

# Earth moving equipment essay sample

[Environment](#), [Earth](#)



Earth moving equipment are the machines human make to replace the hard work from the human; the machines made by humans to perform digging; grading; leveling; removing; etc to earth moving from one side to the other side. There is Bulldozer, excavator, grader, loader, roller, forklift, tractor, bobcat, and truck, etc.

Earth moving equipment is replacing the hard tough work; back break jobs to easy jobs for the workers. Machines do a lot better than the human force. They can do a big job in the short time. So the time can be save and finish the job earlier, leading to the economic affect. They run by the power machines, so they do not need a lot of people in the same task. Most of the equipment can be used at any time, anywhere, side by side with the other machines, in the cities or out to the countries, on the fieldwork.

All of them run by a mighty powerful engine as the main source device into two systems. Mechanic system and hydraulic system, mechanic system uses to drive the unit forward, back ward, turning left, turning right; while the hydraulic system uses to perform the special active such as lift arm, dig, push, pull, roll, compact etc. Therefore the operators must hold the special licenses to operate the machines

In this case, we examine four machines:

- Caterpillar Dump truck D400F
- Caterpillar excavator 322B
- Caterpillar bull dozer D11R

- Caterpillar loader 928F

Truck D400F

This strong unit makes by the Caterpillar Company. It has four wheel drives working in field. It is very heavy, approximates 40 tons, carries 40 tons of dirt soil etc. The body can tip or push place to unload the soil, mainly operate in the mine, quarry, site of begin building earth moving field.

- Engine by power 318 kW (427HP)

- Fly wheel power 302KW (405 HP)

- Rate 36. 3 meter tone (40 Ton)

- Capacity 21. 9 M<sup>3</sup>

- Use to carry earth material, soil, rock etc

- Not allow on the normal road due to too heavy

- Need the special driver license to drive

- Compare with the wheelbarrow, this truck D400F is the monster to the tiny boy. That is the big machine I never saw before.

- It can save a lot of time by carrying the huge load and can handle in the rough, tough condition on the field.

- Just only one person can operate the unit; he must hold a special license to operate and must have a required operate time limit of 1000 hours before he can operate the unit by himself.

- Normal the truck D400F starts early of the day, as soon as the main other earth moving operates, such as excavator or loader, it normal operates parallel associate between them.

- Most of the time, we can see this unit on the earth moving field where the site needs to be clean to level, or removing earth material. For example: site in the country field, harbour, open mountain, and mine field.

Even it looks huge; the basic function is similar to the bogie tipping truck. It means one main engine power passes to the gearbox and hydraulic system to run the truck; and the hydraulic system will operate the tip body and push the place install inside the tray body to unload the material.

It is one of the best machines in the world.

### EXCAVATOR 322B

This is one arm machine look like the grasshopper. In side the body, there is a huge engine with great power use to dig into the earth surface, pick up material such as rock, sand, dirt, soil and then dump it into the truck locating beside.

- Power by caterpillar diesel engine T 311TA

- Gross power 114 kW 153 hp

- Product power 114kw 153 hp
- Travel speed 5. 5km/hr
- The boom length 5. 9m
- Weight standard 22750kg
- Weight extend 2400kg
- Track standard 600mm
- Track extra 800mm

Excavator looks strange with the huge bending arm attach to the body. Instead of having wheels, it is set up by a pair of the steel track to make it flat and stable on the ground. It is made by the Caterpillar Company. It aims to tackle any hard work, such as digging into the earth to break down the soil and pick it up, swing it around then unload it. For example: digging sand from the river for any purposes, break the rock to level the field, digging deep into the earth surface to build the level car park. The special task of this machine is digging.

In the early age when the human tools are just the picks, shovels. With the basic tools, men must work very hard to tackle the job. Now the machines are in place after time to time to refine, the excavator 322B appears to help. This unit is used to replace the manpower by machine, with the circle rate very fast; it can do the job better on the field. It can dig or pick up a huge amount of dirt and ship it aside. It can break the rock to the small pieces to

level the surface in a limit time. The machine can handle a job equal to 200-man power in daily work.

This machine was built to counteract the need of huge digging job around the field. It operates with the other earth moving machines such as dump truck, loader, etc

We can see this machines every where: around the field, in the harbour, in city, on the side of the road. Perhaps it is busy digging sand, breaking down rock, digging the drain lines, and lifting a piece of concrete. Really, it is a great machine.

The machine is run by tracks. The speed is up to 5.5 km/hr. The huge arm attaches to the body of the unit. With the hydraulic system, the arm can stretch out, fold in, lift high in the sky, and dig deep into the surface of the earth. With the special basket located on the tip of the arm, it can dig deep into the ground, pick up soil then swing around to unload to the truck located beside

As this machine is the special unit, it requires the operator with at least 500 hours working experienced before he can hold a special license to operate it.

**Bull dozer D11R**

This is a powerful tractor with a broad vertical blade attached in front. It is used to clear, level, clean the surface of the earth. It does all the work to develop the site to be ready for buildings, fields, schools, landscapes etc.

With the caterpillar tracks, it is powerful to tackle any hard work. This is one of the most power machines today.

Engine by Caterpillar diesel engine 3406

Gross power 427 hp

Product power 405 hp

Rate pushing 40 ton

Body capacity 21. 9m<sup>2</sup>

Aim to replace the manpower to handle the incredible work, pushing leveling the side of the earth surface. Main task of the machine is pushing down the earth surface to the level required.

With the powerful machine, both sidetracks using rip to the ground, it can also rip the ground, digging to make the soil loosen by dropping down the ripping system located in the back of the unit.

This machine was built in the need of the civil engineering task. It can work to build the foundation of the building, minefield etc. It can remove up to 40 tons of dirt in one single push. This task can save a lot of time compare to the man force. It can operate by a single man so the labour cost could be cut down to the minimum.

This machine works side by side with the other machines. It's called in the first state of the task to develop the base of the side.

First it cleans the side, knocks down the trees, pushing them to one side then using its huge blade to clear all the rubbish. After that, it levels the surface, making it easy for the next task.

Sometimes the ground is too hard, it uses the ripper at the back to plough deep down into the soil, breaks it and pushes it away later.

Inside the heart of this unit, there is a powerful engine up to 450 hp to drive two systems:

Mechanic system used to run the unit toward, reverse turning, etc.

Hydraulic system used to perform lift arms up, low arms down, ripping, digging by using the blade in front and the ripping unit at the back.

As the machine performs the special action with the great power, it needs the specialist license to control it. 500 hours practice time required having this license.

#### LOADER 928 F

Loading the earth material or abroad it to the truck or to the side of the field is the task of this special unit. The loader with a basket attached in front and a ripping set at the back, we may confuse with the bulldozer. The difference task between two machines is the bulldozer used to cut down and put the dirt away; while the loader aims to shovel the dirt and load it to the truck that is parked beside.



Since it replaces the shovel of the human, it does a lot of work for the man. It can remove a huge lump of soil out of the field. It can cut down the time and save the money.

It can handle the job anywhere, loading dirt, unload it to the truck to make the job easier.

With the tough body contains a great power, it is ready to take over tough heavy work on the field.

When a load of the dirt needed to be removed or relocated, the loader to be called with the dump truck so both machines operate together to do the job.

It can work with the other machine as well, or operating by itself.

As it is so useful, you can see it every where from the small job to the big building job: from the side of the river to the side of the mountains; in city or out in the country, from the back yard of the house to the open coal mine.

Similar to the bulldozer, most of the loader units run by one powerful engine with two systems: one is mechanic system, the other is hydraulic system.

Mechanic system used to drive the unit, hydraulic system transfers the power to the arms, or to the basket, or to the ripper in order to load the dirt and ship it away.

With the quick change system, the loader can transform from the loader to the forklift unit, broom unit, little grader unit, little crane unit by changing to the special equipment parts, e. g. forklift set, brush set, etc.

With the set of steel impact wheels, the unit can impact the ground and loading the dirt at the same time.

500 hours work experience required before getting the special license to operate the unit.

### Conclusion

All the earth equipment aim to take over hard work from the human beings. They make it so easy for the development field, structure site. With the special equipment, they take care of special jobs such as digging, shipping, tilting soil or dirt or rock, etc. They are the true friendly machines to build the happy live now and in the future.