GT New Horizons

HV

This article is a stub. You can help GT New Horizons by expanding it (https://wiki.gtnewhorizons.com/wiki/HV?action=edit).

Missing goals, side quests, QoL upgrades, major multiblocks/progression, etc.

Please help polish this article if you are able.

High Voltage (abbreviated as **HV**) is the third electric tier. In this tier, several new mechanics are introduced to you such as cleanrooms, space travel, and multiblock versions of your singleblock machines. With the introduction of the Cleanroom, your ability to produce more complex circuits and some of their critical components will be restricted to being inside the Cleanroom multiblock structure, or other multiblocks that are also considered cleanrooms. Many important materials, such as titanium, can only be extracted from ores that exist on other planets and celestial bodies. You will find that all of these mechanics will carry on with you for the foreseeable future.

Upon reaching HV, you should either have the ability to produce large quantities of stainless steel or quickly plan on developing the infrastructure to do so, as this is the first tier that starts demanding large quantities of its respective machine hull material, whether it's through the numerous single block machines or new multi-block machines such as the expensive but rewarding Distillation Tower that you will be crafting.

Progression

The Start / Early-HV

You should start making HV generators for this energy tier, as well as the HV Chemical Reactor and Mixer. After making the machines listed, you should focus on the MV Circuit Assembler, as it is the next step in creating the Cleanroom. The completion of the Cleanroom should be one of your priorities, as it significantly reduces the costs of your circuits, and is a required stepping stone to progress! You are gated from the Distillation Tower and NASA workbench until your Cleanroom is up and running.

First Energy Crisis

You may find yourself struggling to power HV EBFs and possibly even your singleblock machines for long periods of time, as each HV machine you make consumes 4x (actually more than that due to efficiency loss) the amount of fuel compared to your MV generators. You should expand and fully automate your energy production setup.

In HV, combustion generators gain a massive buff thanks to the addition of Cetane-Boosted Diesel, which boasts a whopping 1M EU per cell, a massive expansion over Diesel. In addition, Benzene is heavily improved thanks to the Distillation Tower and Pyrolyse Oven coil upgrades which significantly speed up Benzene production. The Distillation Tower will even produce Phenol and Toluene which can be burned in Gas Turbines if you're in a pinch. Note that these infrastructure upgrades require significant amounts of resources upfront, but the infrastructure investment easily carries over into EV.

Mid-HV

With a more powerful energy infrastructure setup and running Cleanroom, you can start working on EV circuits, perfect for creating the HV Circuit Assembler. The HV Circuit Assembler allows you to make IV circuits, which is necessary for the NASA Workbench. From now on, your copper consumption will greatly increase due to the massive demand from plastic circuit boards.

You will also want to look at the new multiblocks such as the Large Chemical Reactor, Distillation Tower, Oil Cracker, and Vacuum Freezer.

The Large Chemical Reactor might not be absolutely mandatory yet, but has some huge benefits: it has perfect overclocks, meaning that speed will quadruple every tier with ZERO additional power cost, it allows you to stop using cells for liquids, and it gates many extremely useful recipes such as aluminium to alumina recipe and one-step sulfuric acid from sulfur. The Distillation Tower will be your most expensive multiblock (requires about ~56 Stainless Steel ingots for every layer), but the added efficiency in both resource production and energy consumption will make it absolutely worth it in the long run.

The Vacuum Freezer is not absolutely necessary until whenever you need Nichrome coils, but is worth crafting sooner than later. It is much cheaper to craft than you might expect (hopefully you have at least 2 and a half stacks of aluminium laying around at this point?) and massively reduces time and energy consumption for whatever Hot Ingots you may have originally been cooling using the Chemical Bath.

Lastly, there are some multiblocks not mentioned previously that are possible to craft now that you have a cleanroom up and running:

- **Oil Cracking Unit**: Replaces the hydrogen and steam cracking recipes that were done in the Chemical Reactor in previous tiers. It provides power cost reduction and bonus outputs. This is absolutely worth it for anyone using Oil to produce chemicals such as Ethylene.
- **Multi Smelter**: Replaces the Steam Oven (or array of furnaces) you may have been using up to this point. Although this multiblock is actually incredibly weak with low-tier power and coils, its processing speed will massively overtake lower-tier solutions with better power and coils.

processing with the platline which is unlocked in the next tier.

- **Dissection Apparatus**: Large scale Extractor. This machine is likely to be more niche for the average player, but the slow speed of the Extractor singleblock easily makes this a worthwhile investment for lines such as Glowflower processing.
- **TurboCan Pro**: Replaces the Fluid Canner and Canner singleblock machines. This machine may have very few uses, but it removes a potential bottleneck in canning fuel cells for players investing in IC2 Nuclear Reactors later on.
- **Big Barrel Brewery**: Replaces the Brewer. The likeliest use for this machine will be mass production of Lubricant, as it is necessary for the operation of Cutting Machines as well as Ore Drilling Plants, or possibly liquor for the industrious big-brained boozer.

Late-HV

Late HV is all about the preparation for obtaining Titanium. By this point, the vacuum freezer is mandatory, as it is necessary for cooling down hot ingots from the EBFs like Nichrome and Titanium.

Preparation for rocket

After viewing NEI, you saw that you need a NASA workbench and a Implosion Compressor for your first rocket. You will find that the NASA Workbench is a particularly arduous craft that for some reason *requires* you to use GT tools in a crafting grid in HV. On the other hand, the Implosion Compressor should be trivial for the average player, regardless of setup.

The amount of explosives needed for use with the Implosion Compressor is non-trivial, though. You will be expending several stacks of TNT. If your energy setup is based on benzene, you will find that obtaining enough toluene for TNT will be trivial if you upgrade your setup to use a Distillation Tower instead of single-block distilleries. However, if your energy setup is based on oil, you will need some additional processing steps-- diverting some Heavy Fuel for use in a distillery or Distillation Tower will likely be the best way.

You'll need 37 T1 heavy-duty alloy plate and a ton of additional materials. Check the quest book. You'll need a T1 rocket, an oxygen equipment set with 2 light oxygen tank (only 1 is very risky for resource collecting), oxygen collector and compressor, fuel loader, and 9 landing pad.

Blast Off \O/

You did it! You crafted your first rocket ever in this modpack. Now you need to fuel it with 5 cells worth of cetane-boosted diesel. Note that rocket will produce a huge amount of pollution if launched. When you landed, you should find yourself in a lander. YOU MUST HOLD THE SPACE BAR (or you will die and lose your rocket) to slow down the lander. You should keep your descent velocity to less than 25 m/s to avoid exploding yourself on landing. Try to find the Ilmenite vein (good source of Titanium and Chrome), Bauxite (for Ilmenite and a lot of Aluminium), and Neodymium (for EV+ motors, Fluorine, Phosphorus, and Rare Earth elements that you need later in the game).

End Of HV

After collection of ores from the Moon, check NEI on how to make Titanium (you process everything into Rutile then react it with Carbon Dust and Chlorine). You will need a stack for turning in the titanium quest to enter the EV tier in the questbook. Note that you must cool Titanium using a Vacuum Freezer after smelting in the EBF.

Spending some time now looking for a Moon dungeon is an excellent idea too. The mobs are not tough if you've been keeping up at all with your armor, weapons, and health bar. In addition, you are guaranteed to find a T2 rocket schematic in the loot chest (which you absolutely need to progress out of early EV in a standard run), and the quest book will grant you access to your own personal dimension!

Infrastructure for processing Rutile into Titanium, and Bauxite specifically are recommended, as they are relatively simple multi-step processes and their reactants (not all of Bauxite's, though) can be recycled very simply. Remember, you will be consuming dozens of stacks of Titanium in EV!

Side Objectives

While there are many upgrades to single block machines and entirely new multi-blocks to craft, not all of them are absolutely necessary to craft in order to progress to EV. However, some of these do provide excellent quality of life changes.

Open Computers Crop Breeding

See the main page here. After finishing the cleanroom, you will have all of the infrastructure necessary to build the crop breeding robot, although you will need epoxid as well as some progression in Thaumcraft. Note that this is an expensive build, especially if you have zero prior progression in Open Computers! The complexity and cost of materials rivals that of the NASA Workbench. However, following the quest book as you gather the components will slightly reduce costs.

When completed, the crop breeder robot is capable of breeding a variety of new crops, statting them up, and even duplicating them for you! The only inputs required after the initial setup are a large number of crop sticks and fuel for the generator.

Chlorine Automation

You will quickly find that HV is completely miserable to progress through without a steady source of chlorine. Luckily, there are good sources of chlorine everywhere. You have several different options, ranging from large amounts of non-renewable resources such as salt ores and Sodalite, or renewable sources such as the IC2 crops Tearstalks and Saltyroot. In all cases, the setup is incredibly cheap: process it into Salt / Rock Salt / Salt Water (Rock Salt is the most efficient by far), then electrolyze it! Although you **will** be using a large amount of Chlorine in this tier, you will probably never use more than a Super Tank I's worth of it to progress to EV.

Bee Upgrades

The Industrial Apiary is now possible to craft, which is much faster than the base apiary.

Blood Magic

If you are doing a no-rocket run, this mod is one of the only avenues to progress into EV, as summoning meteors is how you will obtain resources such as Titanium. Doing so may increase your warp effects.

Thaumcraft

Additional wand upgrades become possible, as you can now craft the required screws. If you have not progressed at all in Thaumcraft, consider it! There are huge quality of life changes that are only accessible through Thaumcraft progression, such as wings or Boots of the Traveler.

v · t · e (https://wiki.gtnewhorizons.com/wiki/Template:Navbar_GTNH?action=edit) [Collapse]

GT New Horizons

Meta	Acronyms • Discord Commands • Modlist • Official Servers • Server List • Quick Links
Tiers	Beginner Tips • Stone • Steam • LV • MV • HV • EV • IV • LuV • ZPM • UV • UHV • UEV • UIV • UMV • UXV • MAX
Mechanics	Bees • Biome • Electricity • Electricity for Beginners • Guides • Hazard • IC2 Crops • JourneyMap • Loot • Multiblock • NEI • Oil • Ore Generation • Pollution • Power Generation • Quest Book • Tinkers Tools • Waila
Setup	Additional Mods • Backups and Recovery • Commands and Configurations • Debugging • Release Stability • Installing and Migrating • Lag • Low End PCs • Server Setup • Resource Packs • Shaders • World Generation • World Seeds
Development	Pollution Revamp • Development • ModularUI • Ore Spreadsheet Export • Salt Nerf Options • Technical Oregen Information • Upcoming Features