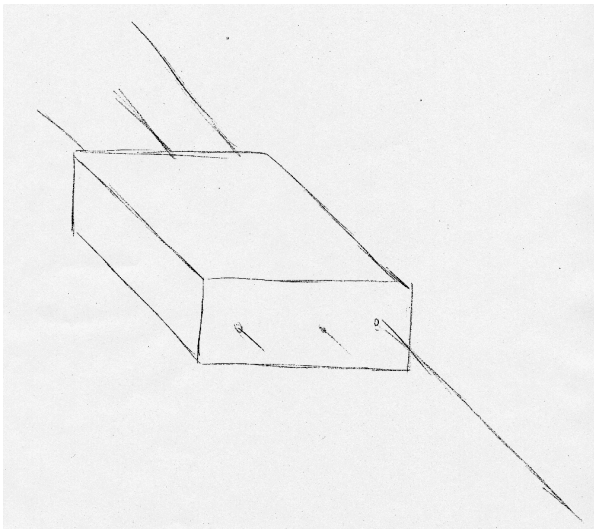


2.000 Sketching Example: Tractor transmission



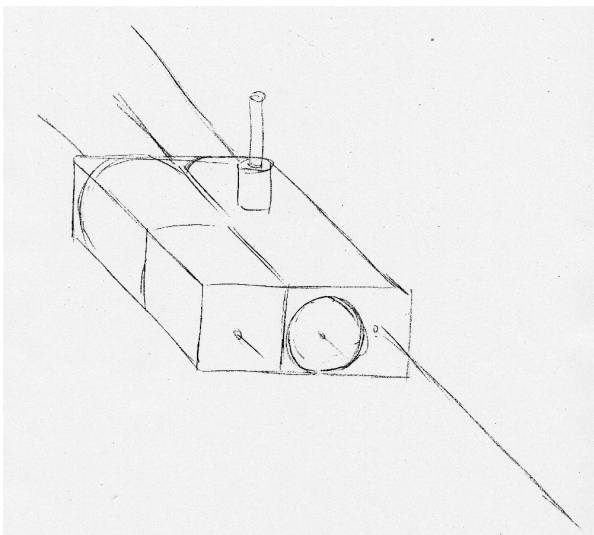
1. HAVE A PLAN: Look at the transmission from the angle you want to draw it from — choose an angle that will show the most information.

Here we choose to draw an oblique sketch for clarity and simplicity. I see my audience as students learning to sketch systematically and in more detail, so I choose to sketch in a lot of detail. We choose this angle for the purpose of this drawing exercise. However, if you had a different purpose, such as explaining how this transmission connects to the rest of the tractor, you would want to show it from the angle where you can see all of the important shafts.



2. Begin by noting the major shape and axes of the object.

Remember to keep parallel lines parallel when drawing in 3D. Also, don't forget to sketch LIGHT guidelines rather than a single dark line is best at this stage. Most of the lines in the beginning stages will be modified and/or erased later on.

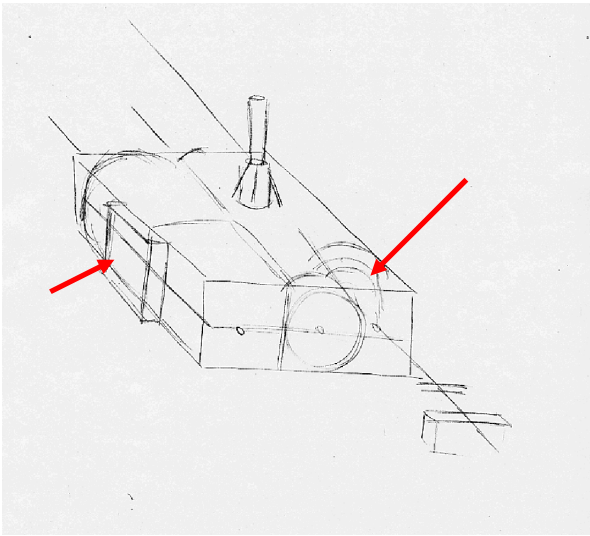


3. Break into simple shapes (like circles, blocks and cylinders).

Remember to center the shape faces (here the circle and square) on the axes that we noticed earlier.

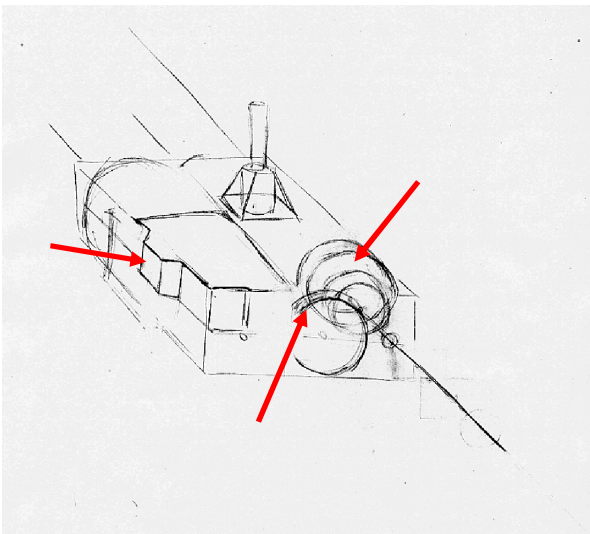
Also, note that when drawing in oblique, circles on the front face are actually drawn as circles, and circles on the top or side faces are drawn as ellipses. In an isometric sketch, all circles tend to be drawn at angles and thus are drawn as ellipses. This is why oblique can be simpler; the front face is sketched as if you were looking straight-on at it.

2.000 Sketching Example: Tractor transmission



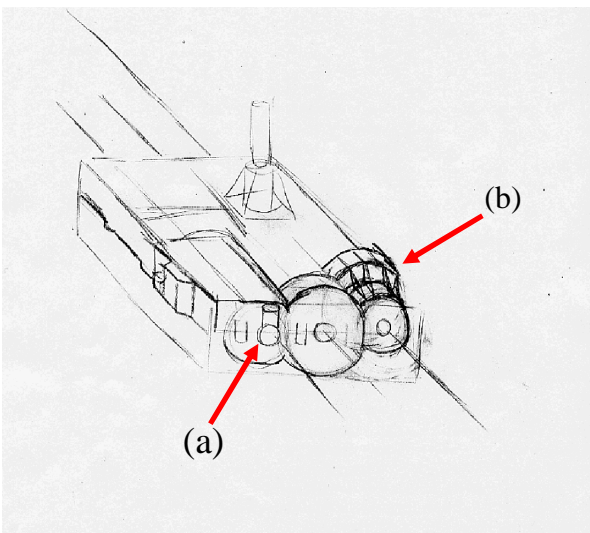
4. Add smaller shapes to show the general area for medium-sized components.

Again, remember that a light pencil is key-these are just “guesstimates” of where the components will be.



5. Begin shape interactions and proper scaling.

You will probably need to re-sketch some of the shapes to be more accurate in the placement, size, and interaction between components.

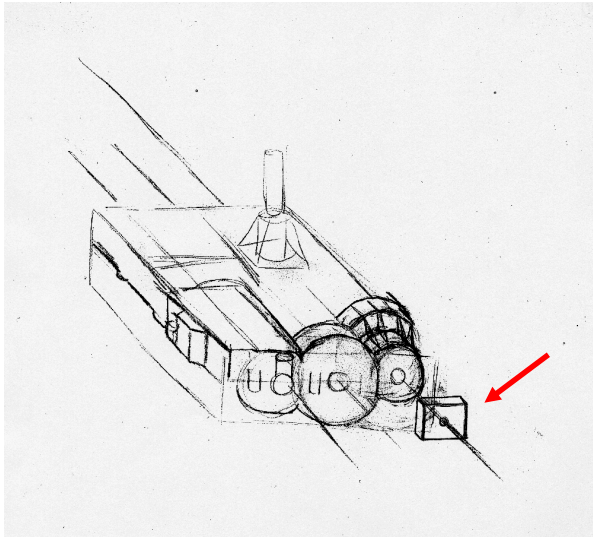


6. Draw in details that will help you get the major shapes proportioned properly to one another.

(a) I chose to lightly sketch-in small details on the front face, so I could connect the center cylinder to those shapes on either side with correct proportions. (Note that the center cylinder has a larger diameter than the shape to the left of it-thus the center circle will stick out higher than the shape to the left of it.)

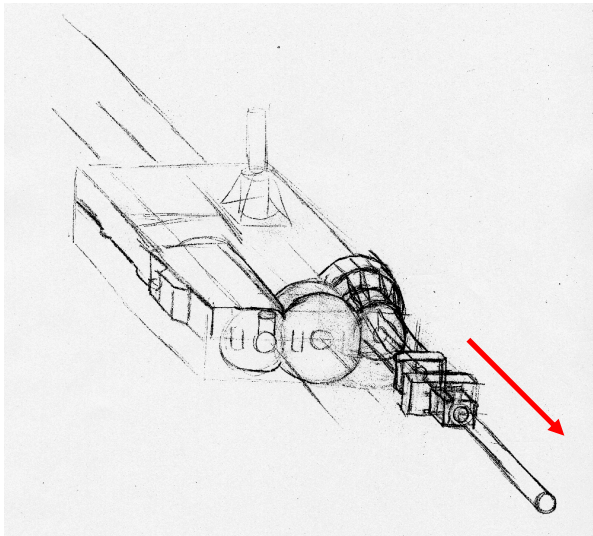
(b) Also, I began with details on the front right. Having that component accurate will become very important when it comes to having the front-right-shaft look correct and proportional to the rest of the transmission body.

2.000 Sketching Example: Tractor transmission



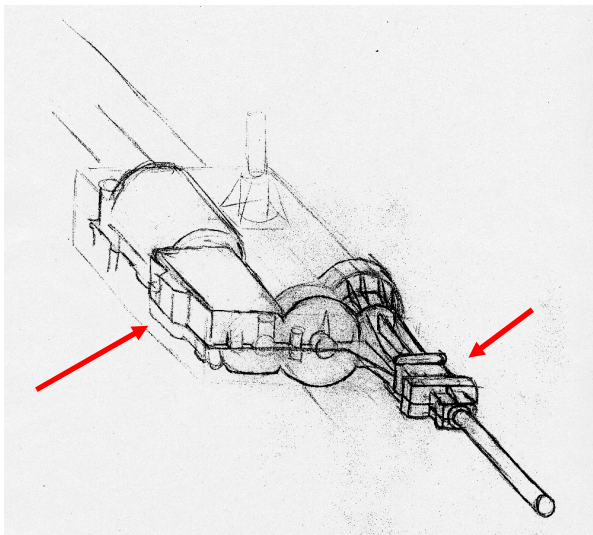
7. Begin with simple shapes seen in the shaft coverings.

I began with a rectangle centered on the axis, then extruded it back to form a block.



8. “Build out” with more simple blocks and cylinders.

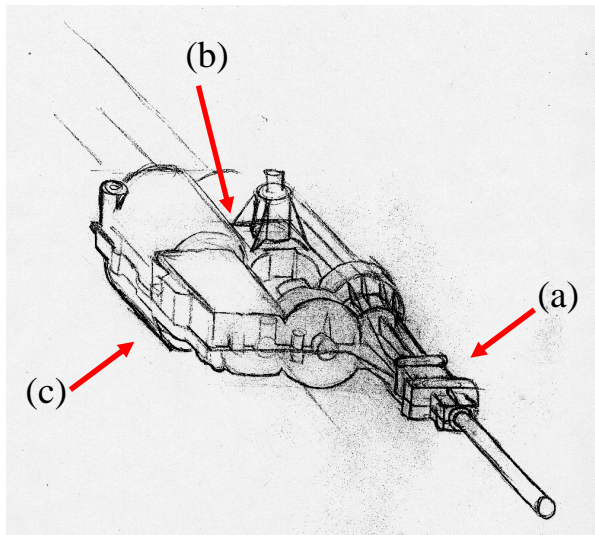
Note that the cylinder's radius is the same along the whole length of the cylinder, so the long lines of the cylinder are parallel.



9. Connect the blocks to make one continuous piece.

It is not necessary to round the edges here, because we are still only trying to get the basic shape of the whole transmission down.

2.000 Sketching Example: Tractor transmission

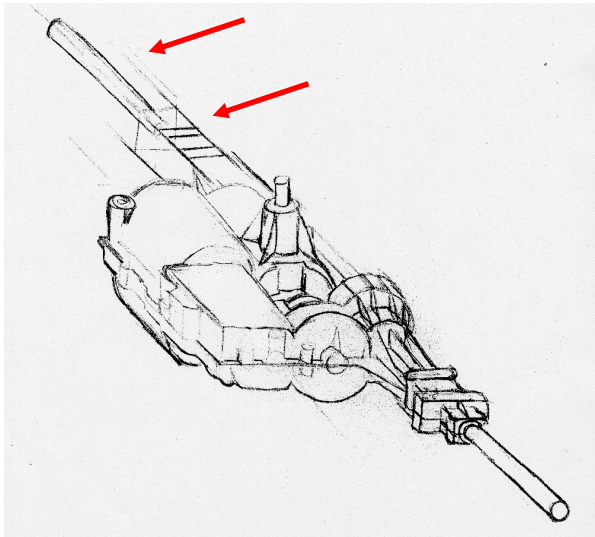


10. Notice and draw-in details—to make connections between components and update overall shape.

(a) Details of the front shaft-covering are added.

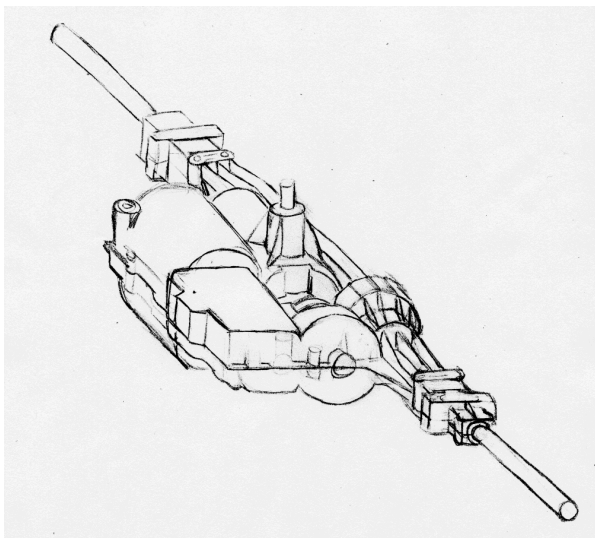
(b) At this point, I looked closely around the top shaft. I noticed where the “fins” around that shaft’s base connected to the cylinder shape in the back left. I had to erase my previous “guesstimate” and redraw the top shaft closer to the front of the transmission.

(c) The bottom of the back-left cylinder is completed to give a more accurate, overall shape to the transmission.



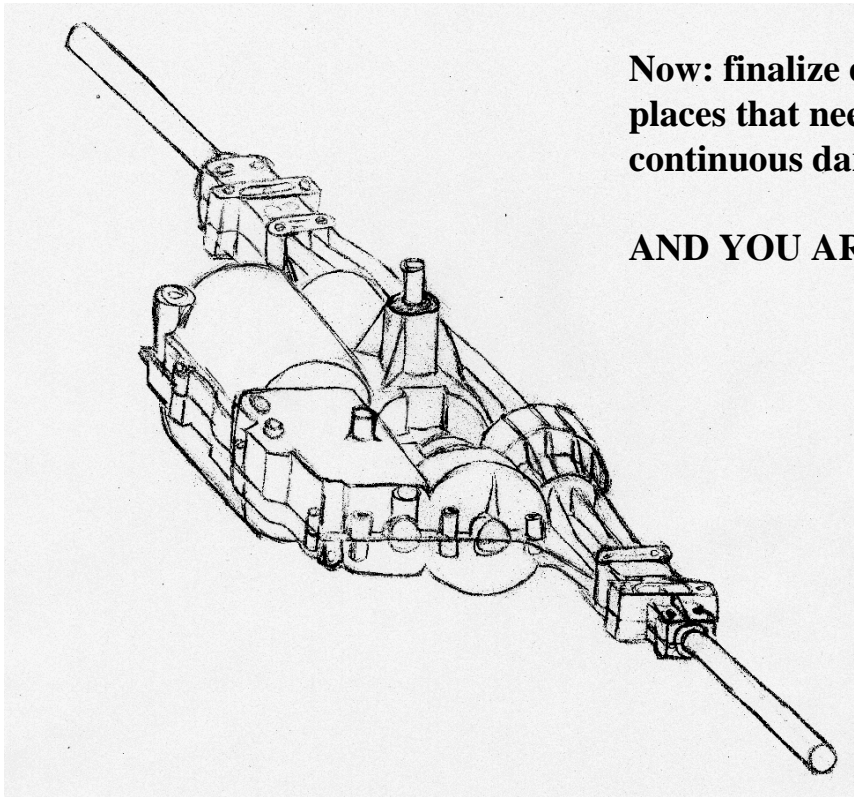
11. Block out the rear shaft-covering and shaft.

Remember to keep them centered about the axis. Be aware of the general size of each of them compared to one another and to the body of transmission in general.



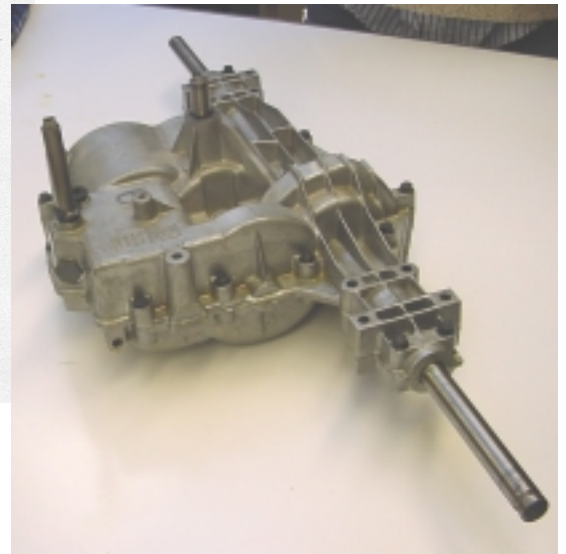
12. For the rear shaft-covering, make the large block into several simple shapes.

2.000 Sketching Example: Tractor transmission



Now: finalize details, survey overall work for places that need touch-ups, darken lines with continuous dark strokes...

AND YOU ARE DONE!



NOTE: For a less detailed and faster sketch, follow the same logic—think of the major shapes. Only now, don't spend much time on details. (But don't throw out the idea all together. You still may need to sketch in a few light details along the way to help get proper proportions. But you can do this quickly and roughly, for scale, then erase them for a simpler look.)

