



# IFL Training Shift 07-1: Lathe

This guide will show you basic lathe operation and controls. The next guide will give you the steps to complete the onboarding part.

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## Step 1 — IFL Daily Responsibilities

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- Make sure to complete the LM Daily Responsibilities upon entering/using/leaving the space.
- [IFL LM Daily Responsibilities](#)

## Step 2 — Overview

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- The lathe in the IFL is a Jet Elite E-1440VS with a 13 inch swing(maximum size work piece) and 66 inch bed(length of the track on the lathe).
- For more information on maintenance and specifications, refer to the manual in the Terrapin Works Drive.

## Step 3 — Safety

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- When using the lathe, be sure that you are wearing safety glasses and that the shield is over the chuck.
- If you are using an apron, ensure that all strings are tied behind our back.
- Make sure that all tooling is secure.
- Know where your E-Stops are!

## Step 4 — Lathe Controls

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- A good rule of thumb is that anything with red will stop the machine.
- The chuck/gear box are turned on and off with the level with the red handle on the carriage/bed of the lathe.
- There is a switch for the coolant pump, a gear shift lever, an RPM control knob, and a job button all located on the panel of the gear box to the left of the bed.

## Step 5 — Tools

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- There are two places that you will find tools specifically for the lathe: on top of the lathe or in the drawers.
- The turning tools are kept in the wooden holders on the lathe.
- Spare cutoffs, tool magazines, and the live center are kept in the drawer labeled "Lathe Maintenance."
- If you would like to perform a drilling operation, you can use the drill chuck and center drills found in the drawer. Once you have used the center rills for a flute length, you can use any carbide still bit to complete your hole.

## Step 6 — Material Setup

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- When setting up your material, make sure that you clamp it firmly and squarely in the jaws.
- Additionally, make sure that the bed has enough travel so that the tool magazine will not touch the jaw of the lathe.
- Know the direction you are cutting and the tools you will need to complete your cut.
- Mark your material so you know where your geometries start and stop. This can be done using a sharpie, caliper scratches, or marking fluid.

## Step 7 — Digital Read-Out(DRO)

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- The manual controls on the lathe are slightly sloppy. In order to have higher tolerance parts, a Digital Read-Out(DRO) was installed.
- The main power for the DRO is on the back. Once the DRO is on you can zero your X and Z axis as references for your part.
- You can play around with the functions of the DRO when you go to use it, but just know that the buttons next to the X and Z readouts allow you to edit the position of the axis and set your own references.
- The DRO is only attached to the cross slide and the saddle. The tool post slide does not have a DRO so any movement done with the tool post slide handle will not read on the DRO.

## Step 8 — Turning

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- When you are turning a part, refer to the posted chart for your depths of cut and RPMs. Be sure that you adjust these values accordingly as you decrease the diameter of your material and perform finish passes.
- When turning, ensure that you are using the tool that is angled in the direction that you are turning.
- If you wish to cut at an angle, you may do so by loosening the two allen head bolts on the carriage. Once these are loosened, you will be able to spin the tool holder to a desired angle.
- Once you lock the toolholder and tighten the bolts, you will only cut the desired angle by turning with the tool holder.



## Step 9 — Maintenance and Care

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- When you have finished using the lathe, be sure to brush all chips into the chip tray.
  - It may also be necessary to oil the bed components via the brass oil fittings.
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