

Engines

As I mentioned earlier, BuildCraft has three basic types of engine, as well as a fourth that can be useful when playing in Creative mode:

- **Redstone engine**—This is the simplest type of engine. As you’ve already seen, powering a redstone engine requires nothing more than a redstone torch. However, the power output is so low at 0.5 MJ/t that it isn’t useful for doing much at all except extracting objects from an inventory via the wooden extraction pipe.
- **Stirling engine**—This engine relies on a fuel source such as coal, charcoal, wood, sticks, or buckets of lava. It produces 1 MJ/t, sufficient for power mining wells and quarries.
- **Combustion engine**—The combustion engine relies on oil (producing 3 MJ/t) or oil refined into fuel (producing 6 MJ/t).
- **Creative engine**—There is one other type of engine, the Creative engine, so called because it is available only in Creative mode. It makes it easy to provide varying amounts of power to devices and systems. Just right-click it with a spanner while holding down the Shift key to increase the power output.

NOTE

Energy

BuildCraft has, at its core, a concept of power similar to the redstone system but with substantially more finesse. Engines provide power, measured in Minecraft Joules per tick (MJ/t). Machines consume power at varying rates. Engines also store power in an internal buffer, and all except the redstone engine can transfer power to other systems via kinesis pipes.

Engines connect directly to various BuildCraft machines, and also to each other to boost the total power produced. However, due to a certain amount of energy loss suffered when doing so, chaining is only effective when using stirling and combustion engines.

Stirling and combustion engines also pose a risk of explosion (a significant one that can take out a large section of construction) if not correctly managed. Both must have some sort of work to do that will drain the energy they are producing; otherwise, they will over-heat and explode. The combustion engine also requires water for cooling, or the same thing can happen.

Because engines require substantial resources to build and manage on Survival, it’s a good idea to set them up as a small power station and then use kinesis pipes to distribute the energy where required. Let’s do that now.





Creating a Power Station

Power stations are used to deliver energy to machines from a centralized source.

Given that some machines, such as the quarry (discussed later), can use the power from nine combustion engines—and it takes care to set up and manage each combustion engine to prevent explosions—a single centralized power station makes sense.

Follow these steps to start creating your own. We'll start with the stirling engine and then create a more advanced design for combustion engines:

1. Place two rows of three stirling engines, as shown in Figure 7.9. This will provide up to 6 MJ/t of energy.

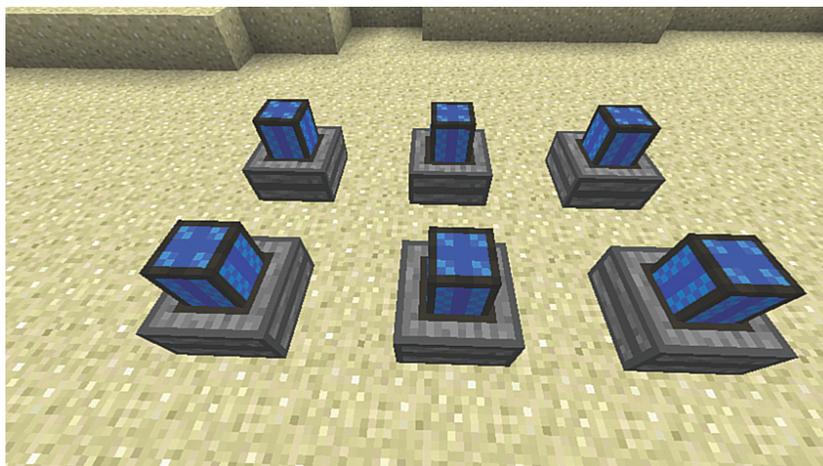


FIGURE 7.9 Stirling engines are twice as powerful as the redstone engine, providing 1 MJ/t of energy.

2. Run a row of blocks between the engines with redstone dust on top and a lever at one end, as shown in Figure 7.10. All of the BuildCraft engines only operate when they receive a redstone signal, so this lever will become the station's master switch.
3. Energy is extracted from engines with the wooden kinesis pipe. Select this from the inventory and right-click to place a single section on top of each engine. You'll notice from the tooltip in the inventory that each pipe section can handle a total energy throughput of 32 MJ/t—more than enough to handle the 1 MJ/t produced by each engine. However, these pipes are only used to connect to an energy producer and cannot connect to each other.
4. Select the cobblestone kinesis pipe from the inventory, right-click on top of each wooden section, and then place additional sections to link each engine to the one adjacent. You can do this in numerous ways. Figure 7.11 shows one example.

