as good as Great Star and Panzer Emerald's. So I decided to reduce its strafe by 2 to tone it down slightly.

Because it gains quite the high amount of speed when quick turning at 80%, I decided to slightly raise its turn decel to compensate to give it a slightly larger drawback for this large benefit.

Golden Fox (Buff and adjustment)

Golden Fox			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Drift accel	1.6500	0.6700	-0.9800
Turn reaction	10.0000	8.0000	-2.0000
Boost strength	25.0000	28.7000	3.7000
Body	1.1000	1.0500	-0.0500
Lava Test	4.5455	4.7619	0.2165
Boost Top Speed (100%)	1763.7000	1790.4000	26.7000
Boost Top Speed (80%)	1748.2000	1774.7000	26.5000

The main thing that stands out with these changes is its Drift Accel. I took a hard look at Golden Fox and I felt there wasn't a compelling enough reason to go with settings 100% with it. Thus I decided to change its Drift accel stat to 0.67. Which means instead of its drift accel decreasing as you go from 50% to 100% settings, it will stay at 0.67 until you go below 50% settings.

It loses some speed while quick turning with it. It regains most of the speed back once you release the quick turn. This incentivizes the player to do standard or strafe turns more often due to its very low turn decel stat of 0.0025.

Its other main change is the large buff to its boost strength, which I thought was underpowered compared the likes of Bunny Flash, Queen Meteor and even Fat Shark. In version 4.0, Bunny Flash was simply a better version of Golden Fox. Because of its mediocre drift accel, average MTS and awkward MTS chaining, that gave me enough justification to give it a much better boost top speed despite its great acceleration and long 1.95 sec boost duration. It was already a force in tracks with a lot of dash plates. But now it should stand among the top machines in such courses while not falling too far behind in courses with fewer dash plates.

The turn reaction reduction makes its MTS stronger, by about 80 KMH when starting a MTS from its top speed. The MTS is still not outstanding, but it should feel better to use now and gives a more compelling reason to use Golden Fox over Bunny Flash in courses with opportunities to MTS. This also improves its grip which I don't mind giving to Golden Fox. It's still a difficult machine to optimize, but as it has slightly lower shift boost and speed gain from dives potential compared to Bunny Flash (who has poor grip), making Golden Fox easier to handle makes sense.

Fire Stingray (Buff)

Fire Stingray			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Accel	0.3200	0.3100	-0.0100
Max speed	0.5150	0.4800	-0.0350
Drift accel	0.7000	0.8500	0.1500
Strafe turn	25.0000	50.0000	25.0000
Turn decel	0.0400	0.0350	-0.0050
Drag	0.0100	0.0092	-0.0008
0 to 600 (100%)	2.1830	2.1660	-0.0170
Top Speed (100%)	1165.5000	1175.5000	10.0000
Boost Top Speed (100%)	1856.2000	1877.2000	21.0000
Top Speed (80%)	1163.9000	1170.1120	6.2120
Boost Top Speed (80%)	1866.4000	1881.4000	15.0000

Fire Stingray had very little incentive to go with 100% settings in version 4.0 with its booster top speed being significantly weaker compared to 80% Stingray. Considering the large drawbacks of having very low acceleration, I decided to reduce its drag and adjust the acceleration and max speed stats accordingly. Its acceleration is barely worse now but the other benefits of reduced drag should more than make up for that.

I also gave it a little extra boost strength, slightly reduced its turn deceleration and increased its drift accel since it was losing out to Big Fang by too much of a margin on every course for no side attack runs.

Since reducing drag has a larger effect on lower acceleration machines, this change increases the top speed gap between 80% and 100% settings from less than 2 KMH to about 5.4 KMH. 80% still has a higher boost top speed but the gap is now much closer at least.

And finally the big Strafe Turn increase was one the very final stat changes I made for this update after trying it out on Ordeal. It didn't do well with the side attack dives. Since it had the worst acceleration in the game and its MTS and MTS chaining was only pretty good, I thought it deserved some good aerial mobility. Surely that fin would mean it should have decent aerial maneuverability.

Blue Falcon (Slight Buff)

Blue Falcon			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 1	0.9200	1.0800	0.1600
Drift accel	0.8200	0.8500	0.0300
Turn reaction	8.0000	7.0000	-1.0000
Boost strength	24.7000	25.2000	0.5000
Boost Top Speed (100%)	1801.0000	1805.8000	4.8000
Boost Top Speed (80%)	1790.5000	1795.3000	4.8000

After deciding on the Red Gazelle buffs, Blue Falcon seemed it needed a little more to remain relevant at higher levels of play. Red Gazelle has very strong grip. Falcon didn't at 80%, so now its grip is about similar to Red Gazelle, where its grip at 80% settings only becomes susceptible to losing grip at over 1700 KMH.

Drift accel is now slightly higher making it gain tiny amounts of speed from quick turning. And the turn reaction reduction to 7 made its MTS slightly better. Admittedly I mainly wanted to make this change because 7 is its machine number.

I also gave it a slight buff to its boost strength, increasing its Boosting Top speed by nearly 5 KMH.

Deep Claw (Large Buff)

Deep Claw			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Accel	0.4200	0.4500	0.0300
Max speed	0.3600	0.4550	0.0950
Drift accel	0.6500	0.7000	0.0500

Boost strength	23.1000	20.2000	-2.9000
Drag	0.0092	0.0088	-0.0004
Top Speed (100%)	1113.1000	1135.0000	21.9000
Boost Top Speed (100%)	1880.7000	1885.9000	5.2000
Top Speed (80%)	1100.2000	1126.4000	26.2000
Boost Top Speed (80%)	1866.5000	1874.7000	8.2000

Deep Claw in version 4 was essentially a severely downgraded Rainbow Phoenix. Deep Claw had higher boost top speed in version 4.0, but its much lower top speed, lower weight and less capable MTS made it much worse than Rainbow Phoenix. I buffed its acceleration, drag, top speed and boost top speed to close the gap. Deep Claw will likely still be less capable than Phoenix as it is a much more friendlier machine to pilot, but the gap will be much closer and there are likely some courses where Deep Claw will be better than the Phoenix.

However its reduced boost strength might lower its potential top speed with dash plates, but the extra acceleration might be the bigger benefit anyway in more scenarios.

Super Piranha (Buff)

Super Piranha			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.5100	0.5300	0.0200
Drift accel	0.8000	0.9990	0.1990
Strafe turn	20.0000	23.0000	3.0000
Strafe	30.0000	33.0000	3.0000
Boost strength	27.4000	29.0000	1.6000
Turn decel	0.0200	0.0070	-0.0130
Body	0.7000	0.5200	-0.1800
Lava Test	7.1429	9.6154	2.4725
Top Speed (100%)	1120.5000	1125.7000	5.2000
Boost Top Speed (100%)	1855.8000	1875.8000	20.0000
Top Speed (80%)	1104.9000	1110.0000	5.1000
Boost Top Speed (80%)	1829.2000	1848.7000	19.5000

Super Piranha felt underpowered against machines like Astro Robin, who had both better acceleration and a longer boost duration with higher top speed and boost top speed. Super Piranha didn't have Astro Robin's turning speed loss weakness, but her speed capabilities lagged too far behind. I made it so her top speed was still considerably weaker despite the top

speed buff, and her boost duration is still among the shortest in the game, but in return, it can reach considerably higher boosts top speeds compared to Astro Robin.

I emphasized Super Piranha's beginner machine stat making it more durable and it now loses even less speed from turning. For the advanced players, I increased its strafe slightly so its MTS is slightly more useful.

Death Anchor (Turning buff)

Death Anchor			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Turn movement	180.0000	200.0000	20.0000

Death Anchor's stick steering was too stiff just like Sonic Phantom's. The steering at 100% is still among the worst in the game, but it is now considerably more useful with this change

Big Fang (Buff)

Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.3900	0.4200	0.0300
Grip 3	0.1400	0.1100	-0.0300
Drift accel	0.9990	0.9400	-0.0590
Turn decel	0.0200	0.0220	0.0020
Top Speed (100%)	1160.8000	1165.3410	4.5410
Boost Top Speed (100%)	1846.6000	1851.7000	5.1000
Top Speed (80%)	1148.3000	1154.3040	6.0040
Boost Top Speed (80%)	1840.7000	1847.5000	6.8000

Big Fang needed a little more in my opinion. Its top speeds and booster were a bit underwhelming given its poor 0.33 base acceleration while being a middle-weight machine. I increased its Max Speed stat, which increased its top speeds more at 80% settings compared to 100%. Due to that, I slightly increased its Turn Decelration stat to try to balance out the two settings a bit.

I left the Boost Strength stat unchanged since quick turns and snaking helps it gain speed.

I also reduced its Grip 3 stat to make it easier to perform MTS chaining and be better at it as well. It also now reaches slightly higher speeds when MTSing and goes at a more outward angle too.

I slightly reduced its Drift Accel to slightly reduce how much speed it gains from quick turns. Blood Hawk and Mad Wolf should be the best at that, not Big Fang.

Sonic Phantom (Handling and turning buff)

Sonic Phantom			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 1	0.2200	0.3300	0.1100
Turn movement	155.0000	195.0000	40.0000

Its steering at 100% settings without quick turning was awful. So I played around with how to fix that without adjusting its handling characteristics too much and found that I just needed to increase its turn movement. From what I can observe its steering is now slightly better than how it was in the base game.

Because of the extra turn movement, it loses grip more easily, so I gave it more Grip 1 to compensate. Its grip is even stronger now compared to version 4.0.

Hyper Speeder (Buff)

Hyper Speeder			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Accel	0.3350	0.3300	-0.0050
Max speed	0.2300	0.2650	0.0350
Boost strength	34.0000	34.8000	0.8000
Drag	0.0088	0.0086	-0.0002
0 to 600 (100%)	1.8660	1.8830	0.0170
Top Speed (100%)	1147.0000	1155.5000	8.5000
Boost Top Speed (100%)	1878.4000	1895.2000	16.8000
Top Speed (80%)	1123.2000	1133.4000	10.2000
Boost Top Speed (80%)	1858.7000	1877.4000	18.7000

I knew Hyper Speeder needed to be buffed. Compared to Sonic Phantom, it had lower top speed with lower acceleration. But I didn't want to buff it so much to invalidate machines that sacrifice their MTS to emphasize pure top speed and stronger boosters.

To that end, I increased both the Max Speed and Booster Strength stats and slightly decreased its Drag. Its top speed is still not top tier despite its acceleration, but that allows for its already strong booster to be even stronger.

I very slightly decreased its acceleration in fear that these buffs would be a tad too much. This adjustment does make the top speed gaps between 80% and 100% slightly closer too which I think is a good thing in Hyper Speeder's case.

Space Angler (Buff)

Space Angler			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.5400	0.4700	-0.0700
Grip 1	0.5700	0.5800	0.0100
Turn movement	75.0000	100.0000	25.0000
Drag	0.0085	0.0080	-0.0005
0 to 600 (100%)	2.1160	2.0500	-0.0660
Top Speed (100%)	1183.0000	1184.6820	1.6820
Boost Top Speed (100%)	1866.3000	1876.1000	9.8000
Top Speed (80%)	1178.6000	1174.6760	-3.9240
Boost Top Speed (80%)	1870.3000	1872.0000	1.7000

Just like with Fire Stingray, there was no reason to ever use Space Angler at 100% settings. So I reduced the drag by a decent amount to allow 100% settings to now have a higher booster top speed compared to 80%.

This does slightly reduce 80%'s Top Speed compared to the prior version. Still with the significant drag reduction and slightly higher Booster Top Speed, it should still be a buff overall for 80% Space Angler, and a significant buff for 100%.

I also increased its Turn Movement so its stick steering, even at 100% doesn't feel completely useless. The stick steering is still not very sharp at 100%, but it's now sharp enough for certain gradual turns at higher speeds. I slightly increased Grip 1 since the increased Turn Movement would make it easier to lose grip. Overall it probably has very slightly less Grip now, but it still takes a lot to break its grip, even at 80%.

King Meteor (Large buff)

King Meteor			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Accel	0.5000	0.5400	0.0400
Max speed	0.3450	0.4250	0.0800
Turn reaction	6.5000	6.0000	-0.5000
Boost strength	28.3000	29.3000	1.0000

Turn decel	0.0120	0.0140	0.0020
Drag	0.0090	0.0085	-0.0005
0 to 600 (100%)	1.0830	0.9660	-0.1170
Top Speed (100%)	1080.7000	1105.2000	24.5000
Boost Top Speed (100%)	1858.1000	1898.6000	40.5000
Top Speed (80%)	1075.4000	1096.2000	20.8000
Boost Top Speed (80%)	1849.0000	1883.5000	34.5000

King Meteor was perhaps already the best machine in courses like Long Pipe and perhaps Split Oval, but he lagged way too far behind in more standard courses that have an average and below average amount of dash plates. His top speed was buffed considerably so he doesn't fall too far behind in lap 1. He has been given more boost strength to emphasize his boosting and dash plate prowess.

I increased its Acceleration significantly since it seemed odd that it had less base acceleration than his partner's Queen Meteor and other machines similar to it. Doubly so due to King Meteor having a very poor MTS. This acceleration increase also slightly increased the top speed gaps between 80% and 100%, which makes it less clear which setting is better.

I reduced its drag on top of that since I felt it needed it to better compete against Twin Noritta.

I also increased its turn decel slightly to give some sort of drawback for reducing its settings, since its top speed barely decreases as you go down the settings. It's a very minor drawback all things considered so don't let that deter you from selecting trying out 80% settings, especially on shorter courses.

Twin Noritta (Large buff)

Twin Noritta			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Accel	0.5800	0.5990	0.0190
Max speed	0.2850	0.3850	0.1000
Strafe turn	15.0000	25.0000	10.0000
Strafe	20.0000	23.0000	3.0000
Boost strength	31.1000	32.3000	1.2000
0 to 600 (100%)	0.8830	0.8500	-0.0330
Top Speed (100%)	1062.2000	1088.3000	26.1000
Boost Top Speed (100%)	1904.8000	1941.4000	36.6000
Top Speed (80%)	1051.5000	1076.2440	24.7440

Boost Top Speed (80%)	1884.2000	1918.9000	34.7000

In version 4.0, Twin Noritta may have had the best booster, but they simply couldn't keep up on nearly every course except the shortest ones, and even then it didn't seem to compare that great compared to others in Twist Road and Drift Highway. And that was all due to his pitifully low unboosted top speed.

It took me way too long to realize that a X speed advantage at lower speeds is more significant than the same speed advantage at higher speeds, which you can easily calculate via division to get the percentage difference. It lost out too much time compared to nearly every other machine with its pitiful 1062 top speed. While I buffed its top speed considerably I still wanted to make it his primary weakness. But after looking at the speed stats, including the speed stats in base GX, I decided to buff its booster even further. And just to hammer it home, I buffed its acceleration as well. If you thought Twin Noritta was already fast, just wait until you pilot this version of this booster demon.

I also buffed its strafe turn, mainly so it might be able to perform the Split Oval jump more easily.

Blood Hawk (Buff)

Blood Hawk			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Accel	0.5500	0.5800	0.0300
Max speed	0.3650	0.3750	0.0100
0 to 600 (100%)	1.0500	0.9830	-0.0670
Top Speed (100%)	1088.7000	1089.4000	0.7000
Boost Top Speed (100%)	1757.1000	1758.4000	1.3000
Top Speed (80%)	1082.1000	1081.1000	-1.0000
Boost Top Speed (80%)	1746.6000	1745.0000	-1.6000

Seeing how Blood Hawk's top speeds compared to Queen Meteor's, I think Blood Hawk needed some sort of buff to make it more distinct from Queen Meteor and not be outclassed in most courses by her.

I decided to increase its acceleration by a fair amount and slightly increased the max speed stat to compensate for the slight top speed dip the acceleration stat increase caused. While the 100% top speeds increased slightly, the 80% top speeds decreased marginally. The acceleration buff will more than make up for that minor top speed dip.

What the acceleration buff did as well is ensure it always has a turn decel stat of 0.005 no matter the setting. Previously, starting at 96%, its turn decel would be raised to 0.01. This might make 100% the optimal setting in more courses now.

Wonder Wasp (Buff)

Wonder Wasp			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.3400	0.3600	0.0200
Boost strength	26.7000	27.8000	1.1000
Top Speed (100%)	1076.4000	1082.1000	5.7000
Boost Top Speed (100%)	1861.7000	1877.7000	16.0000
Top Speed (80%)	1067.3000	1069.6250	2.3250
Boost Top Speed (80%)	1840.1000	1855.9000	15.8000

Wonder Wasp was among the better of the ultra-light machines with its fairly useful MTS. Its very low top speed wouldn't hold up in this version. I gave it a slight bump in top speed and a good amount of extra boost strength so it can compete better in all three laps of time attack.

Mighty Typhoon (Reworked and large buff)

Mighty Typhoon			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Accel	0.4000	0.3990	-0.0010
Max speed	0.1800	0.5700	0.3900
Drift accel	0.9990	1.6700	0.6710
Turn movement	75.0000	65.0000	-10.0000
Strafe turn	45.0000	28.0000	-17.0000
Strafe	50.0000	30.0000	-20.0000
Turn reaction	15.0000	20.0000	5.0000
Boost strength	24.9000	19.5000	-5.4000
Boost duration	1.5000	1.6500	0.1500
Drag	0.0077	0.0100	0.0023
Body	0.7200	0.5700	-0.1500
Lava Test	6.9444	8.7719	1.8275
Top Speed (100%)	1088.5000	1170.5000	82.0000
Boost Top Speed (100%)	1890.9000	1902.9000	12.0000

Top Speed (80%)	1068.1000	1151.5000	83.4000
Boost Top Speed (80%)	1866.7000	1883.0000	16.3000

I gave Mighty Typhoon a complete rework. I did not need yet another low top speed+high boost top speed machine. Plus making such a machine have low acceleration would mean having it to give it a massive boosting top speed, making it strong in only a few courses and weak in most of them. And its MTS felt tacked on and it didn't feel great. It was perhaps a bottom 2 or 3 machine in version 4.0.

So I looked through all of the machines, made charts to help me identify which types of machines have very few if any representatives. I have noted that there were very few super light machines with a very high top speed. Cosmic Dolphin is the only one that had a high top speed and weighed less than 1000. Space Angler and Rainbow Phoenix were the others but they now weighed over 1000. Due to this, I decided that Typhoon needed to change completely.

First I looked at its acceleration. I had been pondering how to balance machines with Titan-G4 like acceleration and decided to try it with Typhoon and other machines and parts in this update. Those machines lost a great amount of top speed as you go down from 100% settings. Making its top speed very high and resetting its drag to the standard value mitigated that effect, but the difference is still enough to give little reason to not go with 100% settings.

The answer is adjusting its Drift Accel (DA) value to over 1.0. At its low weight, while it lost speed at 100% settings where its DA value is at just 0.167, it wasn't the massive speed loss that machines like Black Bull experience. But it's enough to have you consider reducing settings on curvier tracks where its DA value goes up drastically.

I also made its MTS nearly useless to have it go back to its base GX roots and match up with Hurricane in that regard. But because it is very light, had below-average acceleration, standard drag, and no MTS, I gave it both an exceptional top speed and boosting top speed. If you add both top speeds together, Typhoon comes out on top against all other machines by a considerable margin.

It'll be a strong machine in many courses especially for the no-SA categories with its high top speeds, so to somewhat combat this I made its strafe turn worse. Though I believe it should still be able to do the Split Oval jump, just perhaps not at 100% settings.

Crazy Bear (Adjustment, overall a buff I think)

Crazy Bear			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 3	0.1800	0.1700	-0.0100

Turn reaction	10.0000	9.0000	-1.0000
Grip 2	0.4300	0.3800	-0.0500
Boost strength	19.5000	20.0000	0.5000
Boost duration	1.8000	1.4000	-0.4000
Turn decel	0.0130	0.0020	-0.0110
Body	0.6500	0.4500	-0.2000
Lava Test	7.6923	11.1111	3.4188
Boost Top Speed (100%)	1709.8000	1750.6000	40.8000
Boost Top Speed (80%)	1691.6000	1727.0000	35.4000

The main change I made with reducing its boost duration from 1.8 to 1.4 seconds is very likely going to be an unpopular nerf. And I did this despite Crazy Bear being the machine who had gone the most updates without receiving any changes. Let me explain.

I wanted a heavy non-custom machine with very high acceleration, but with a short boost duration. Initially I figured I could only do this with a brand new machine, but then I looked at the three machines with a 0.7 base acceleration - Crazy Bear, Green Panther and Night Thunder.

In hindsight for the devs, it is quite a decision to me that they gave two of the heavier machines the highest acceleration stat AND a well above average boost length. At the very least the top speeds were appropriately low. A machine with such properties is going to have excellent shift boosting, benefit greatly from dives and dash plates, three very powerful strengths in GX. While these machines have their major weaknesses and do have notable differences in my mod, three machines having too many similar characteristics is not acceptable in my mod.

Initially I thought to reduce the boost duration of Green Panther or maybe Night Thunder, but Crazy Bear was both very heavy, had a strong MTS and its MTS chaining is top tier level. Thus I made the tough choice to reduce its boost duration since it overall had the most potential of the three.

I made some further changes to compensate for the nerf to boost duration. But first I need to explain the following. Reducing its boost duration by 0.4 of a second significantly increased its boosting top speed even without adjusting the max speed and boost strength stats. I believe its boosting top speed was around 1744 when I first tested its top speed with the shorter boost duration, a 35 KMH increase pre-update. But because MT boosting with short boosters is more challenging, and it now receives less boost duration from dash plates, I gave it some extra boost strength to make up for some of the loss with its boosting+dash plates. While the boosting top speed increased by a massive 35 to 40 KMH, the earlier stated drawbacks of a short boost duration, even with the adjusted dash plate boost duration formula which does greatly mitigate the duration nerf, are large drawbacks according to my experience with them.

But that's not all! I decided to make Crazy Bear even better with its MTS related tech. Adjustments to Grip 3, Turn Reaction and Grip 2 makes its MTS stronger and MTS chaining significantly more powerful. Perhaps its single biggest stat buff is reducing its turn deceleration stat to from 0.013 to 0.002, which may make it among the best with MTS chaining in the entire mod right up alongside Black Bull, Wild Boar and Panzer Emerald! This will also make its strafe turns lose minimal speed and in some cases gain some speed during the middle of a strafe turn.

To top it all off, I made it significantly more durable.

I can't really call it a buff or a nerf since it will depend on the track. On tracks where you can MTS chain a large chunk of the opening lap, it just might have the fastest opening laps in the entire mod while not losing too much in boost laps compared to version 4.0. On dash plate focused courses or tracks that heavily restricts MTS use, it might be slightly worse now. I hope players will give it a fair shake and form their opinions of the change afterwards.

Black Bull (Minor buff)

Black Bull			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 3	0.1200	0.1000	-0.0200
Turn tension	0.0600	0.0500	-0.0100
Strafe	38.0000	39.0000	1.0000
Turn reaction	15.0000	14.0000	-1.0000
Turn decel	0.0250	0.0000	-0.0250

Black Bull's relatively weak booster coupled with its disadvantagoes Drift Accel stat of just 1.3 makes it lag behind a large portion of the machines in this mod in boost laps. I considered strengthening its top speed and booster, but instead I focused on making its greatest strengths - MTSing and MTS chaining - even better, ensuring that in the hands of a seasoned expert, it is among the best of the best during the opening where it can take full advantage of MTSing and MTS chaining.

The Grip 3 and Strafe changes makes its MTS slightly faster and gives it a more outward drift than before. The Turn Reaction adjustment slightly further strengthens its MTS. While the Turn Tension tweak should make its MTS chaining slightly better.

Black Bull loses a ton of top speed as you go down from 100% settings. So I decided to reduce its turn decel so its MTS chaining doesn't lose as much efficacy from reducing its setting. This also improves its MTS chaining speeds at 100% since previously, its 100% Turn Decel stat was at 0.0119. Now it is at 0.01.

Even though its turn deceleration is now set to 0, it will only have a 0 value for its turn decel stat from 0% up to 46% settings, which only comes into play at its snaking settings. Its turn decel value above 46% will always be 0.01

Cosmic Dolphin (Buff and handling adjustment)

Cosmic Dolphin			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.4500	0.5000	0.0500
Grip 1	0.4200	0.5000	0.0800
Drift accel	0.5500	0.6500	0.1000
Turn movement	135.0000	120.0000	-15.0000
Strafe turn	35.0000	39.0000	4.0000
Boost strength	21.0000	20.5000	-0.5000
Turn decel	0.0180	0.0150	-0.0030
Body	1.3000	1.1500	-0.1500
Lava Test	3.8462	4.3478	0.5017
Top Speed (100%)	1131.2000	1142.8000	11.6000
Boost Top Speed (100%)	1872.5000	1882.5000	10.0000
Top Speed (80%)	1121.6000	1133.7000	12.1000
Boost Top Speed (80%)	1859.6000	1870.3000	10.7000

With the massive top speed increases I gave to Mighty Typhoon, Cosmic Dolphin, despite its higher acceleration and lower drag, felt a bit lacking in comparison. Thus I gave it a buffs in top speed and booster top speed, made it more beginner-friendly by increasing its grip, slightly reduced its speed loss from turning and strafing, and made it slightly more durable.

Pink Spider (Buff)

Pink Spider			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.4300	0.4600	0.0300
Grip 1	0.7000	0.7500	0.0500
Grip 3	0.1300	0.0800	-0.0500
Drift accel	0.7500	0.7800	0.0300
Top Speed (100%)	1105.9000	1114.0000	8.1000
Boost Top Speed (100%)	1779.3000	1788.5000	9.2000
Top Speed (80%)	1102.1000	1110.2000	8.1000

Boost Top Speed (80%)	1773.4000	1782.5000	9.1000

Pink Spider did not compare favorably in version 4.0 compared to similar machines such as Moon Shadow and Queen Meteor. It does have the best MTS and mobility compared to them, but considering its lower weight coupled with its lower top speeds, and it hardly gains speed from quick turns, it needed more than superior air mobility to keep up with the pack.

I thought about raising its acceleration, but then it would be a tad too similar to Blood Hawk's acceleration. One reason I considered raising its 0.5 base acceleration to 0.54 or so was to make it lose slightly more speed as you reduce its setting. The difference in top speed between 80% to 100% for Pink Spider is among the smallest of all machines with just a difference of 3.8 KMH. The Boosting Top Speed difference is about 6 KMH. I initially wanted to slightly increase that difference at least slightly to make the two different settings more balanced with each other. Additionally Pink Spider's low 0.0025 turn decel goes up to 0.01 starting at 84% settings, which puts the cherry on top in my opinion that 80% is its best setting by a large margin.

But then I remembered after I tested both settings out that I can balance out the two different machine settings despite the closeness in top speeds by making 100% Pink Spider much easier to handle compared to 80% Pink Spider. So I adjusted the Grip 1 stat to make sure it had near unbreakable Grip at 100%, while at 80% it would break grip easily after a boost or two. I used this same approach when determining Moon Shadow's grip related stats.

As Pink Spider is meant to emulate Quick Star-G4, I improved its MTS by greatly reducing its Grip 3 stat. This should also improve its MTS chaining. I slightly increased its Drift Accel so it would gain a small amount of speed when quick turning. It still pales to the speed gain of machines like Quick Star-G4, Blood Hawk and Big Fang. But these buffs should be enough for it to be among the best at lap 1 on MTS chaining heavy courses and be able to get MTSISBs that most other machines won't be able to without boosting a lot.

And finally I increased its top speed by about 8 KMH, which also raises its boosting top speed by a similar amount. Its booster is still below average which is one of its intended weak points, but it won't lose as much ground now in boost laps.

Silver Rat (Buff)

Silver Rat			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Accel	0.5900	0.7000	0.1100
Max speed	0.2800	0.3200	0.0400
Drag	0.0100	0.0099	-0.0001
0 to 600 (100%)	0.9330	0.7660	-0.1670
Top Speed (100%)	1051.1000	1052.5000	1.4000

Boost Top Speed (100%)	1878.2000	1878.7000	0.5000
Top Speed (80%)	1042.9000	1039.5000	-3.4000
Boost Top Speed (80%)	1862.8000	1854.4000	-8.4000

When thinking about Silver Rat, I wasn't sure if I was going to make any adjustments to it at first. But as I buffed more and more machines the more it felt Silver Rat needed a buff to better keep up, especially on its weaker courses. I initially thought about raising its top speed slightly. But then I remembered that there was a lack of lightweight machines with an extremely high base acceleration value. I also wanted a high acceleration machine with a very short boost duration. Silver Rat is the perfect candidate to meet those criteria.

It needed a bit of a bump in the Max Speed stat to compensate for the increased accel. Its 100% top speed is slightly higher now, but its 80% top speed is down by about 3 KMH. The booster top speed is slightly less now but the large buff to acceleration more than makes up for that.

I also gave it a tiny reduction to its drag (0.0099) because its small, no other machine has that drag value and it plays along with its 999 KG weight.

I thought about reducing its Grip 2 as well to improve its MTSing and MTS chaining but decided against it mainly to not make it even more difficult to handle it and to keep some traits of his machine from the base game.

Spark Moon (Buff)

Spark Moon			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 3	0.1200	0.1100	-0.0100
Boost strength	22.5000	26.8000	4.3000
Turn decel	0.0120	0.0140	0.0020
Boost Top Speed (100%)	1769.4000	1810.3000	40.9000
Boost Top Speed (80%)	1761.2000	1801.6000	40.4000

Spark Moon is yet another mid-weight machine with strong advanced tech capability that needed to buffed. While it has good acceleration with decent weight and was good with all of the tech, it had a fairly weak booster and had an unfavorable Drift Accel value where even at 80%, it would lose a fair amount of speed from quick turning. Its top speed was nothing special either (1096 at 100%, 1091 at 80%). Plus it wasn't the easiest machine to pilot with its grip not being very strong, especially at 80%.

When you buff machines with the purpose of increasing their top end speeds, you can either increase its top speed, its booster top speed or a mixture of both. Spark Moon is not a machine for beginners, so I did not change its top speed at all in favor of giving it a much stronger booster. So while it has lower top speed compared to the likes of Blue Falcon, Red Gazelle and Queen Meteor, its Booster Top Speed is the higher than all of those machines. Because of its unfavorable Drift Accel stat, I felt that was justified despite its acceleration value being the highest and being heavier compared to those three machines.

I also slightly reduced Grip 3 to slightly improve its MTSing and MTS chaining. I also slightly increased its turn decel to balance out 80% vs 100% settings. It loses very little top speed when reducing its settings plus reducing settings makes it lose far less speed when quick turning. An increase of just 0.002 isn't much but it's does close the gap at least a tiny bit.

Bunny Flash (Buff)

Bunny Flash			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Body	0.9500	0.7200	-0.2300
Lava Test	5.2632	6.9444	1.6813

It didn't seem appropriate for Bunny Flash's machine to be fragile given its shape, weight and how it was a machine provided to her by the military. It's still nothing outstanding but it should be able to take some hits and want to go for mines more often now.

Groovy Taxi (Rework, overall a buff)

Groovy Taxi			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	2190.0000	2400.0000	210.0000
Accel	0.4400	0.4200	-0.0200
Max speed	0.3370	0.4000	0.0630
Grip 3	0.1000	0.0800	-0.0200
Turn tension	0.1000	0.2200	0.1200
Drift accel	0.8500	0.9000	0.0500
Turn movement	210.0000	300.0000	90.0000
Strafe turn	30.0000	52.0000	22.0000
Strafe	35.0000	37.0000	2.0000
Turn reaction	10.0000	7.0000	-3.0000
Grip 2	0.8000	0.7500	-0.0500

Boost strength	21.3000	22.7000	1.4000
Turn decel	0.0100	0.0300	0.0200
Body	0.6000	0.5000	-0.1000
0x48	1.0000	8.0000	7.0000
Lava Test	8.3333	10.0000	1.6667
Top Speed (100%)	1115.8000	1130.9000	15.1000
Boost Top Speed (100%)	1771.4000	1801.6000	30.2000
Top Speed (80%)	1102.3000	1121.0000	18.7000
Boost Top Speed (80%)	1756.5000	1792.0000	35.5000

Groovy Taxi has yet again received a rework. I wanted a more beginner-friendly alternative to Fat Shark. Bunny Flash was already kind of one but her machine had considerably less weight and had poor grip. I wanted an alternative who had similar weight, easy to use, but was in a lower acceleration class.

Just like with Fat Shark, I also wanted Groovy Taxi to have a good MTS, but at the same time not be very good with MTS chaining. However, I didn't want to make its Turn Decel stat be too high to emphasize Groovy Taxi as being a beginner-friendly version of Fat Shark. So instead, I greatly increased its turn tension, which makes it easier to control while making its MTS chaining be less viable. I also increased the special "0x48" stat to 8, which changes how it behaves when you end a MTS in a way that makes its MTS chaining far less effective.

Grip 2 and Grip 3 were slightly decreased to improve its MTS. Also, due to its high turn tension and increased weight, I needed to heavily increase its Turn Movement stat.

Give this machine a shot in Lateral Shift and other courses like it. I wouldn't be surprised if you end up preferring the Taxi over the Shark.

Dragon Bird (Grip adjustment)

Dragon Bird			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 1	0.5000	0.5500	0.0500

After playtesting it a bit I thought its grip was a tad too weak given how well rounded it is and how it likely won't be competing for single course WRs at the very top level. Its grip is difficult to break at 100%, requiring very high speeds and abuse of the control stick. It's not as forgiving at 80% but it is more than manageable if you have a steady thumb.

Elegance Liberty (Buff)

Elegance Liberty			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.4100	0.4040	-0.0060
Grip 1	0.6000	0.6500	0.0500
Drift accel	0.8000	0.6000	-0.2000
Boost strength	26.5000	28.8000	2.3000
Drag	0.0100	0.0094	-0.0006
Body	0.7300	0.5300	-0.2000
Lava Test	6.8493	9.4340	2.5846
0 to 600 (100%)	0.8330	0.8160	-0.0170
Top Speed (100%)	1084.7000	1087.9000	3.2000
Boost Top Speed (100%)	1772.8000	1799.7000	26.9000
Top Speed (80%)	1073.0000	1075.4000	2.4000
Boost Top Speed (80%)	1758.0000	1778.5000	20.5000

Elegance Liberty is meant to be a bit behind the curve in terms of its top speeds since it is a very easy to use and forgiving machine, but a re-evaluation determined that it was a little too underpowered despite that.

I decided to decrease its drag. I typically avoid making this sort of change on any machine that has both a strong MTS and MTS chaining, but considering it is very light weight and has a fairly low top speed, I thought it was okay to give it this buff.

I slightly decreased the Max Speed stat to compensate for the reduced drag, but it still ended up with a minor 2-3 KMH increase in top speed.

I greatly increased its boost strength. Considering its top tier acceleration, its booster is now quite powerful and will take excellent advantage of dash plates.

All of these speed related buffs does have a relatively minor price - I considerably decreased its Drift Accel so it neither really gains nor loses speed from quick turning.

To be honest while I had a reason for making its body stat somewhat average, I had since forgotten the specific reason. Elegance Liberty is meant to be a machine suited for newer, less experienced players with its high acceleration and strong grip, so I decided to go all the way with that concept and increased its durability. And speaking of its grip I made it stronger so it is nigh unbreakable at 80%.

Panzer Emerald (Grip adjustment)

Panzer Emerald			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 1	0.5000	0.5800	0.0800

Just like with Panzer Emerald, I thought it lost grip way too easily, particularly when trying to make minor turn adjustments at boosting speeds. Compared to Dragon Bird it has considerably less grip. After the changes, at 100% it takes mashing the stick at around 1500-1600 to start losing grip. At 80% it is prone to losing grip if you are careless, but that is the trade off for extra acceleration with minimal top speed loss.

Body Part Changelist

Galaxy Falcon (Adjustment, nerf overall)

Galaxy Falcon			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	100.0000	150.0000	50.0000
Accel	0.0000	0.0099	0.0099
Max speed	0.1100	0.0700	-0.0400
Grip 1	0.3400	0.8000	0.4600
Grip 3	0.0700	0.1500	0.0800
Turn tension	0.1800	0.1900	0.0100
Turn movement	180.0000	115.0000	-65.0000
Strafe	33.0000	20.0000	-13.0000
Turn reaction	4.0000	23.0000	19.0000
Grip 2	0.0500	0.1000	0.0500
Boost strength	0.5000	2.0000	1.5000
Boost duration	0.0000	0.0300	0.0300
Turn decel	0.0000	-0.0010	-0.0010
Drag	-0.0001	-0.0015	-0.0014
Body	1.3000	1.0000	-0.3000
Front length	-1.7000	-1.5000	0.2000
Back length	1.7000	1.5000	-0.2000

In version 4.0, the body parts that greatly increased the Max Speed stat had a big issue: It benefited certain boosters much more than others. Specifically, the top speed of boosters with

less than 0.4 base acceleration was less sensitive to changes to the Max Speed stat. I wanted to reduce this difference.

The solution was to find the right mix of drag reduction and max speed. It seems a ratio of about -0.0002 Drag to 0.1 Max Speed is more or less what's needed to make all boosters benefit similarly. It's likely not perfect since I only collected data with two boosters when coming to that ratio. Most likely the lowest acceleration boosters will get higher gains while the highest accel boosters will receive less gains. But that would only be appropriate if anything given the weakness of having a very low acceleration.

Regarding Galaxy Falcon specifically, I heavily nerfed its MTS, but it now has less drag and grants the machine slightly more speed overall. It should also have more grip as well.

Also for the first time, the body part can affect the Acceleration. Only a very select few body parts buffs the acceleration, and Galaxy Falcon is one of them.

Giant Planet (Adjustment, slight buff overall)

Giant Planet			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	1360.0000	1400.0000	40.0000
Strafe turn	70.0000	72.0000	2.0000
Strafe	27.0000	25.0000	-2.0000
Grip 2	-0.0500	0.0000	0.0500
Boost duration	0.0000	0.0300	0.0300
Body	0.5000	0.4200	-0.0800

Just a few tweaks. Reduced its strafe to make its MTS not as good. It is now more durable and it now grants some extra boost duration, which has not been done on a body part before.

Megalo Cruiser (Former Legendary Part. Reworked)

Megalo Cruiser			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.0000	0.0100	0.0100
Grip 1	0.8000	1.0000	0.2000
Grip 3	0.2500	0.1300	-0.1200
Turn tension	0.1200	0.2100	0.0900
Turn movement	250.0000	150.0000	-100.0000
Strafe turn	90.0000	45.0000	-45.0000

Strafe	45.0000	35.0000	-10.0000
Turn reaction	3.0000	23.0000	20.0000
Boost strength	0.0000	0.5000	0.5000

It was fun spaceflying with a shipping crate, but with GXTREME being the mod for nutty machines, and the cumbersome baggage that comes with banning these parts for competition, Megalo Cruiser and the rest of the legendary parts are no longer legendary.

Megalo Crusier remains the heaviest body part in the game by a decent margin. It pays for that by not being able to MTS chain that well. It still can MTS but it's not anything special. And perhaps most importantly it can steer at least well enough at any setting and with any cockpit, though results will vary based on your cockpit selection and machine setting.

Splash Whale (Adjustment. Nerf overall)

Splash Whale			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	530.0000	350.0000	-180.0000
Accel	0.0000	0.0099	0.0099
Max speed	0.0000	0.0200	0.0200
Grip 1	0.4200	1.5000	1.0800
Turn tension	0.0900	0.0700	-0.0200
Strafe turn	55.0000	45.0000	-10.0000
Grip 2	0.0000	0.1000	0.1000
Boost strength	1.0000	0.0000	-1.0000
Turn decel	0.0000	-0.0020	-0.0020
Drag	0.0000	-0.0002	-0.0002
Body	0.9500	0.8200	-0.1300

Splash Whale is meant to be baby's first lightweight advanced tech-focused machine. It has good grip unlike Speedy Dragon, though its MTS and chaining abilities, while still very good, does not hold up to Speedy Dragon in terms of speed and overall time-saving potential. If you can't handle Speedy Dragon or dislike its lack of grip, give this whale a shot.

Wild Chariot (Buffed)

Wild Chariot			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.0600	0.0300	-0.0300

Boost duration	0.0000	0.0500	0.0500
Drag	-0.0002	-0.0008	-0.0006

This is a buff overall to its top speeds, and like with Galaxy Falcon the buffs it grants to top speed should be more consistent across all boosters.

Valiant Jaguar (Buffed)

Valiant Jaguar			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	1300.0000	1360.0000	60.0000
Max speed	-0.0300	-0.0200	0.0100
Strafe	36.0000	37.0000	1.0000
Turn reaction	16.0000	15.0000	-1.0000
Boost strength	0.0000	0.5000	0.5000

I felt I nerfed its weight and max speed too much compared to Dread Hammer, so I gave it some minor buffs plus some boost strength.

Holy Spider (Reworked. Likely nerf overall)

Holy Spider			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Accel	0.0000	0.0099	0.0099
Max speed	0.0000	0.0100	0.0100
Grip 1	0.4800	0.8500	0.3700
Grip 3	0.0500	0.3500	0.3000
Turn reaction	20.0000	16.0000	-4.0000
Grip 2	-0.0600	0.0700	0.1300
Boost strength	0.0000	3.5000	3.5000
Turn decel	0.0000	-0.0020	-0.0020

Holy Spider has always been the jokester body part and it still is. However I realized it was extremely similar to Blood Raven, and I just can't have that in my mod.

During my testing, I learned that the reason why some machines barely gain speed from snaking is due to having a very high Grip 3 stat. So I decided to give Holy Spider a very high Grip 3 stat. With the right cockpit, a sharp, sudden left or right turn should break its grip into a stable, quick turn like turn just like with base Hyper Speeder.

And while a high Grip 3 stat does sound like a drawback with its reduced ability to gain speed from quick turn, what this also means is that it loses considerably less speed when quick turning with booster parts with a very low Drift Accel stat (Or 100% settings with a >1.0 base Drift Accel booster). This means it can more effectively utilize booster parts whose base Drift Accel is over 1.0, as their DA stat decreases greatly at 100% settings.

That coupled with the boost in boost strength, it may yield some surprising results with the right booster and on the right track.

Blood Raven (Slight nerf overall)

Blood Raven			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.0000	0.0100	0.0100
Grip 1	0.3500	0.7000	0.3500
Strafe	32.0000	28.0000	-4.0000
Turn reaction	8.0000	7.0000	-1.0000
Body	1.1000	0.8500	-0.2500

The main change to Blood Raven is increasing its grip and slightly reducing the strength of its MTS. In return, I made it more durable and gave it a slight bump to top speed.

Funny Swallow (Likely buff overall)

Funny Swallow			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.0000	0.0200	0.0200
Grip 3	0.1500	0.1700	0.0200
Strafe	34.0000	30.0000	-4.0000

My tinkering with Funny Swallow was how I discovered the appropriate drag-to-max speed ratio to minimize the difference in speed benefits between boosters. As it now gains even more speed with the 0.02 increase in the Max Speed stat, I reduced its MTS capability slightly.

Optical Wing (Adjustment. Nerf overall)

Optical Wing			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	690.0000	500.0000	-190.0000

Max speed	0.0050	0.0100	0.0050
Grip 1	0.4500	0.5000	0.0500
Grip 3	0.1500	0.1600	0.0100
Turn tension	0.0900	0.1300	0.0400
Strafe turn	65.0000	70.0000	5.0000
Strafe	39.0000	35.0000	-4.0000
Grip 2	-0.0200	0.0000	0.0200
Boost strength	0.8000	2.5000	1.7000
Drag	0.0000	-0.0001	-0.0001

Given the name and appearance, I wanted to make this body part have excellent air mobility. While I reduced its weight, partly to increase the diversity of body part weights, I gave it extra speed in return. It also has very good grip now.

Mad Bull (Slight buff overall)

Mad Bull			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Turn tension	0.1000	0.0900	-0.0100
Grip 2	-0.0400	-0.0800	-0.0400

These two stat changes will make its MTS chaining more effective and easier to utilize, just like its mentor, the Black Bull.

Big Tyrant (Complete rework. Difficult to determine if its been nerfed or buffed)

Big Tyrant			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	1600.0000	1500.0000	-100.0000
Accel	0.0000	0.0080	0.0080
Max speed	0.0100	0.0000	-0.0100
Grip 1	0.7500	1.0000	0.2500
Grip 3	0.2200	0.1800	-0.0400
Turn tension	0.1700	0.1600	-0.0100
Drift accel	0.0000	-0.1500	-0.1500
Strafe turn	30.0000	55.0000	25.0000
Strafe	38.0000	33.0000	-5.0000

Turn reaction	10.0000	17.0000	7.0000
Boost strength	0.5000	1.5000	1.0000
Boost duration	0.0000	0.0700	0.0700
Turn decel	0.0000	0.0400	0.0400
Body	0.4000	0.4300	0.0300

Big Tyrant has been given a rework. Utilizing this part will make it behave like Fat Shark. It grants a slight acceleration buff, a fairly significant increase in boost duration. Plus some boost strength too, especially for its weight. Its MTS is still pretty good. But it must pay a price somewhere for all of that. And as you may expect, its turn deceleration penalty is massive.

Finding the right amount of turn deceleration was much more tricky than I had expected. If I didn't increase it enough, booster parts with lower acceleration will still end up with a 0.01 turn deceleration at 100% settings. And raising it too much will make it unviable with most boosters. Increasing Turn decel by 0.04 was the best I could find. Lower acceleration boosters will still have a fairly low TD value at 100% settings, so such booster parts will likely work best with Big Tyrant.

Grand Base (Nerf)

Grand Base			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Strafe turn	60.0000	65.0000	5.0000
Boost duration	0.0000	-0.0500	-0.0500

I wanted at least one part that reduced boost duration, so I figured I'd give it to the part with by far the most potential with advanced tech.

Fire Wolf (Adjustment)

Fire Wolf			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Strafe turn	75.0000	50.0000	-25.0000

There were a few too many body parts with excellent strafe turn, thus the nerf. But this will make it more effective with certain side attack dives where you don't want to turn too sharply during it.

Dread Hammer (Slight buff)

Dread Hammer			

Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 1	0.8000	0.9000	0.1000
Turn tension	0.1900	0.1700	-0.0200
Turn reaction	23.0000	21.0000	-2.0000

At long last, the most widely used body part for WRs in base GX has gotten a relatively minor buff. Experts of the game will notice that its MTS is a bit better and that it is now easier to MTS chain with the machine. Its grip is also much stronger now.

Silver Sword (Former Legendary Part. Reworked)

Silver Sword			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	1150.0000	800.0000	-350.0000
Max speed	0.0000	0.0150	0.0150
Grip 1	0.5200	0.7000	0.1800
Grip 3	0.1500	0.1100	-0.0400
Turn tension	0.0800	0.2200	0.1400
Turn movement	275.0000	225.0000	-50.0000
Strafe turn	85.0000	45.0000	-40.0000
Turn reaction	3.0000	8.0000	5.0000
Grip 2	0.0000	0.0300	0.0300
Boost strength	0.0000	3.2000	3.2000
Boost duration	0.0000	0.0300	0.0300
Body	0.7500	0.6600	-0.0900

This is formerly a legendary body part. Of the three legendary body parts, this one has the least drastic change. It still has near-unbreakable grip. And its MTS is still excellent. Sonic Phantom is the main inspiration to this body part, in no small part due to their similar appearances.

Just like with Sonic Phantom, it struggles with MTS chaining due to the very high turn tension stat. But in return, it is granted a big boost to its booster, and as mentioned earlier, it has an amazing MTS.

Rage Knight (Former Legendary Part. Reworked)

Rage Knight			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4

Attribute			
Weight	750.0000	580.0000	-170.0000
Accel	0.0000	0.0050	0.0050
Max speed	0.0000	0.0100	0.0100
Grip 1	0.3000	0.5000	0.2000
Grip 3	0.0500	0.1400	0.0900
Turn tension	0.0400	0.0900	0.0500
Turn movement	275.0000	165.0000	-110.0000
Strafe turn	80.0000	40.0000	-40.0000
Strafe	45.0000	36.0000	-9.0000
Turn reaction	3.0000	6.0000	3.0000
Grip 2	-0.0100	0.0000	0.0100
Boost strength	0.0000	1.6000	1.6000
Body	1.1000	0.9000	-0.2000

This is the last of the legendary body parts. Seeing as this body part is a fan favorite in base GX, I decided to have it go back to its roots in terms of how it handles, but not without some upgrades.

While it is more on the light side, it has a very good MTS and it is easier to MTS chain it now. It received minor increases with top speed and booster strength. It also received a minor acceleration buff.

Rapid Barrel (Adjustment. Buff overall)

Rapid Barrel			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	0.0000	260.0000	260.0000
Accel	0.0000	0.0099	0.0099
Max speed	-0.0400	0.0000	0.0400
Grip 3	0.2000	0.2500	0.0500
Strafe	23.0000	24.0000	1.0000
Boost strength	8.5000	11.0000	2.5000
Boost duration	0.0000	0.0700	0.0700
Drag	-0.0003	0.0000	0.0003

Rapid Barrel received more changes than I had initially thought it would receive.

I increased its weight mainly so it can better utilize certain lightweight cockpits that give big benefits to speed. I learned that the boosters of super lightweight machines are significantly hampered due to an odd behavior that I observed. Basically, for one frame, it gains speed, but in the next, it would instead lose speed. The lighter the machine, the more drastic the effect and the longer this would go on until it'd eventually stop. But this heavily damages the boosting speed potential of super lightweight machines.

I neutralized the adjustments to max speed and drag. If I wanted to make the top speed nerf more equal across boosters, on top of decreasing max speed, I would also need to give it a positive drag stat. And that is something I just did not want to do for this body part.

So in the end, it received a weight, a top speed and a boost top speed buff, at the cost of some drag. Oh and it also now grants a big boost to its boost duration. With the right booster and cockpit, it can achieve the famous 2.0 second boost duration that Fat Shark has!

Sky Horse (Buff)

Sky Horse			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Turn tension	0.0250	0.0300	0.0050
Boost strength	1.0000	1.5000	0.5000
Boost duration	0.0000	0.0300	0.0300

Just a few minor tweaks. It is still an easy-to-handle machine that just needed a slight bump with its booster.

Aqua Goose (Buff)

Aqua Goose			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Boost strength	0.0000	1.0000	1.0000

Aqua Goose is a MTS chaining capable machine with an average but still usable MTS. I felt it needed a slight booster buff to give more reason for players to use this part.

Space Cancer (Slight adjustment. Buffed overall)

Space Cancer			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.0120	0.0200	0.0080
Grip 1	0.6000	0.6300	0.0300

Grip 3	0.2500	0.3000	0.0500
Turn tension	0.1500	0.1000	-0.0500
Strafe	30.0000	28.0000	-2.0000
Turn reaction	5.0000	6.0000	1.0000
Boost duration	0.0000	0.0500	0.0500

Upon learning how Grip 3 affects speed loss/gain from quick turns, I decided to grant it a higher Grip 3 stat. That coupled with the adjustments to strafe and quick turn means its MTS is much less effective now. However, the reduced turn tension should make it easier to MTS chain with.

It now grants an extra 0.05 of a second of boost duration.

Metal Shell (Adjustment and buff)

Metal Shell			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Strafe turn	70.0000	67.0000	-3.0000
Strafe	35.0000	36.0000	1.0000

Just some small tweaks to this well-balanced part.

Speedy Dragon (Buff)

Speedy Dragon			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 1	0.3500	0.4000	0.0500
Grip 3	0.0800	0.0600	-0.0200
Turn tension	0.0600	0.0500	-0.0100
Drag	0.0000	-0.0001	-0.0001

The famed Speedy Dragon finally gets its buff! I mainly made its best strengths, its MTS and MTS chaining, even better. I also gave it some more grip though it's still very slippery. And a slight drag reduction since it's among the lightest body parts. And because light body parts lose out on a lot of boost strength compared to heavier ones.

Liberty Manta (Complete rework)

Liberty Manta			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4

Weight	450.0000	200.0000	-250.0000
Max speed	0.0000	0.0600	0.0600
Grip 1	0.3700	0.3000	-0.0700
Grip 3	0.0900	0.1000	0.0100
Turn tension	0.0600	0.2000	0.1400
Turn movement	160.0000	180.0000	20.0000
Strafe turn	60.0000	40.0000	-20.0000
Strafe	30.0000	28.0000	-2.0000
Turn reaction	4.0000	6.0000	2.0000
Grip 2	-0.0900	0.0500	0.1400
Boost strength	4.0000	1.5000	-2.5000
Drag	-0.0002	-0.0013	-0.0011
Body	1.1500	1.3000	0.1500

I reworked Liberty Manta to be similar to Galaxy Falcon. It grants the machine a large boost to top speed and booster top speed. The main difference between it and Galaxy Falcon is that Liberty has a much stronger MTS. Because of that, Liberty Manta gives slightly less speed compared to Galaxy Falcon, but its much more useful MTS means it has more potential. But as you may know by now, more potential means it is more difficult to pilot. It doesn't have the best grip in Liberty Manta's case and its size doesn't help matters.

Cockpit Changelist

Rush Cyclone

Rush Cyclone			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	620.0000	200.0000	-420.0000
Max speed	0.0000	0.0200	0.0200
Turn tension	0.0000	0.0200	0.0200
Turn movement	-20.0000	-10.0000	10.0000
Strafe turn	10.0000	-10.0000	-20.0000
Strafe	5.0000	-5.0000	-10.0000
Grip 2	0.5000	0.7800	0.2800
Boost strength	0.0000	0.3000	0.3000
Boost duration	0.0000	0.0300	0.0300

Turn decel	0.0000	-0.0050	-0.0050
Drag	0.0000	-0.0003	-0.0003
Body	0.6200	1.2000	0.5800

Rush Cyclone headlines this version's 5.0 emphasis on having a wider variety of cockpits in terms of mixing strengths and weaknesses. Rush Cyclone is both the lightest cockpit and it gives no bonus to strafe at all. But in return, it grants a large reduction to drag. This coupled with one of the lightweight body parts that grants a lot of extra speed makes for a very speedy combo.

It is also one of the few cockpits that can grant the remaining bonus to boost length to create your 2.0 second boost duration machine.

Combat Cannon

Combat Cannon			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Turn reaction	0.0000	-2.0000	-2.0000

As Combat Cannon is inferior to Maximum Star, I decided to grant it a slight buff, improving its MTS and grip slightly.

Muscle Gorilla

Muscle Gorilla			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	520.0000	720.0000	200.0000
Max speed	0.0000	-0.0100	-0.0100
Grip 1	0.0000	0.0100	0.0100
Grip 3	0.0000	0.0100	0.0100
Turn tension	0.0000	0.0150	0.0150
Turn movement	-12.0000	-3.0000	9.0000
Strafe turn	2.0000	-15.0000	-17.0000
Turn reaction	-5.0000	-4.0000	1.0000
Grip 2	0.6800	0.7000	0.0200
Boost strength	0.0000	0.6000	0.6000
Turn decel	-0.0040	0.0030	0.0070
Body	0.8000	0.5000	-0.3000

What do you think when you read "Muscle Gorilla"? Obviously, it sounds very tough and strong, thus I made the cockpit behave just like it sounds. It is now the heaviest cockpit part at 720 KG, 40 KG more than Maximum Star. It is also the most durable body part. Its high Grip 2 and increased Grip 1 and Turn Tension makes the machine easy to handle.

However, it must pay a price for all of these boons. And that price is one of the very few cockpit parts that decreases the machine's max speed stat. Plus it adds some amount of Turn decel and Turn tension too which makes it more sluggish when it comes to cornering and MTS chaning

Cyber Fox

Cyber Fox			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 3	0.0000	-0.0200	-0.0200

Heat Snake

Heat Snake			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 3	0.0000	-0.0100	-0.0100
Boost strength	0.0000	0.5000	0.5000
Boost duration	0.0000	0.0200	0.0200

Rave Drifter

Rave Drifter			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 3	0.0000	0.0300	0.0300
Strafe	3.0000	5.0000	2.0000

Aerial Bullet

Aerial Bullet			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Boost duration	0.0000	0.0200	0.0200
Drag	0.0000	-0.0002	-0.0002

Spark Bird

Spark Bird			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Strafe turn	15.0000	17.0000	2.0000

Blast Camel

Blast Camel			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Strafe turn	16.0000	14.0000	-2.0000
Body	1.0500	0.8000	-0.2500

Dark Chaser

Dark Chaser			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 3	0.0000	-0.0200	-0.0200
Boost strength	0.0000	0.7000	0.7000
Boost duration	0.0000	0.0100	0.0100

Garnet Phantom

Garnet Phantom			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Turn tension	-0.0200	0.0100	0.0300

Bright Spear

Bright Spear			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	680.0000	650.0000	-30.0000
Grip 3	0.0000	0.0800	0.0800

Turn movement	0.0000	-25.0000	-25.0000
Strafe turn	0.0000	-8.0000	-8.0000
Strafe	5.0000	-3.0000	-8.0000
Grip 2	0.5000	0.4600	-0.0400
Boost duration	0.0000	-0.0200	-0.0200
Turn decel	0.0000	-0.0030	-0.0030
Drag	0.0000	-0.0002	-0.0002
Body	0.6000	0.7200	0.1200

Bright Spear formerly had the same stats as Maximum Star. Looking at its shape, it looked pretty aerodynamic and heavy, so it's still heavy at 650 KG and it very slightly reduces drag now. The adjustments to turn tension and turn decel makes it an excellent cockpit for MTS chaining too. But the drawback for all of this is its -3 strafe, making its MTS considerably weaker than most other cockpits, and a slight reduction in boost duration. But as you may know there are some courses where you can't really MTS on anyway.

Hyper Stream

Hyper Stream			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.0000	0.0150	0.0150
Strafe	8.0000	6.0000	-2.0000
Boost duration	0.0000	0.0200	0.0200
Turn decel	-0.0020	0.0000	0.0020
Body	0.7300	0.9000	0.1700
0x48	2.0000	8.0000	6.0000

Hyper Stream is among the few cockpits that grants a boost duration buff. It also boosts max speed. However for that, its 0x48 stat has been adjusted, making MTS chaining much more challenging with this cockpit equipped.

Super Lynx

Super Lynx			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	590.0000	580.0000	-10.0000

Crystal Egg

Crystal Egg			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Grip 3	0.0000	-0.0100	-0.0100
Turn tension	0.0000	0.0100	0.0100

Windy Shark

Windy Shark			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.0000	0.0100	0.0100
Grip 3	0.0000	-0.0300	-0.0300
Boost duration	0.0000	0.0300	0.0300
Drag	0.0000	-0.0002	-0.0002

Moon Snail

Moon Snail			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Turn tension	-0.0200	0.0000	0.0200
Body	1.0500	0.7000	-0.3500
0x48	5.0000	4.0000	-1.0000

Crazy Buffalo

Crazy Buffalo			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Turn movement	13.0000	-18.0000	-31.0000
Body	0.5800	0.6500	0.0700

Scud Viper

Scud Viper			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Max speed	0.0000	0.1000	0.1000

Grip 3	0.0000	0.0400	0.0400
Turn tension	0.0000	-0.0100	-0.0100
Strafe	9.0000	-2.0000	-11.0000
Turn reaction	0.0000	-2.0000	-2.0000
Boost duration	0.0000	0.0100	0.0100
Turn decel	-0.0045	-0.0040	0.0005
Drag	0.0000	-0.0001	-0.0001

Scud Viper is the mid-weight cockpit that grants a drag reduction, making it a good candidate for a super speedy 1000 KG custom machine.

Round Disk

Round Disk			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	460.0000	300.0000	-160.0000
Grip 3	0.0000	-0.0200	-0.0200
Strafe	7.0000	3.0000	-4.0000
Turn reaction	-2.0000	-6.0000	-4.0000
Drag	0.0000	-0.0001	-0.0001

Energy Crest

Energy Crest			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	530.0000	630.0000	100.0000
Max speed	0.0000	-0.0100	-0.0100
Grip 3	0.0000	-0.0100	-0.0100
Turn tension	0.0100	-0.0100	-0.0200
Turn movement	-22.0000	9.0000	31.0000
Strafe turn	-10.0000	11.0000	21.0000
Strafe	5.0000	7.0000	2.0000
Turn reaction	-3.0000	-4.0000	-1.0000
Turn decel	-0.0030	0.0000	0.0030
Drag	0.0000	0.0001	0.0001

Energy Crest is the only cockpit that increases your drag. In addition, its Max Speed stat is also slightly reduced. It's heavy with a relatively good combination of strafe and turn reaction, making it very well suited for performing the MTS and MTS chaining techniques.

Booster Part Changelist

Euros -01

Euros -01			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	200.0000	240.0000	40.0000
Max speed	0.4100	0.4050	-0.0050
Turn decel	0.0100	0.0120	0.0020
Drag	0.0100	0.0098	-0.0002
Top Speed (100%)	1099.6000	1100.1000	0.5000
Boost Top Speed (100%)	1752.6000	1753.7000	1.1000
Top Speed (80%)	1087.2000	1087.4000	0.2000

Triangle -GT

Triangle -GT			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Accel	0.5100	0.5000	-0.0100
Max speed	0.4550	0.4720	0.0170
Drift accel	1.7000	1.8500	0.1500
Boost strength	16.8000	16.6000	-0.2000
Turn decel	0.0400	0.0420	0.0020
Top Speed (100%)	1125.3000	1130.3900	5.0900
Boost Top Speed (100%)	1792.1000	1792.9000	0.8000
Top Speed (80%)	1120.7000	1126.4000	5.7000

Velocity -J

Velocity -J			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4

Weight	450.0000	470.0000	20.0000
Accel	0.4300	0.4100	-0.0200
Drift accel	0.8000	0.9700	0.1700
Turn decel	0.0250	0.0220	-0.0030
Top Speed (100%)	1141.9000	1122.7000	-19.2000
Boost Top Speed (100%)	1781.5000	1783.1000	1.6000
Top Speed (80%)	1132.0000	1112.9900	-19.0100

Sunrise 140

Sunrise 140			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	175.0000	270.0000	95.0000
Max speed	0.3200	0.3300	0.0100
Drift accel	1.0000	0.8500	-0.1500
Boost strength	20.0000	20.8000	0.8000
Drag	0.0100	0.0098	-0.0002
Top Speed (100%)	1070.2000	1073.7200	3.5200
Boost Top Speed (100%)	1804.4000	1817.5000	13.1000
Top Speed (80%)	1057.2000	1060.6640	3.4640

Saturn -SG

Saturn -SG			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	240.0000	200.0000	-40.0000
Max speed	0.3200	0.3230	0.0030
Boost strength	18.4000	20.5000	2.1000
Boost duration	1.8000	1.9000	0.1000
Turn decel	0.0120	0.0130	0.0010
Top Speed (100%)	1076.0000	1076.7000	0.7000
Boost Top Speed (100%)	1746.5000	1761.1000	14.6000
Top Speed (80%)	1065.0000	1065.7000	0.7000

Bluster -X

Bluster -X			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	310.0000	340.0000	30.0000
Accel	0.4900	0.4600	-0.0300
Max speed	0.4440	0.4700	0.0260
Boost strength	9.2000	10.4000	1.2000
Boost duration	1.5000	1.4800	-0.0200
Drag	0.0085	0.0095	0.0010
Top Speed (100%)	1155.8000	1150.7000	-5.1000
Boost Top Speed (100%)	1749.2000	1755.9000	6.7000
Top Speed (80%)	1143.2000	1142.9440	-0.2560

Devilfish -RX

Devilfish -RX			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Accel	0.2800	0.2900	0.0100
Max speed	0.3600	0.3800	0.0200
Boost strength	20.5000	21.0000	0.5000
Turn decel	0.0300	0.0470	0.0170
Drag	0.0090	0.0095	0.0005
Top Speed (100%)	1151.8000	1146.8000	-5.0000
Boost Top Speed (100%)	1828.1000	1829.1000	1.0000
Top Speed (80%)	1145.9000	1142.5800	-3.3200

Mars -EX

Mars -EX			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	180.0000	410.0000	230.0000
Accel	0.3650	0.4400	0.0750
Max speed	0.1000	0.2700	0.1700
Drift accel	0.9200	0.9990	0.0790

Boost strength	19.7000	20.7000	1.0000
Boost duration	1.6000	1.9000	0.3000
Drag	0.0090	0.0100	0.0010
Top Speed (100%)	1133.8000	1101.3300	-32.4700
Boost Top Speed (100%)	1826.3000	1790.0000	-36.3000
Top Speed (80%)	1099.1000	1085.9600	-13.1400

Titan -G4

Titan -G4			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	540.0000	570.0000	30.0000
Top Speed (100%)	1133.4000	1133.5900	0.1900
Boost Top Speed (100%)	1779.5000	1780.8000	1.3000
Top Speed (80%)	1085.0000	1085.1800	0.1800

The popular Titan-G4 at last gets its buff in this mod!. 30 extra KG grants it slight benefits with most advanced tech and slightly more boost strength. Considering the booster part adjustments were centered around this part, I decided to not buff it any more than this.

Extreme -ZZ

Extreme -ZZ			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	480.0000	520.0000	40.0000
Max speed	0.4600	0.4300	-0.0300
Drift accel	0.6300	0.5500	-0.0800
Boost strength	17.4000	18.2000	0.8000
Top Speed (100%)	1142.8000	1134.8300	-7.9700
Boost Top Speed (100%)	1823.4000	1824.4000	1.0000
Top Speed (80%)	1135.1000	1128.8200	-6.2800

Thunderbolt -V2

Thunderbolt -V2			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4

Drift accel	0.8000	0.8400	0.0400
Turn decel	0.0280	0.0260	-0.0020

Thunderbolt-V2, like Titan-G4 was left untouched until now. Its buffs are more minor, focusing only on very slightly reducing its speed loss from cornering.

Shuttle -M2

Shuttle -M2			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	605.0000	420.0000	-185.0000
Accel	0.3700	0.6200	0.2500
Max speed	0.2300	0.3300	0.1000
Drift accel	0.8800	0.6000	-0.2800
Boost strength	15.5000	22.0000	6.5000
Boost duration	1.7500	1.6500	-0.1000
Turn decel	0.0220	0.0350	0.0130
Top Speed (100%)	1139.9000	1081.9000	-58.0000
Boost Top Speed (100%)	1785.3000	1814.9000	29.6000
Top Speed (80%)	1115.9000	1071.7000	-44.2000

Shuttle-M2 received a full rework. It now has high acceleration with a strong booster, but a weak top speed. It loses a good chunk of speed when quick turning and the high turn declaration makes it not very good with MTS chaining.

Punisher -4X

Punisher -4X			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	730.0000	590.0000	-140.0000
Accel	0.4500	0.3700	-0.0800
Max speed	0.4700	0.2310	-0.2390
Drift accel	0.9000	2.0000	1.1000
Boost strength	21.7000	16.7000	-5.0000
Boost duration	1.9000	1.7300	-0.1700
Turn decel	0.0160	0.0200	0.0040
Top Speed (100%)	1145.5000	1140.0600	-5.4400

Boost Top Speed (100%)	1861.4000	1801.5000	-59.9000
Top Speed (80%)	1139.9000	1116.0600	-23.8400

This is formerly a legendary booster part. I've mentioned before about properly balancing out machines with a Drift Accel stat of greater than 1.0, and this is one of those parts. As its top speed at 80% is 24 KMH less than its 100% top speed, it needed to have a high drift accel stat so its quick turns at 80% wouldn't lose much speed, and in some cases gain some speed.

At 100% its top speed and booster top speed are both considerably better than Titan-G4's, with slightly more weight and slightly less acceleration, but it will lose considerable speed when quick turning. In certain courses, 4X will be better than G4.

Raiden -88

Raiden -88			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	830.0000	650.0000	-180.0000
Accel	0.3200	0.4200	0.1000
Max speed	0.3600	0.3300	-0.0300
Drift accel	0.9700	1.8800	0.9100
Boost strength	15.1000	19.4000	4.3000
Boost duration	1.5200	1.6000	0.0800
Turn decel	0.0210	0.0230	0.0020
Top Speed (100%)	1146.1000	1116.0400	-30.0600
Boost Top Speed (100%)	1788.7000	1821.4000	32.7000
Top Speed (80%)	1137.1000	1104.2400	-32.8600

Yet another booster converted to have a Drift Accel stat of over 1.0. However Raiden-88 has a 0.42 base acceleration, meaning its top speed doesn't decrease as much when reducing settings. Instead I try to balance out the two sides of the settings by giving it a higher Turn Decel. At 100%, its TD stat is 0.0109. At 80%, it is 0.0182. At that value, it will have a somewhat notable effect with turning speed loss and MTS chaining speed.

Overall it has higher potential than Titan-G4, but only if you are a skilled pilot. It does have a notable top speed disadvantage.

Impulse 220

Impulse 220			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4

Max speed	0.4400	0.4480	0.0080
Drift accel	1.4000	1.4500	0.0500
Boost strength	18.3000	18.4000	0.1000
Boost duration	1.5700	1.5200	-0.0500
Drag	0.0093	0.0095	0.0002
Top Speed (100%)	1120.7000	1121.1130	0.4130
Boost Top Speed (100%)	1814.4000	1816.6000	2.2000
Top Speed (80%)	1109.7000	1110.3590	0.6590

Bazooka -YS

Bazooka -YS			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	600.0000	630.0000	30.0000
Accel	0.5500	0.6800	0.1300
Max speed	0.4600	0.3500	-0.1100
Drift accel	0.9990	1.7500	0.7510
Boost strength	20.2000	14.2000	-6.0000
Boost duration	1.8000	1.7800	-0.0200
Turn decel	0.0140	0.0190	0.0050
Top Speed (100%)	1125.6000	1082.3300	-43.2700
Boost Top Speed (100%)	1830.7000	1718.4000	-112.3000
Top Speed (80%)	1118.4000	1069.5100	-48.8900

This used to be a legendary part. It boasts both high weight and a very high acceleration, two very desirable traits that you'd want in your dream GX machine. It pays a high cost for those strengths with a very low top speed and boost top speed, with the typically undesirable for Max Speed-styled play Drift Accel of over 1.0. Essentially, using this booster part will make your machine's speed and acceleration profile be similar to Crazy Bear, Night Thunder or Green Panther. I'd only recommend this part to at least intermediate-level players, and it is likely only ideal to use on short to mid length courses.

Meteor -RR

Meteor -RR			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Accel	0.4200	0.5100	0.0900

Max speed	0.2300	0.3800	0.1500
Top Speed (100%)	1090.4000	1104.6300	14.2300
Boost Top Speed (100%)	1808.2000	1765.0000	-43.2000
Top Speed (80%)	1075.7000	1100.3200	24.6200

Tiger -RZ

Tiger -RZ			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Boost strength	19.5000	20.0000	0.5000
Boost Top Speed (100%)	1809.7000	1814.5000	4.8000

Hornet -FX

Hornet -FX			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	860.0000	800.0000	-60.0000
Accel	0.3150	0.3500	0.0350
Max speed	0.3900	0.2900	-0.1000
Drift accel	0.8000	1.8000	1.0000
Boost strength	24.3000	17.6000	-6.7000
Boost duration	2.0000	1.8000	-0.2000
Turn decel	0.0200	0.0270	0.0070
Drag	0.0090	0.0100	0.0010
Top Speed (100%)	1172.4000	1145.5000	-26.9000
Boost Top Speed (100%)	1902.9000	1809.9000	-93.0000
Top Speed (80%)	1160.6000	1127.6000	-33.0000

The final legendary booster part in these patch notes is the Hornet-FX. It is the second heaviest booster part that has better acceleration, top speed and marginally better booster top speed than the Thunderbolt-V2. However, it has 0.1 sec less booster duration and a 1.8 Drift Accel stat, making it tough to utilize at higher settings. I imagine higher level players will want to at least try this part out to see if it has tangible time savings over G4 and V2.

Jupiter -Q

Jupiter -Q			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	280.0000	300.0000	20.0000
Accel	0.5990	0.5700	-0.0290
Max speed	0.3700	0.3650	-0.0050
Drift accel	0.9000	0.8300	-0.0700
Boost strength	17.6000	17.7000	0.1000
Boost duration	1.3500	1.6700	0.3200
Turn decel	0.0170	0.0210	0.0040
Top Speed (100%)	1094.8000	1095.8490	1.0490
Boost Top Speed (100%)	1799.0000	1770.4000	-28.6000
Top Speed (80%)	1085.3000	1087.9780	2.6780

Comet -V

Comet -V			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	330.0000	250.0000	-80.0000
Accel	0.4700	0.3770	-0.0930
Max speed	0.4400	0.2450	-0.1950
Drift accel	0.8500	1.7000	0.8500
Boost strength	14.0000	20.0000	6.0000
Top Speed (100%)	1136.6000	1141.8400	5.2400
Boost Top Speed (100%)	1761.8000	1812.3000	50.5000
Top Speed (80%)	1131.3000	1117.7000	-13.6000

This is the lightweight version of boosters with a greater than 1.0 Drift Accel that I've begun to incorporate in this update. It may be the best pick for the speedy 1000 KG custom machines, though it does have a pretty low acceleration.

Crown -77

Crown -77			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	390.0000	320.0000	-70.0000

Max speed	0.3000	0.4650	0.1650
Drift accel	0.9000	0.7700	-0.1300
Boost strength	20.2000	14.5000	-5.7000
Boost duration	1.2300	1.4000	0.1700
Turn decel	0.0270	0.0280	0.0010
Top Speed (100%)	1078.4000	1125.6200	47.2200
Boost Top Speed (100%)	1833.6000	1787.6000	-46.0000
Top Speed (80%)	1072.0000	1118.3800	46.3800

Triple -Z

Triple -Z			
Attribute	GX_Unleashed_v4	GX_Unleashed_v5	Diff to v4
Weight	660.0000	690.0000	30.0000
Max speed	0.2200	0.2400	0.0200
Drift accel	1.0000	0.9990	-0.0010
Boost duration	2.0000	1.9000	-0.1000
Top Speed (100%)	1133.8000	1137.1600	3.3600
Boost Top Speed (100%)	1795.7000	1803.4000	7.7000
Top Speed (80%)	1112.2000	1116.6200	4.4200

Story/Lore

View the prior short stories I made here

Super Falcon

Falcon has been on a bit of a slump. His machine has never been the most capable of machines in terms of pure performance, so when the development race heated up due to the leak/release of the Phoenix blueprints, his skills eventually could no longer make up for the performance gap.

While the Blue Falcon was still among the top machines in curvier, more technical tracks with its excellent drifting capabilities, it wasn't keeping up in super high speed tracks despite his best efforts. Using Blue Falcon as a base wasn't going to work to try to find a solution for this.

While most pilots only had just one machine, there's nothing preventing anyone from switching between multiple machines. It's just extraordinarily expensive to run and maintain two state of the art racing machines.

Despite this, Falcon decided it was time to build a second machine. While the current trend is to build heavier machines to fit in larger engines and to increase their durability, that sacrifices handling, manuveribility and responsiveness, which were the key things that made Falcon become champion several times. Instead he took inspiration from a certain duo pilot, the Twin Noritta.

Purchasing and importing the famed ultra light-weight metal took up a massive portion of his savings, but it was well worth it. Using a replica of the engines his Blue Falcon had, it was able to achieve much higher top speeds and his booster is much more effective. The massive weight savings also made his machine much more maneuverable too.

Now he's truly ready for anything.

Hyper Death Anchor

Black Shadow has been missing for a few years now. With his disappearance, Zoda is no longer able to get away with things like he has used to and authorities are constantly on the look out for him. The last few years have been challenging for him.

Prior to Black Shadow's fall, he actually had managed to obtain some of the leaked Rainbow Phoenix blueprints that powered up Fat Shark, Black Bull and possiblly Wild Boar's machines. That gave him a sizable edge over his competition. But once those blueprints were unveiled to everyone, everyone quickly caught up and his results suffered heavily for it. He had to do something, otherwise a large source of his funding will take a massive hit.

He managed to sneak in Black Shadow's old base. Having partnered with him for various attacks and plots, he knew a thing or two about his secret bases. Just as he was able to leave, he spotted something odd. He found a hidden entrance. Inside the room, he spotted a strange looking device. It was familiar but completely foreign. And then he felt some sort of aura come off of it. And it spoke to him in his mind. It told him "I need energy. I will repay you with ultimate speed and power"

Immediately he brought the device with him and installed it. And it happened, Death Anchor and Zoda has transformed. Hyper Death Anchor it called itself. Faster and more durable. It had some substantial new drawbacks, but a pilot of Zoda's capabilities is more than able to get around them. Zoda feels no one, not even Captain Falcon, Ryu and Phoenix can stop him.

The Galaxy now has a new threat on their hands.

Other changes

- In-race UI changes
  - The speedometer and the "Pos." graphical texts has been recolored to various shades of purple
  - The Lap, Time, Energy graphic texts have been removed from the in-race UI
  - The "Boost Power" and "Final Lap" graphics has been reduced and size and is now semi-transparent
- The "Replay" graphical text that only shows in replays immediately after a race or time trial run has been removed.
- In the Legends Unleashed versions of the mod, every mention of the machine and pilot name should now display the proper name for the Legends exclusive machines+pilots.
- For Legends Unleashed, in both the Pilot Profile, machine selection, and the race results, the image of the pilots for the new machines have been updated to show the actual pilots of those machines.
- The machine and pilot icons that appear in a GP race results (showing all 30 pilots) have been updated accordingly for the new machines.
- The Pilot Profile descriptions, which have previously been changed to show the machine grades and stats, now includes the 80% Boosting Top Speed and the lowest setting allowed for the Expanded Max Speed category
- The pilots exclusive to the Legends Unleashed have their own theme songs.
- A number of songs are now silent in order to save space for other songs. Play the game to locate them! (or just check the files themselves)
- I made one more change to create space for the new songs I wanted to add in the Legends Unleashed version of the mod. I'll keep the details of this change a surprise.
- Wild Boar in Story Mode has a slightly weaker body stat compared to what it is for players and other modes. This is to make sure chapter 4 isn't too difficult to clear. I still buffed its durability slightly compared to the base game so it is one of the few Chapters that has gotten more difficult in this mod.

Known Issues

- Staff Ghost Display Issues
  - Staff ghost times when loading the ghost are still incorrect
  - The time required to unlock the updated staff ghosts is still the same as the original game.
  - In the F-Zero shop, each staff ghost shows the machine used by the original devs, not the machines I used.
  - It would require a staggering amount of different versions the line_rel file to have it display the proper time for all five staff ghost sets. Thus I don't plan on making these corrections even if we know how to.

- The staff ghosts themselves have not been updated with runs done with the version 5.0 machines plus the dash plate duration and energy rate consumption from boosting adjustments. I do not see myself updating the staff ghosts anytime soon.
- The AI is still not fixed for the story mode courses played on the GP/Practice/Multiplayer modes. This might be fixable without needing cheats.
- The machine trackers does not follow the course map on the story mode courses outside of Story Mode. This might be fixable.
- When playing the **Legends editions** of the mod, the game might get stuck loading when trying to play the GP mode. Or when you attempt launch the game.
  - If the game does not load when launching it, you will have to load the game without a memory card inserted. Once it loads, insert the card and load the data in the Options menu.
  - After doing a GP mode run with the Legends edition, a precautionary file load from the Options menu may prevent the issue of loading GP mode.
  - Unfortunately this means for players who want to play the Legends Unleashed version via Nintendont, I recommend using a memory card if this issue still exists.
  - This issue might be mitigated if you reset your Time Attack records on some/all tracks.
- Also in the **Legends editions** of the mod, the following display issues could happen
  - In the Records screen or in the post race results, the display might be a bit bugged
  - In the machine settings screen, perhaps only in GP mode, the model of the pilot may not appear
  - In Practice (and perhaps multiplayer mode), many of the various options you have (Laps, number of CPU) will not display its text.
  - Maybe going to the Records section of the game may cause these issues.
- In the Profile section, all S grades are displayed as A.
- The Super Falcon machine model has a visual flaw/bug that has no impact with gameplay. I will provide an update once chmcl corrects it.

F-Zero GX Unleashed Post-Release Roadmap

After the release of the update I have a few things planned out for you guys in the near future!
1. The F-Zero GX Unleashed Discord is online!
2. F-Zero GX Unleashed Time Attack+Story Mode Leaderboard
   a. Includes Machine vs Staff Ghost spreadsheets, that keeps track of Machine Records on every track
3. F-Zero GX Unleashed listing in speedrun.com!
4. F-Zero GX Unleashed Tournament! Stay tuned for more details
5. I will stream the game sometime after the release to go over the update and show it off
6. New Machines???

Closing remarks

December 19, 2020. That was when the prior update was released, so it has been just over 4 years between updates. After the release of 4.0 I didn't think I'd be making yet another major balance update. But after myself and others have uploaded runs overtime, I realized there was more work needed to be done in terms of nailing the machine balance. Of course I should have done more testing myself in the first place and perhaps enlisted some help. I can only hope this doesn't deter players from doing serious runs for the mod.

Despite this, I will not promise that this will be the final rebalance update for the non-custom machines, as I have always broken that promise. But I think this time there will no longer be updates that adjust several machines at one time. I will not be too nitpicky and if some machines are a tad too weak or a tad too strong, so be it. I will only make changes if a machine or part is clearly massively over or underpowered from here on out.

As I discussed earlier in this write up, pretty much every super light weight machine were very underpowered because I was not considering the percentage difference in top speeds. I took the top speed and boost top speeds in base GX, calculated the percentage difference of each machines' top speed against the highest ones. I did the same for 4.0 Unleashed and observed that most light weight machines, particularly those that cannot MTS well, needed major buffs. Hopefully I did not overdo it. Most likely such machines will likely be even more dominant in Long Pipe, Cylinder Wave and maybe even Split Oval.

I am very thankful to Twilight who was able to figure out how to change the Dash Plate Boost Duration formula, but that means nearly all of the staff ghosts will behave differently than the 5.0 version of the machines. But to me it's well worth making this fundamental change as this will make machines with short and average boost durations not be completely crushed in courses with many dash plates. I do not know if I will ever redo the staff ghosts as I simply don't have as much free time compared to the early COVID days.

She also discovered how to remove the 9999 speed limit, which has prematurely ended many runs for high level players. Now there is no need to worry about hitting the speed limit anymore!

Another important change she helped make possible is decreasing how much energy it takes to boost. This was in fact the very last major change I made to the mod just about a week before I released the update. I made it so a filled out energy bar provided 11 seconds of boost instead of 10 seconds for all machines. This is yet another change that effectively nerfs the staff ghosts. After some thought I did want to make this change, but I felt I had to run it through the folks who has played Unleashed before. And they all said I should go through with this change. So there you have it guys, enjoy the 10% extra amount of boost!

This update gave me the chance to rework machines like Mighty Typhoon and Groovy Taxi to carve their own unique identity and be much more of an attractive pick. Typhoon was a bottom

tier machine that was only decent at best at long, booster heavy courses while Groovy Taxi was too similar to multiple other machines.

I am once again very thankful of chmcl who took on my request to create Super Falcon. I want to continue adding new machines to the Legends Unleashed version of the mod as long new, well made models are being made and it doesn't cause too many issues with playing the mod (which it just might with this update unfortunately despite measures taken against it). Right now there are 49 machines between both versions of the mod. I definitely want to do at least one more machine at some point to hit 50. I still have plenty of ideas for any potential future new machines and how to make them stand out from all other machines.

What likely took me the most time with this update was adjusting the custom parts; mainly the testing+data gathering associated with that task. Nearly all of the parts were adjusted as I wanted to try to have every part have a unique identity while still having at the very least a viable, niche use case. A big focus was having more parts that are better suited for newer and intermediate level players by having more Body and Cockpit parts significant extra speed while sacrificing their advanced tech capability. I strongly urge folks to at least experiment with the custom machines, especially while utilizing this spreadsheet so you can preview quickly view and compare stats. While the specially named customs are generally much better and more balanced compared to base GX, there are still some significantly weaker ones for those who like the extra challenge. I will at some point run a competition that only allows custom machines, so be on the look out for that.

This update took me much longer to get out than I wanted. I started serious brainstorming / making decisions on general changes I wanted to make in late 2023/early 2024. I started working in earnest around February (on and off of course). But then summer hit and I lost a lot of momentum due to certain roadblocks with preparing various items for the mod, other GX related projects, a serious vehicle accident (I'm okay), traveling, catching up with video games and being social. But this my primary passion project, and I'm grateful and happy that plenty of folks put in tons of time to the mod and have assisted me with it. I hope I am able to take things to the next level in terms of player activity and engagement with the mod with this update.

I also want to give a massive shoutouts to Emarcee who assisted me with multiple aspects of modding that would have taken me much longer to figure out on my own - music, modifying hex based files, image editing and a lot of other little items. I am in your debt.

I also wish to give huge shoutouts to Lawn Meower, who graciously created various cheat codes upon my request for folks who want a greater challenge with GP Mode. These cheats will also work with base GX and other rebalance mods. There are also cheats to increase the number of GP mode lives and to enable restore which will make GP Mode a less frustrating experience. Yet at the same time this makes them more challenging in a way since it will also restore the AI machines, meaning they will always score points even if they break down or fall off course.

Thank you to anyone who has played the mod, shared it to others, helped me with the mod, showed your excitement+support for the mod, and supported me throughout the nearly 8 years since I started working on F-Zero GX Unleashed/Project GX. The reception has already surpassed expectations, but I hope this is the start of something truly special.

F-Zero GX Unleashed Version 5.0 Credits and Special Thanks

Emarcee - Helped me with updating machine grades, adjusting course names, music edits and so much more
chmcl - Created Super Falcon upon my request and updated the machine icons to show the new machines in this update.
Midiman - Created the "Underworld" graphical text for the Chapter 8 course
Twilight - Figured out how to adjust the dash plate boost duration formula, remove the 9999 speed cap, and adjusting the energy consumption rate when boosting.
Lawn Meower - Created cheats for versions of the game that didn't have them yet upon my request (Restore off and AI behavior adjustments), and troubleshot codes that didn't work as expected.
Astrid - A friend of mine who removed the background of images of the characters from the F-Zero anime (plus Megan).
Electropolitan - Took on my request to add looping points to some songs, particularly the Chapter 8 course final lap theme.
Raphaël/StarkNebula - For his continued work with GX and his tools making GX modding a much more efficient process.
Joselle Astrid - For her assistance with the updates I made to the GX Unleashed Time Attack Leaderboard spreadsheet ealier this year