Geka/Pexto Notes

1 Intro

1.1 Safety first, second, and third

This is a familiarization and safety class, not an exhaustive machine training.

1.1.1 Pinch safety

1.1.2 Completely unforgiving

1.1.3 Use Guards

Limits unpredictable workpiece behavior – if the machine wants to do something you will not prevent it.

1.1.4 Not toys, no joking around

Unexpected operation can have dire consequences

1.2 Mild steel and softer –

NO HARDENED METAL **NO BAR STOCK**

1.3 Report issues on Talk “Issues and requests category”

1.3.1 Tagging “@Team_Metal_Shop”

1.4 Manuals

On committee drive under “N:\metalworking\Manuals”

2 GEKA Usage

May need to Plug in as it shares the power outlet with other devices.

2.1 Review controls

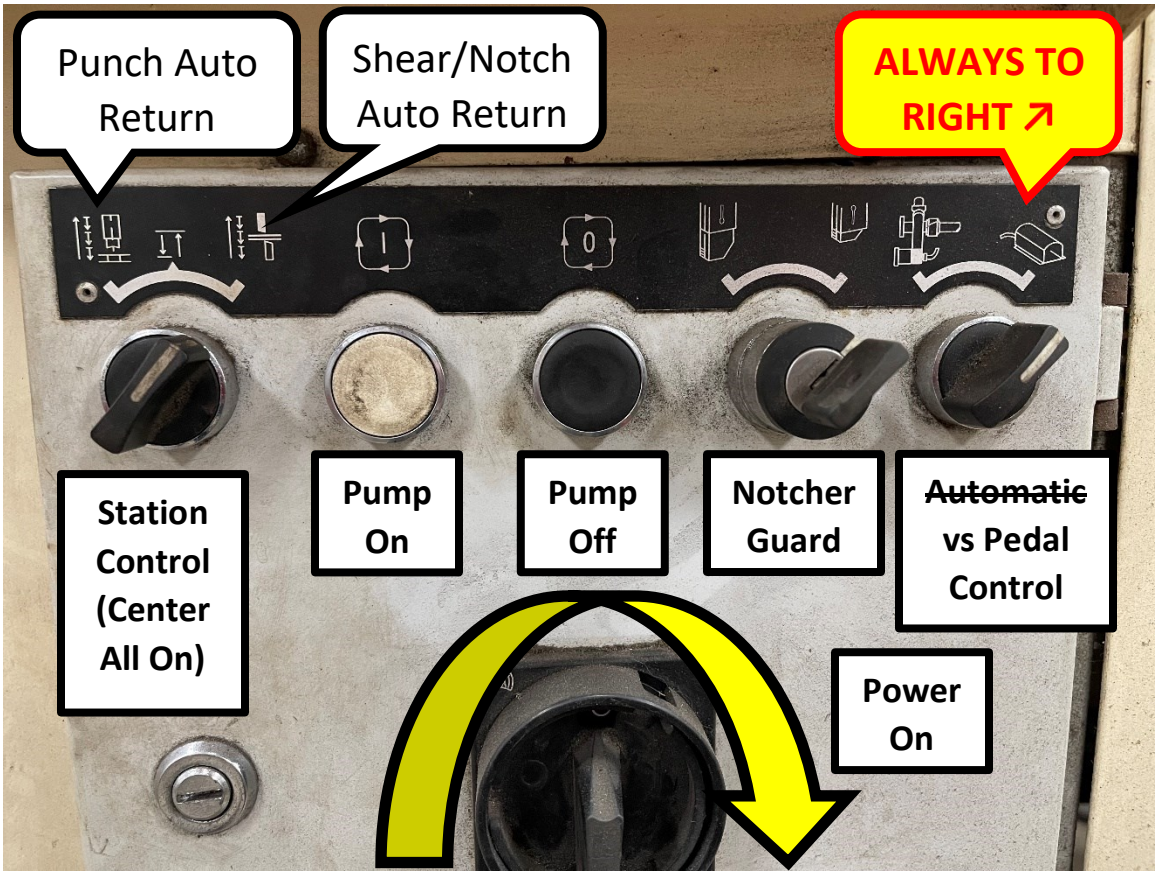

Figure 1 Geka Ironworker Controls

2.2 Incremental "Inch" mode/ full stroke mode

Manual calls this "return mode"

2.3 Pump on/off

White (I) is 'machine start' (Hydraulic pump start)

No pressure is generated until a foot pedal is operated.

Black (0) is 'stop'(Hydraulic pump off)

2.4 Notcher Guards Enabled

2.5 Emergency Stops

Large red mushroom head button – mash for stop. Twist (?) and pull to restart.

2.6 Foot Pedal Mode (only!)

Make sure machine is in foot pedal mode.

Machine has unfortunately named “electric stop” mode that ***starts*** a machine cycle. This is a production feature that ***we should not use.***

2.6.1 Foot Pedals

Have three positions

- Up is “Stop”
- Midde is “Inching” Low speed and reduced pressure
- Bottom is “Full Speed and pressure”

2.7 Safety

2.7.1 Guards

Always use them. Limits unpredictable workpiece behavior – if the machine wants to do something ***you*** will not prevent it.

Hard metal tools can shatter.

2.8 Material Limits

Material thickness limits are a function of the operation being performed and the properties of the material.

The manual (link below) has simple formulae for calculating material thickness limits. Our GEKA is metric, so it’s rated at 55 Metric Tons, so 60.6 US tons. To further complicate things, the shearing capacity is 110 US tons because of the differing leverage of the shear mechanism.

The manual for this machine refers to “Material Resistance” when calculating maximum material thickness. The units are kg/mm2. This is the Yield or Tensile Strength of the material. 45/kgmm² would be about 65,000 PSI (and often expressed in KSI = 1,000 PSI.)

For Punching Holes to calculate in imperial it is

T = Thickness

R= Tensile

P= Perimeter of Shape PTR / 2000 will give you US Tons needed.

See the manual for more detail.

The physical limitation of the punch is 5/8” and 3/8” for the notcher – see the manual for others (operation dependent.)

The manual section 3.2.1 on Source provides formulae for calculating maximum thickness for other materials and conditions.
https://source.dallasmakerspace.org/display/METAL/GEKA+Hydracrop+55+Ironworker

2.9 Mild steel and softer –

2.9.1 NO HARDENED METAL

2.10 Turn on

2.10.1 Badge in

2.10.2 Make Sure Big Rotary Power Switch is on

2.10.3 Press White Pump Start [1] button

2.11 Turn off

2.11.1 Badge out to turn off

2.11.2 Don't rely on timer

2.12 Two semi-independent sides, one user at a time

2.13 Incremental or "inch" mode

2.14 Hole punch set and parameters

2.14.1 Diameter no smaller than metal thickness

So NO ¼" holes punched in 3/8" plate.

Material limits calculations in manual section 3.2.1

2.14.2 Punch full Holes

No 'nibbling'

2.14.3 Punch lube

First and every few holes

2.14.4 Changing punches

- *Turn machine off*
- *Alignment and clearance*

2.14.5 Stroke Adjustment

2.15 Shearing and angles

2.16 Notching

Must use both blades – ***NEVER*** use notcher for shearing

2.17 Cleanup and store punches

2.18 Safety

Blades and punches are hardened steel – misuse can cause them to shatter generating hardened steel projectiles

You get to pay for your medical bills and repair of the machine

3 Pexto Usage

3.1 Safety

Pinch points:

- hold down bar
- shear bar

3.2 Material Limits

3.3 Mild steel and softer –

3.3.1 NO HARDENED METAL

3.3.2 Max thickness

- Mild Steel - 10 gauge – 0.1345” (3.416 mm) thick
- Stainless Steel – 14 gauge - 0.0751” (1.9075 mm) thick

3.3.3 NO BAR STOCK!

Even if it fits it will damage the blade and ***you*** will get to buy the replacement (and they are not cheap!)

3.3.4 Power On/Off

The blue light is always very dimly illuminated even when off. When on it is quite bright.

3.3.4.1 Turn On

Swipe badge and verify success with blue light.

If machine doesn’t start check e-stop (rotate to release.)

3.3.4.2 Turn Off

- Badge out (there is no timeout, you must badge out.)
- Verify Blue light is off.

3.4 Cleanup and power down

3.5 Safety