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| Mission Clay PROPOSAL 2023  Extruder Updates |
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## Company Name Marketing Plan

### **Carousel**

Add an E-Stop that will stop all sections when pressed for emergency.

Replace the mechanical switches with non-contact proximity switches. The end of travel, overtravel switches will most likely remain mechanical.

Replace the Hydraulic motor with a VFD, motor, and gear box to get better control of this section’s speed and stopping position.

A lockout drive cabinet will have 480v 3ph, a 120v transformer, DC power supplies. The door will have a defeat able lockout.

The control box will have 24v for inputs and possibly 120v power for some

outputs and a PLC that controls this section and communicates its status with the previous and/or next section.

Each section needs its own PLC and HMI programs. Even if it doesn’t have its own PLC or HMI.

### Notes : The hydraulic unit has issues. It is hoped that replacing the conveyors Hydraulic motor with a drive will reduce the load on the hydraulic unit making it functional. The hydraulic motor constantly moves and moving parts are usually the source of problems in a hydraulic system. To test the hydraulic pump, you would need a flow meter ~$500. The pump itself list for $4113. I would consider converting everything to electric before investing in a Hydraulic pump.

#### Reamer Section

Add an E-Stop that will stop all sections when pressed for emergency.

Replace the mechanical switches with non-contact proximity switches. The end of travel, overtravel switches will most likely remain mechanical.

Add a PLC. The plc will communicate with other PLCs and the HMI to get or send status.

The HMI (reamer section) will allow the user to make adjustments and for manual controls.

Each section needs its own PLC and HMI programs. Even if it doesn’t have its own PLC or HMI.

#### Lift Section

Add an E-Stop that will stop all sections when pressed for emergency.

Replace the mechanical switches with non-contact proximity switches. The end of travel, overtravel switches will most likely remain mechanical.

Replace the flappers with a distance sensor. The PLC will know how high the lift is and where it should be.

The HMI (reamer section) will allow the user to adjust the positions. The wiring will be on the fixed part of the lift to eliminate flexing the cables wherever possible to reduce fatigue.

The plc will communicate with other PLCs and the HMI to

get or send status. There will also be an Ethernet port(s) for remote monitoring and programming.

Each section needs its own PLC and HMI programs. Even if it doesn’t have its own PLC or HMI.

*Notes : If the hydraulic unit still has issues after replacing the Carousel motor, they will have to be addressed. Hydraulics are not a part of this proposal.*

*Alex made a nice machine for cutting the pipes. A similar concept could be used on the lift.*

#### Wire Cutter Section

Add an E-Stop that will stop all sections when pressed for emergency.

Replace the mechanical switches with non-contact proximity switches. The end of travel, overtravel switches will most likely remain mechanical.

Replace the blue control box with a PLC. The plc will communicate with other PLCs and the HMI to get or send status.

The HMI (reamer section) will allow the user to make adjustments and for manual controls.

Each section needs its own PLC and HMI programs. Even if it doesn’t have its own PLC or HMI.

* *Recommend that a cage be placed around the lift section with a trapped key lock.*
* *Quick Disconnect cables will be used wherever possible to make assembly disassembly easy.*
* *Mixers usually have a grate to keep personnel from falling in*
  + *Recommend a bumper switch at the extruder*
* *Recommend a ceiling over the fly wheel*

#### extruder Section

Add an E-Stop that will stop all sections when pressed for emergency.

Add a Bumper Switch to the screw extruder section that can stop the blades when pressed by hand or knee. This will need an enclosure for the E-Stop relay. The system should be stopped with the stop button. E-stops are for emergencies. All E-Stops will tie into this relay.

Replace the red mushroom with a different color Jog push button.

This section will still have no PLC or HMI programs.

My Sample Screens

