

T Dozer
DIY DTG
R1900 BUILD
CLUE BOOK

VER 2
11/8/2010

SPIDERX1

GERMAN13

CONCEPT

This is a build from a Epson R1900 Intentions are to use as much from the R1900 as possible.

Modifications may be made, such as ribbon cable extensions, that will change the build.

You may have better ideas.

Length of ribbon cables drives position of many items, i.e. mother board, ASF assembly.

The Auto Head Positioning System, which looks for a square left corner, the presence of material and a good leading edge will drive the position of the shaft, drawer slides, platen box and the platen position itself.

This build only uses Epson Firmware.

However custom software may be required for it to function at it's maximum potential or even to produce acceptable results. (EK RIP at info@eukondigital.com)

This build is capable of producing results equal to commercial units.

It is however a manual machine. Meaning it must be reset to the print position by hand. This actually produces reliable and repeatable results with outstanding registration.

Be sure to mark all ribbon cables so you know where they go. Check and Recheck.

As the old saying goes, Measure twice cut once, in this case measure 3 times and think about it then cut.

On wiring and cables check 4 times then insert. Triple check everything prior to first power up (Smoke Test).

Be prepared to fine tune several items before getting it fully functional. i.e. the platen only has about a .25 inch for and aft play in its position. Without a shirt may be different than with a shirt. Takes a while to find the sweet spot but it's there.

This is still a draft with revisions to come.

You will have to find your own R1900 Manual due to copyright restrictions.

Many thanks to German 13 who spent countless hours blazing the trail.

Last but not least Jeff and I are not responsible for any damage,

loss of life, profits, investments or lack of performance.
In general we are not responsible for anything.

Happy Building

Feel Free to Pass Around at will.

SHEEP SAY BAAAAA....
DIY'ERS SAY BAAA NOT.

THINKS ABOUT IT, DEEPER THAN YOU MIGHT THINK.

These are quick and dirty.

First this is planned for maximum use of 1900 parts.

You need the 1900 Repair and Maintenance Manual for instructions on tear down.

)

Tear down easy try not to break stuff you never know what you need.

save everything until you are completely finished.

Tools,

Table Saw is wonderful to have, lots of things need to be square

Drill

Screw drivers,

Accurate Tape Measure

Square

Micrometer is nice.

Pick for pulling clips off of rods.

Solder Gun, Nice to have one that hits 700F

My wood base and tunnel assembly is made from 3/4 inch MDF

Everything is except the platen box is 1/4 inch sanded plywood.

PAINT OR SEAL WOOD PRIOR TO ASSEMBLY!!!!!!

Base provides level and square surface.

33X36"

Tunnels measure 30" long and interior is 5.5X6.5, Mother board drives this it could be shortened to 5.0 interior height.

depth still needs the 5.5.

Distance Between Tunnels is 14.5"

Rails are 24 inch drawer slides, get the best you can and test them to be sure they are smooth.

I used ones from Lowes Home Supply for \$20, wish I could get better.

Need some "L" aluminum for the platen box to set on and the L mounts to the rails.

I offset the box .25 inches toward the right. Printer favors right, and needs this either here

or on platen itself, otherwise the printhead spits on the left side of sheet when it clears itself.

Need a small spit box on the left for this.

Platen Box (holds platen) is 13.5 OD and 12.5 ID.

Main drive Rod is from machine and cut down to about 7" , what ever gets to the center with the adapter.

Need a reducer to go from 8mm to .125 inches

Pulley is .306 pitch diameter/ 5/16 wide with flanges with .125" bore. (.312 is best, you can also use a .326 if you need. EK Rip will adjust the feed for pulley mismatch.)

belt is 5/16 wide (what ever fits your pulley)

Belt Length needs to be twice the length of the distance between front and back pulley plus circumference of the pulley. approx assuming front and back are the

same.

They do not need to be,, the idler really can be anything. I used a endless belt

with adapter/ Joiner to start, then went with a 1 piece later.

Printer Mods are,

Strip, Salvage,

Trash the High Voltage Board.

Trash the Pic Bridge USB from front.

Find the Lid Closed sensor connector on the control panel and the CDR Cover Sensor opposite side control panel. Just clip these and close loop with solder on each one.

ASF the biggest pain gets shortened down, problem is one end is not symmetrical so putting a rod straight thru is not the best option, I just cut off a few inches from each end and

ran a 1/4 threaded rod thru to join back up. then spaced out on both sides of a piece of 3/4 mdf and shimmed as required. This must work for this conversion.

Motor Relocated with encoder wheel, Motor must face same direction as was on printer in relation to encoder or reverse wires on motor.

there is a clip on the shaft that sets the distance from the wall for the encoder wheel, if you use this then the encoder sensor works just mounted to the

wall (clip of tits on the back)

The PE Switch is located at the bottom of the paper feed assembly on the right hand side of the printer in the back it must work and has a delicate sensor.

Careful be sure you know

where this is when you tear down.

PE Switch gets located just aft of drive rod. On left side. the platen itself must have a slot in it for the pe sensor lever arm to go thru to touch the platen.

this means base needs to stay thin, no more than .2 inches. You have to build a holder for the pe sensor that can be adjusted and moved easily.

Wires from the right side (if facing) are extended to reach new mother board location.

Ribbon cable mounts are removed only on the left half of the machine. there is one larger mount where the ribbon cables transition from the back of the machine

to the front and go to the printhead, this must stay.

ASF is jammed next to the mother board and raised up, because the mother board is raised up so the ribbon cables reach without extensions. The ribbon cable from asf board to main board is short so asf is close to and level with main board. here is where a longer cable would help.

The overall size of this one is larger you can cut 3" off the back easy. The base can match the tunnel width.

Suggest the platen box have a few extra inches so you can play with platen position. The head sensor only has .25 inch play for finding it.

Put drive shaft directly below original position on printer, Makes life easier. This location is going to drive where your printer sets on top of the tunnels.

SPECIALTY PARTS LIST

A5C9-0810 SHAFT COUPLING

A7A30-251203 SHAFT REDUCER.

A7X1-04020 .1247 DIA SHAFT 2"

A6R51MC090 TMNG BT STK GT2 ENDLESS BELT VS 1 PIECE
THIS REQUIRES A JOINER

A6M51M090 TMNG BT CLAMP

A6A51-013DF0904 TMNG BT PULLEY SHOULD BE .306 PITCH
DIAMETER .125 BORE. NOTE: PERFECT PITCH DIAMETER
IS.3125 IF YOU CAN FIND ONE!!!

www.sdp-si.com/

BY USING THIS REFERENCE AND PART NUMBERS
YOU SHOULD BE ABLE TO COMPLETE DESCRIPTIONS
OF PARTS SHOULD YOU USE A DIFFERENT SUPPLIER

BASE PLATFORM 33"X36"

BASE PROVIDE STABILITY
AND SQUARE REFERENCE
FOR BUILD. THIS WILL ALSO
BE THE FLOOR FOR THE PRINTING
BAY



PRINTER

LEFT SIDE EQUIPMENT BAY



30"



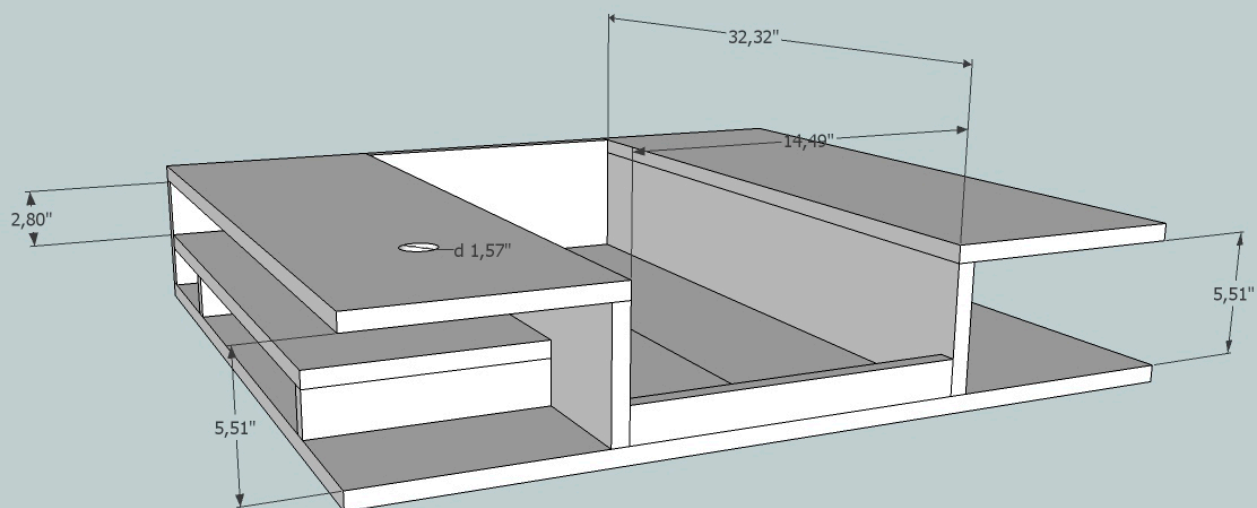
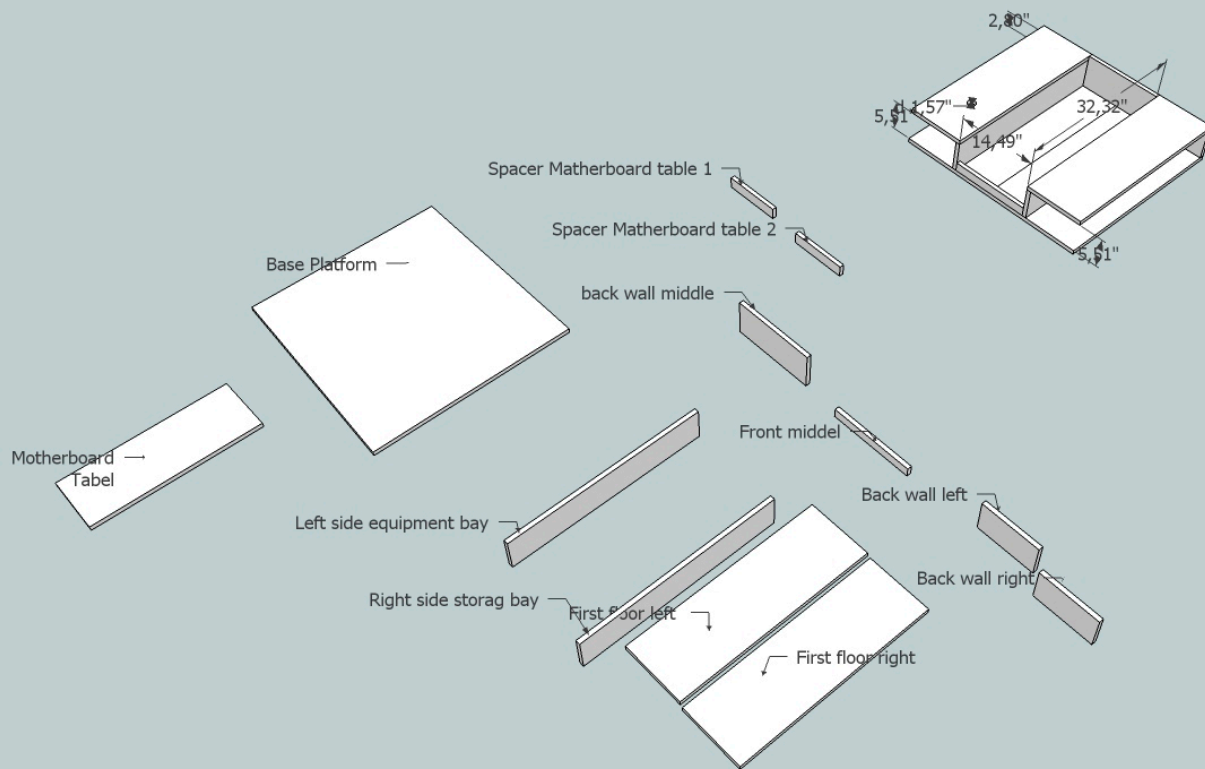
PRINTER

RIGHT SIDE STORAGE BAY

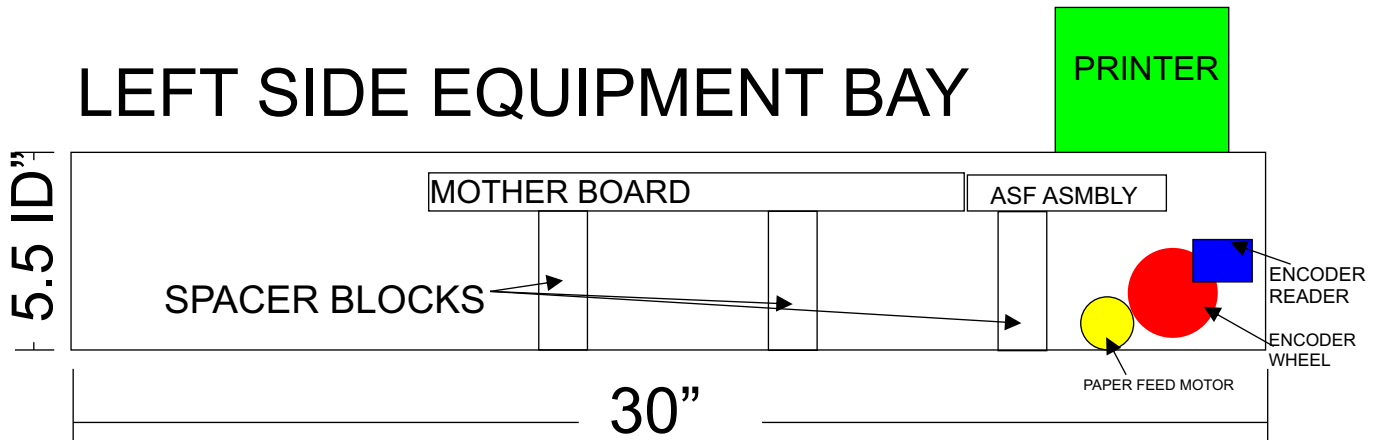


30"

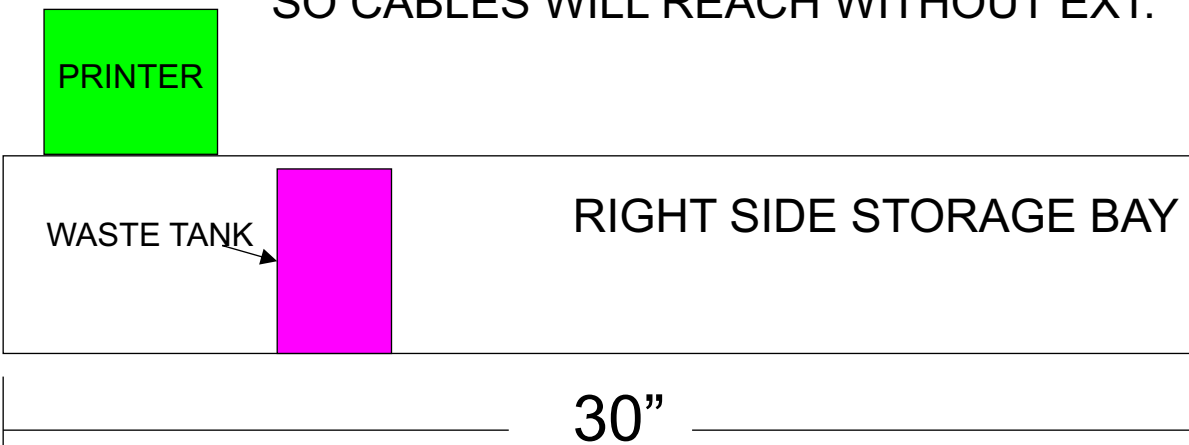
NOTE: THIS CAN BE CUT BACK BY
ABOUT 3 INCHES SO 27" VS 30".



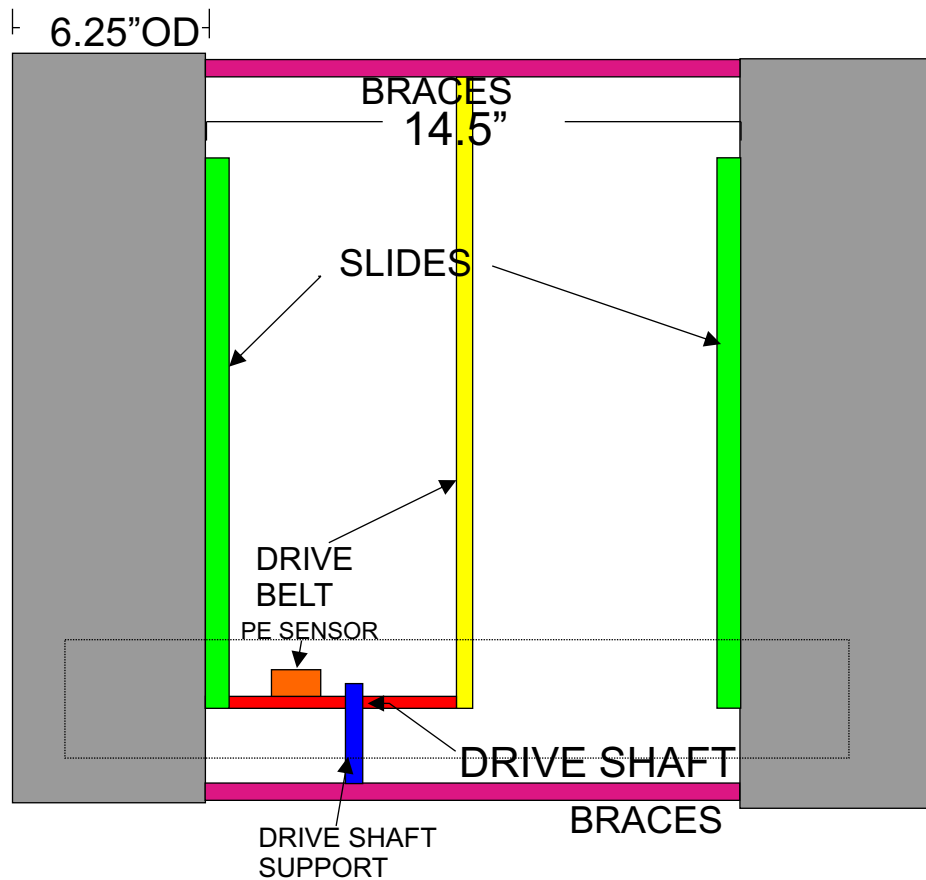
LEFT SIDE EQUIPMENT BAY



NOTE: MOTHER BOARD MUST BE LIFTED SO CABLES WILL REACH WITHOUT EXT.



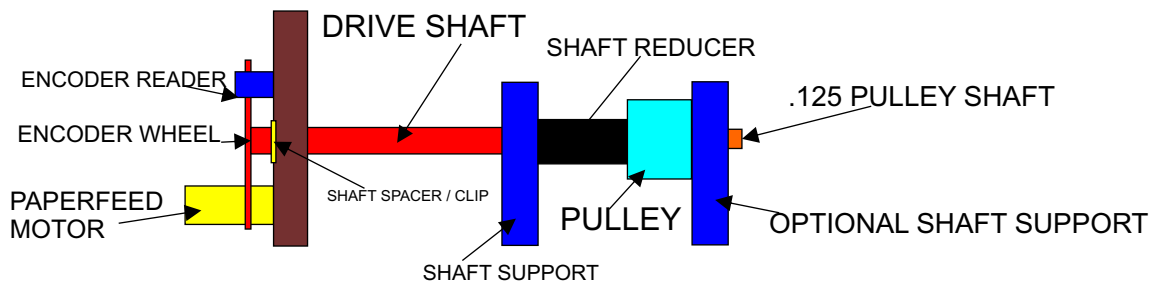
NOTE: THIS CAN BE CUT BACK BY ABOUT 3 INCHES SO 27" APPROX.



NOTES:

- 6.25 IS BASED ON MOTHER BOARD DEPTH
- DRIVE SHAFT SHOULD DROP DIRECTLY BELOW THE ORIGINAL POSITION ON THE PRINTER
- SLIDE ENDS LINE UP WITH DRIVE SHAFT.
- WHEN MOUNTING SLIDES USE SPACER BLOCK TO SET HEIGHT.
- DOTTED LINE IS PRINTER.
- SLIDES CAN BE 22-24" GET THE BEST YOU CAN!

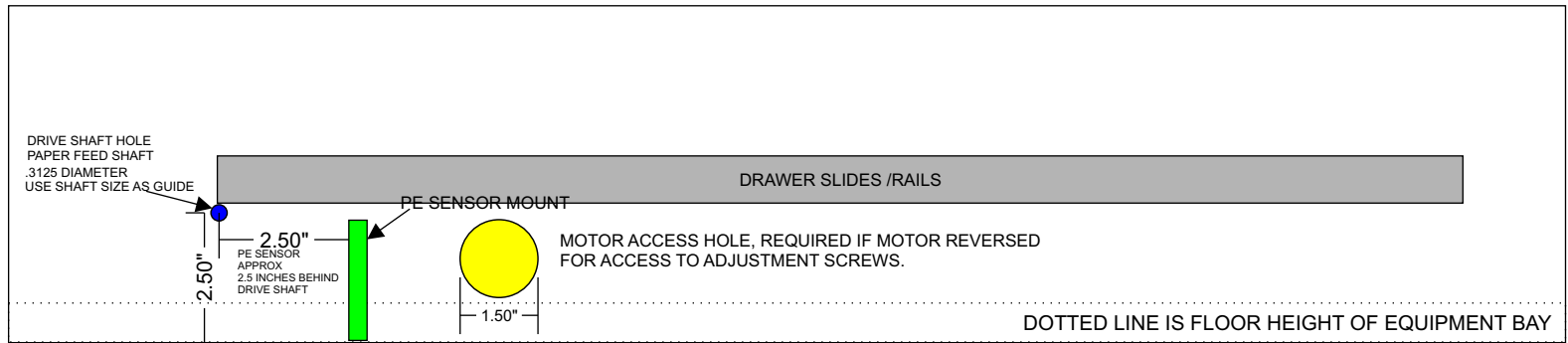
DRIVE ASSEMBLY



NOTE:

- SHAFT AND ENCODER WHEEL WITH SPACER ARE REMOVED AND REMAIN IN ONE PIECE.
- SHAFT IS CUT DOWN SO THAT WHEN REDUCER IS ADDED PLUS .125 PULLEY SHAFT AND PULLEY MOUNTED THE PULLEY IS IN THE CENTER OF THE BED.
- ENCODER READER SHOULD BE MOUNTED IN SAME RELATIVE POSITION AS ON THE PRINTER. THE SMALL TABS ON THE BACK ARE REMOVED. THEN WHEN PLACE FLAT SHOULD ALLOW SENSOR TO SLIDE OVER ENCODER WHEEL. THIS ASSUMES THE ORIGINAL SPACER CLIP WAS LEFT IN PLACE.
- PAPER FEED MOTOR WILL BE BACKWARDS WHEN MOUNTED IN SAME POSITION AS ON PRINTER. IF YOU CHOSE TO REVERSE THE MOUNT YOU MUST REVERSE THE WIRING AT THE MOTOR, OR IT WILL RUN THE SHAFT IN REVERSE.
- MOUNTING BLOCKS MAY BE USED OR PILLOW BLOCKS. AN OPTIONAL MOUNTING BLOCK MAY BE PUT AT THE END OF THE .125 SHAFT.
- SHAFT IS 8mm HOWEVER 5/16 PARTS MAYBE USED BUT MAY BE TIGHT. JEWELERS POLISH OR SEMI CHROME METAL POLISH MAY BE USED TO REDUCE SURFACE.
- THE COATING ON THE SHAFT MAY BE REMOVED BY SCRAPING. THIS COATING SHOULD NOT BE ALLOWED TO COME IN CONTACT WITH THE MOUNTING BLOCK HOLES. IT IS ABRASIVE
- PULLEY IS .306 PITCH DIAMETER, HOWEVER .326 CAN BE USED .312 IS PERFECT BUT HARD TO FIND. (EK RIP IS REQUIRED TO CORRECT FOR ANY PITCH DIFFERENT THAN .3125. PULLEY HAS .125 BORE AND USES 5/16 BELT. EITHER ENDLESS OR ONE PIECE MAY BE USED BUT ONE PIECE IS BETTER IF YOU HAVE THE LENGTH. BASICALLY LENGTH BETWEEN TO CENTER POINTS OF PULLEYS /IDLER PLUS CIRCUMFERENCE OF THE PULLEY. IF THE IDLER IS DIFFERENT SIZE THEN A CORRECTION IS REQUIRED.
- A SHAFT REDUCER IS USED TO REDUCE THE ORIGINAL DRIVE SHAFT TO A .125 SHAFT FOR PULLEY MOUNT.
- AN OPTIONAL SHAFT SUPPORT MAY BE USED TO HELP WITH THE TORQUE CAUSED BY THE BELT.

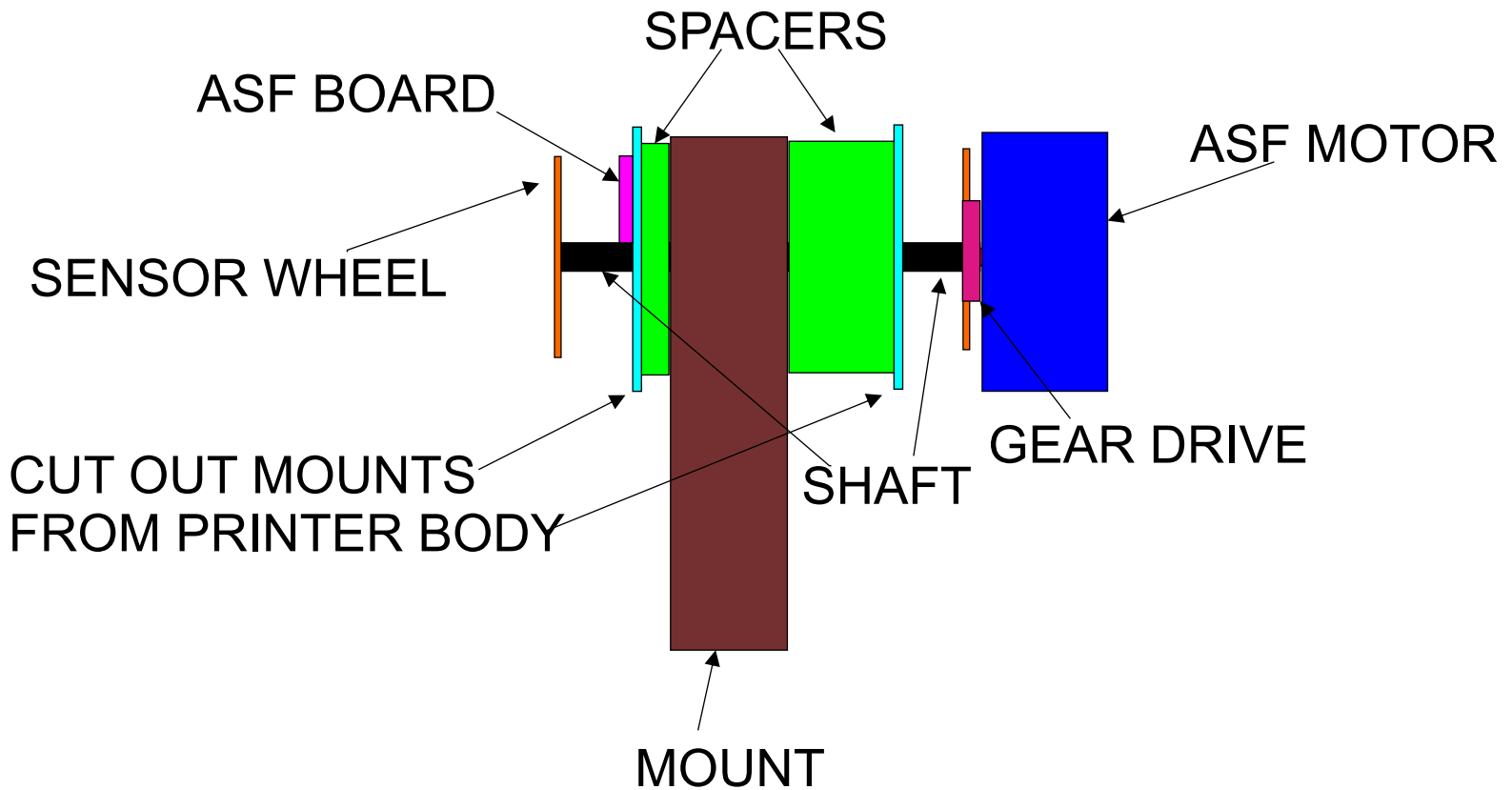
INSIDE OF LEFT WALL AS VIEWED FROM CENTER OF PRINTER BED



NOTES:

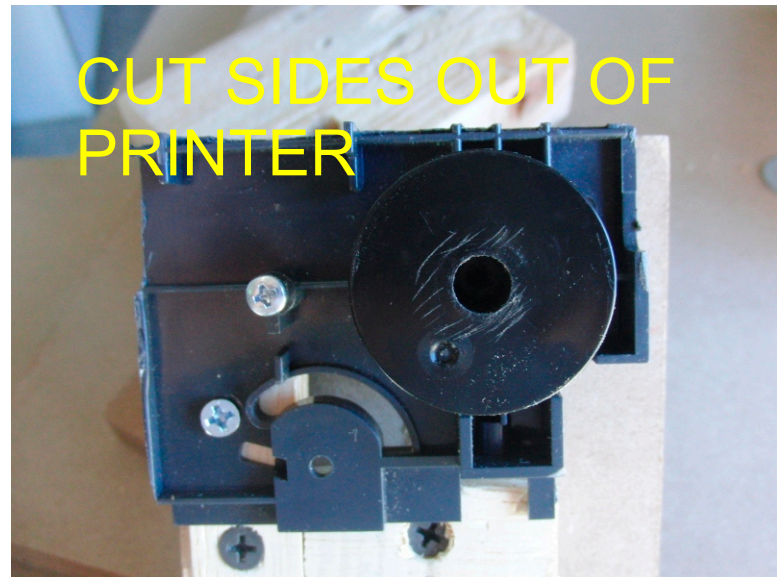
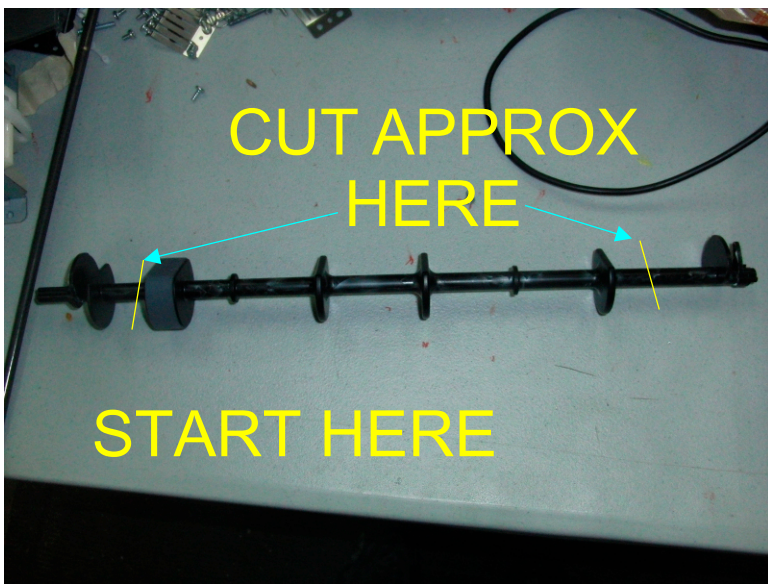
- START BY POSITIONING CENTER OF ENCODER WHEEL WITH DRIVE SHAFT AND SPACER RING ATTACHED ABOUT 4" FROM FRONT OF PRINTER .
- CHECK FOR WHEEL CLEARANCE
- DRILL HOLE BASED ON SHAFT SIZE AND ANY BUSHING YOU MAY HAVE ADDED.
- SPACE MOTOR ACCORDING TO DRIVE BELT LENGTH
- IF MOTOR FACING INSIDE THE WIRES WILL HAVE TO BE REVERSED AT THE MOTOR.
- MARK FOR HOLE IN WALL REQUIRED TO ADJUST MOTOR SCREWS FOR BELT TENSION.

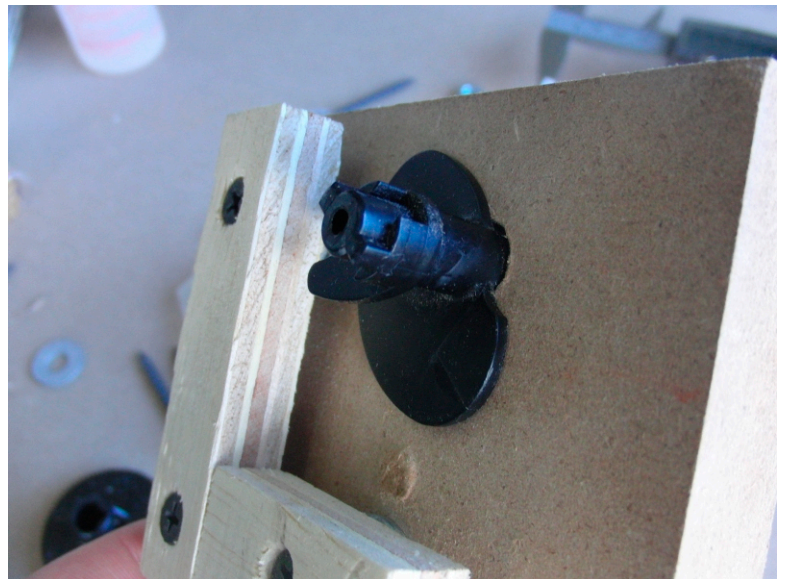
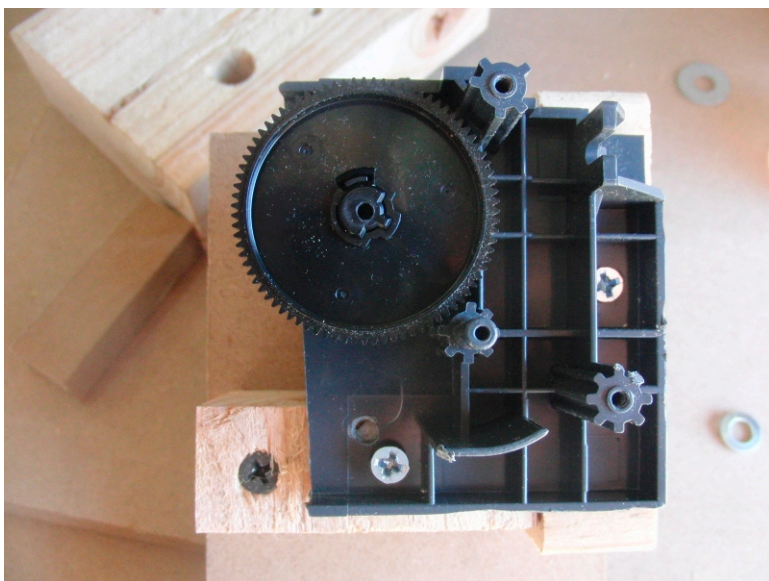
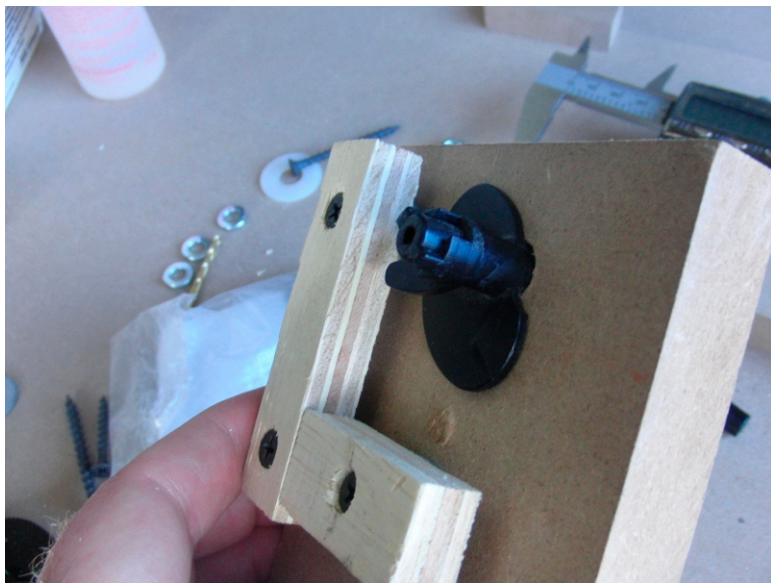
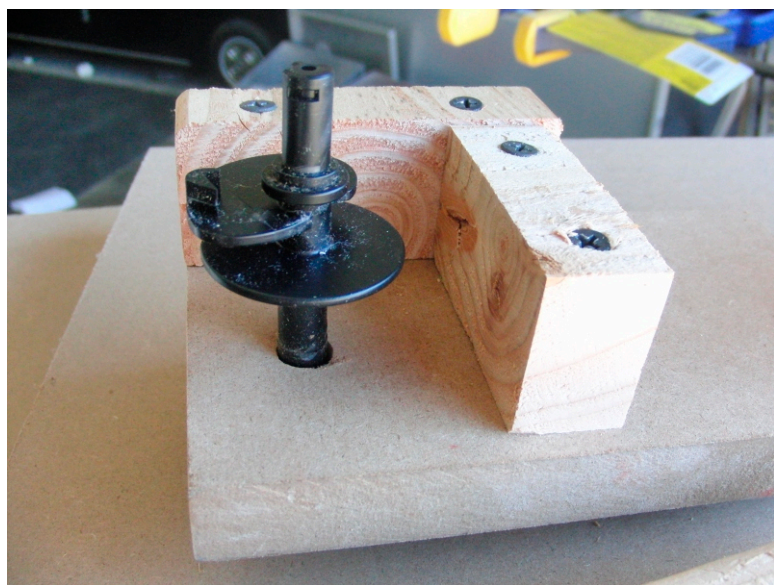
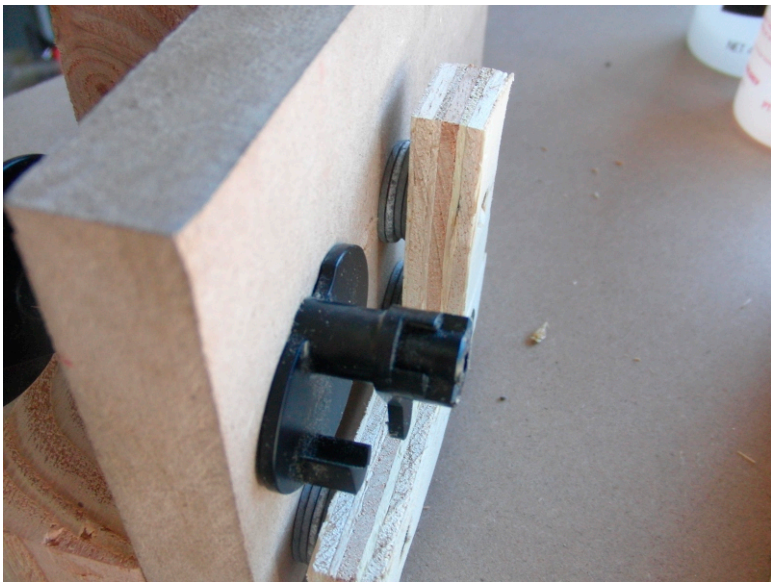
ASF BUILD

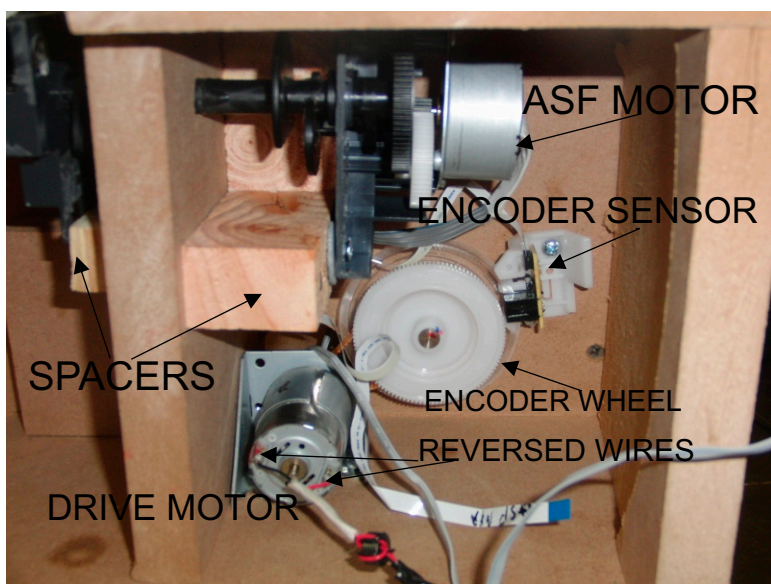
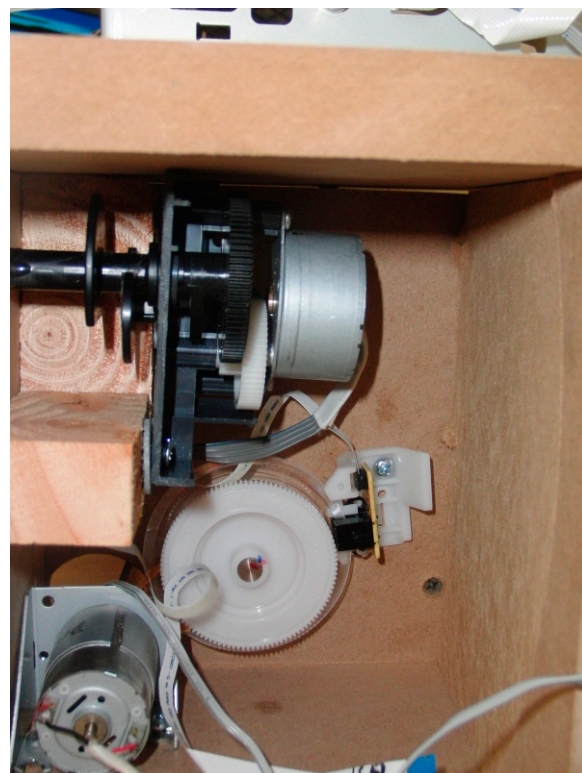
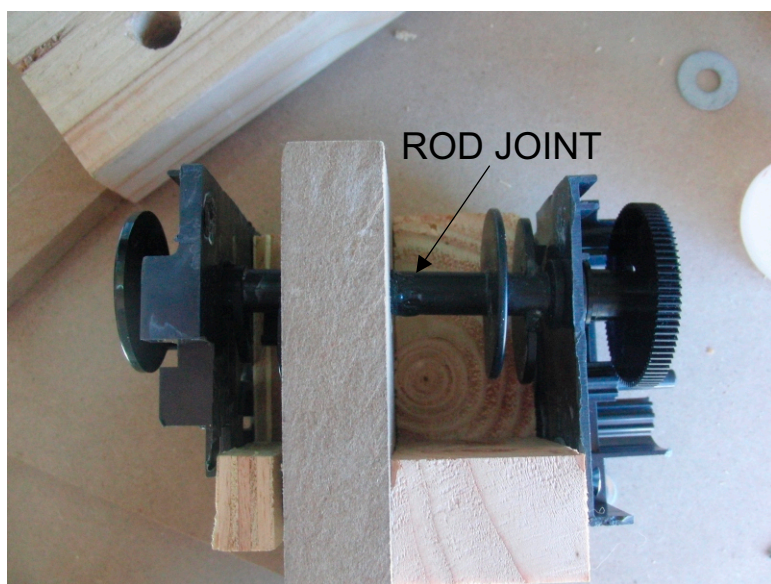
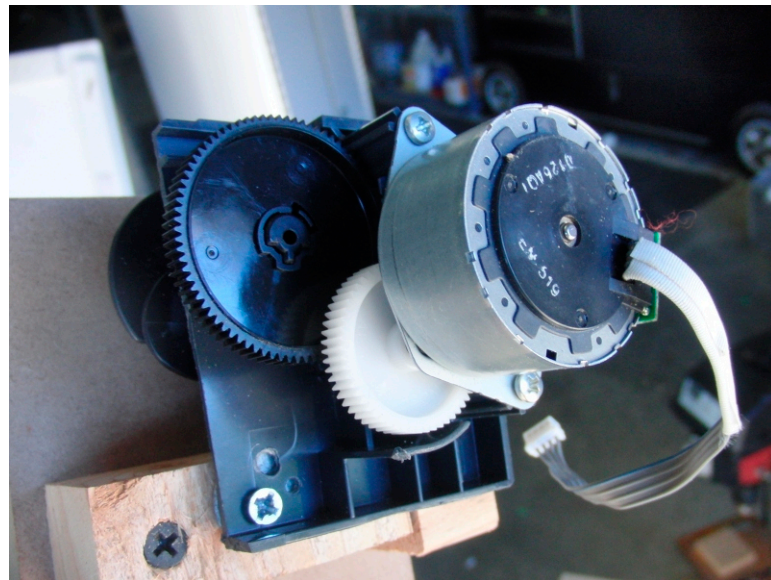
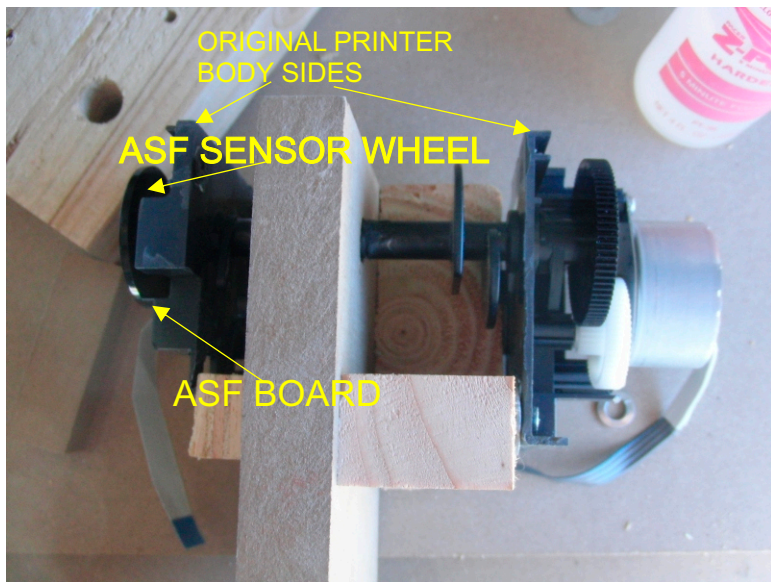


NOTES:

- HEAVY REFERRAL TO PHOTOS REQUIRED
- THIS RELIES ON ORIGINAL MOUNTS CUT FROM SIDES OF PRINTER BODY TO SET CORRECT SPACING AND PROVIDE SOLID ALIGNMENT.
- SHAFT WILL BE CUT AND SPLICED USING .25 THREADED ROD EPOXIED TO HOLD TWO PIECES OF SHORTENED ROD.
- MOUNTED HEIGHT SHOULD BE ASF BOARD LEVEL WITH MOTHER BOARD SO RIBBON CABLE FROM ASF BOARD CAN REACH THE MOTHER BOARD CONNECTION.

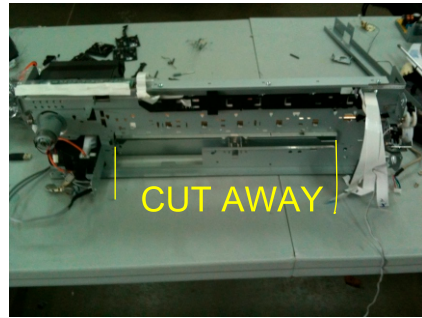








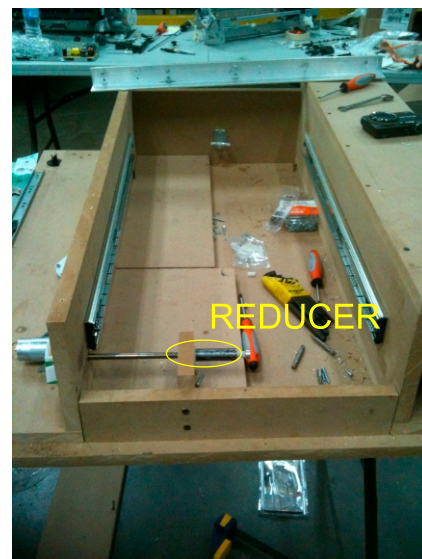
A PERFECTLY GOOD
EPSON R1900



CUT AWAY



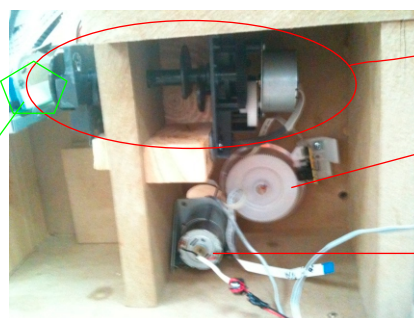
PE SENSOR
GOES HERE



REDUCER



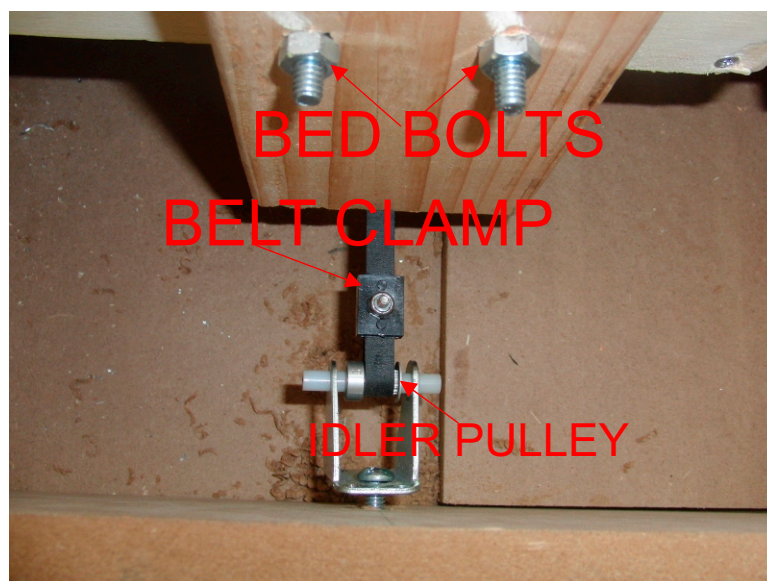
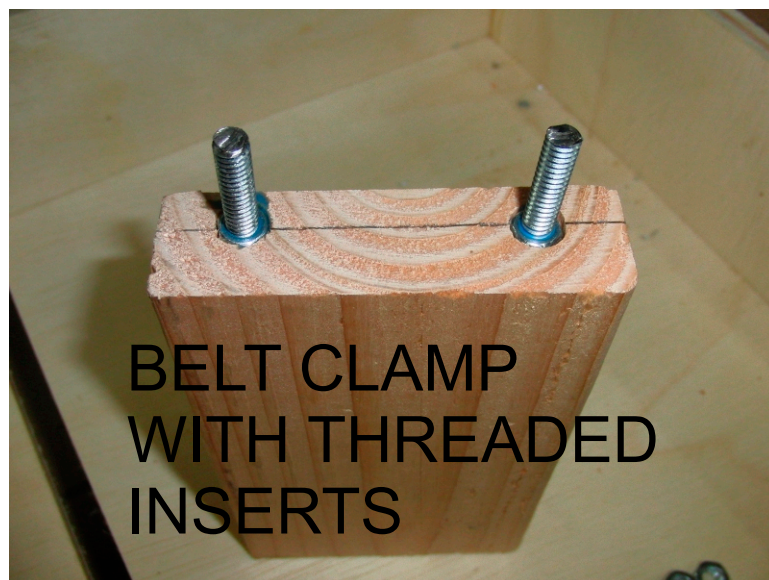
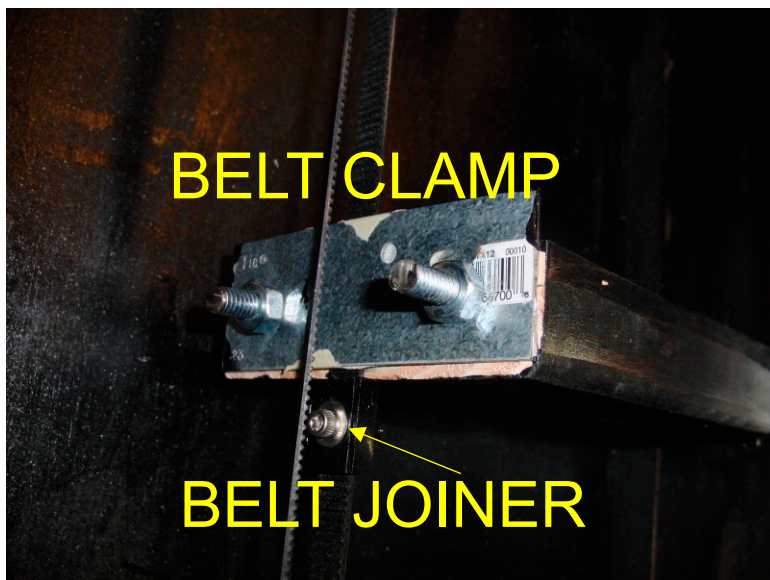
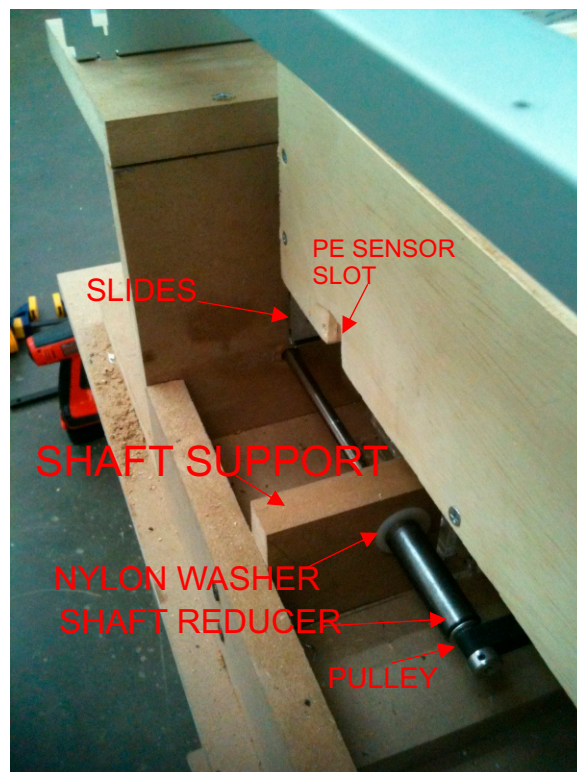
VERY SHORT
RIBBON CABLE
ASF TO MAIN
BOARD

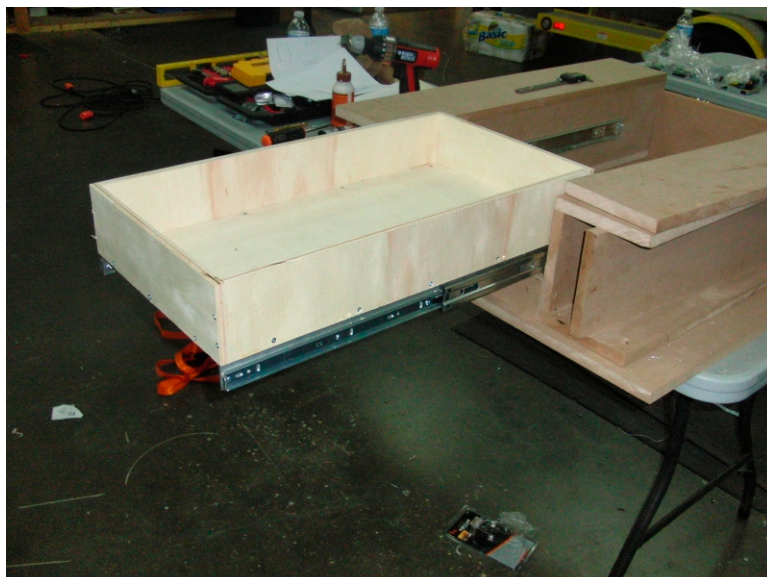
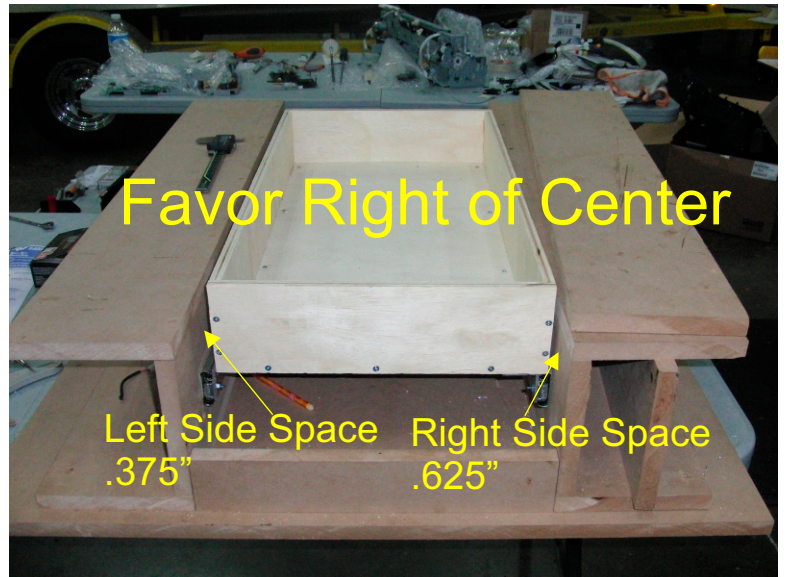
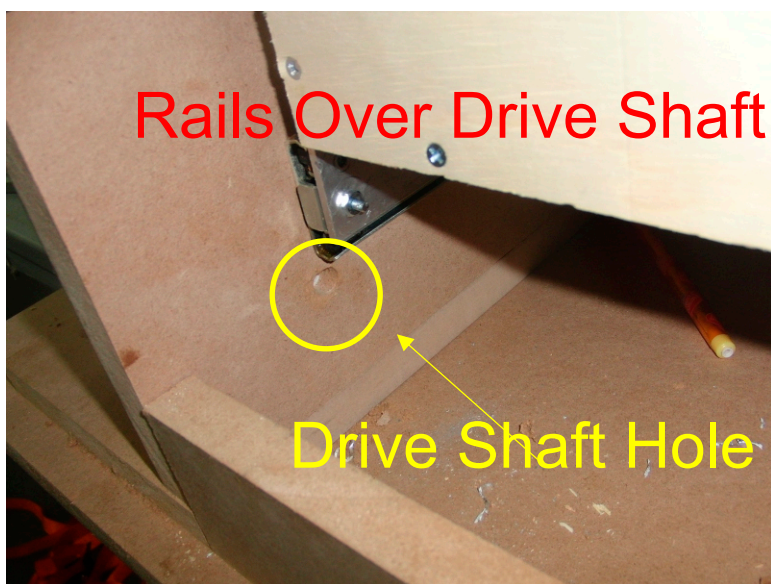
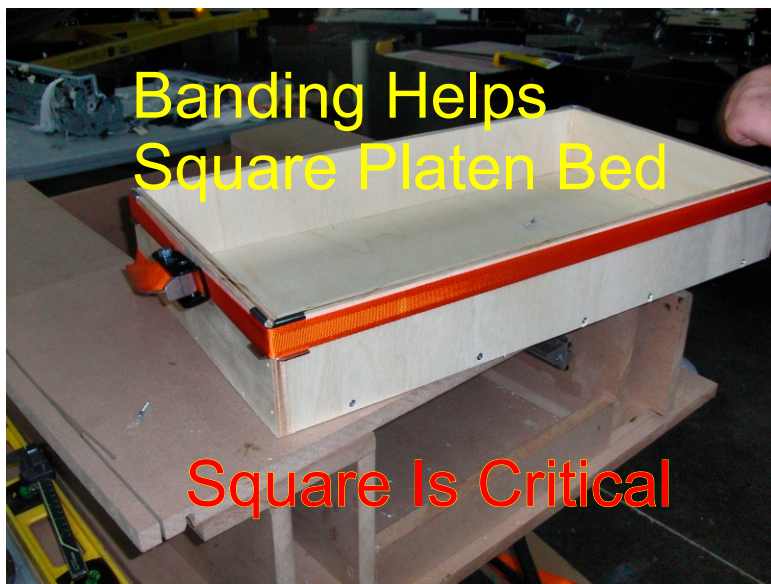


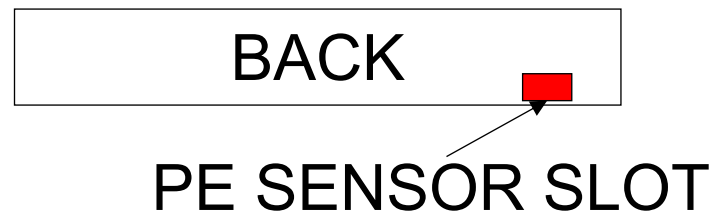
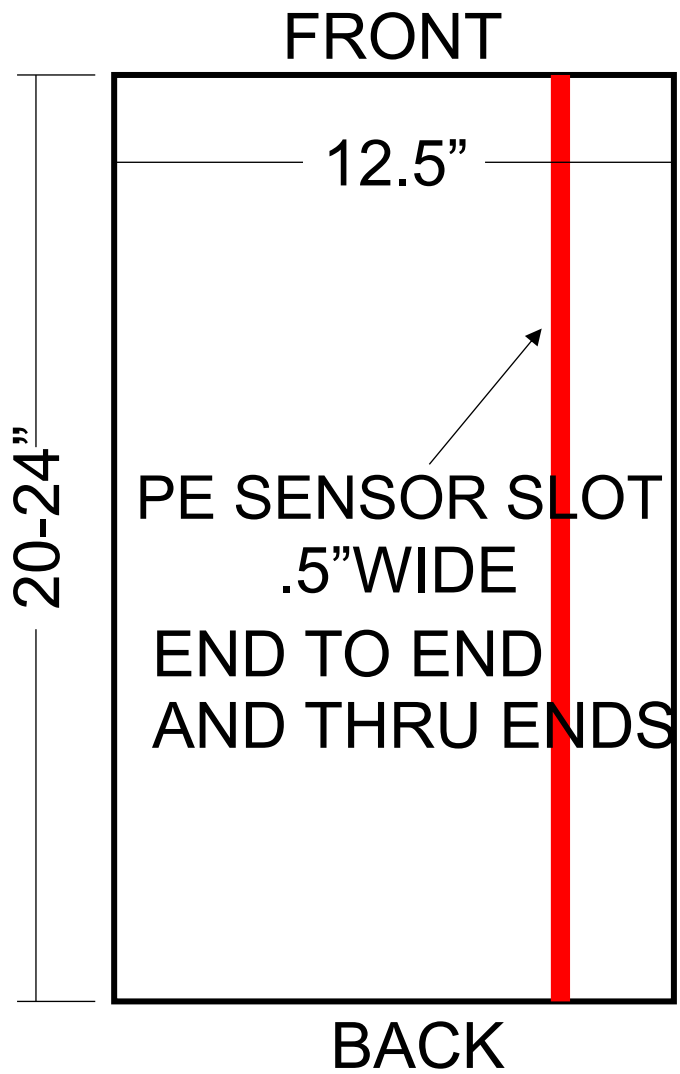
ASF

ENCODER WHEEL

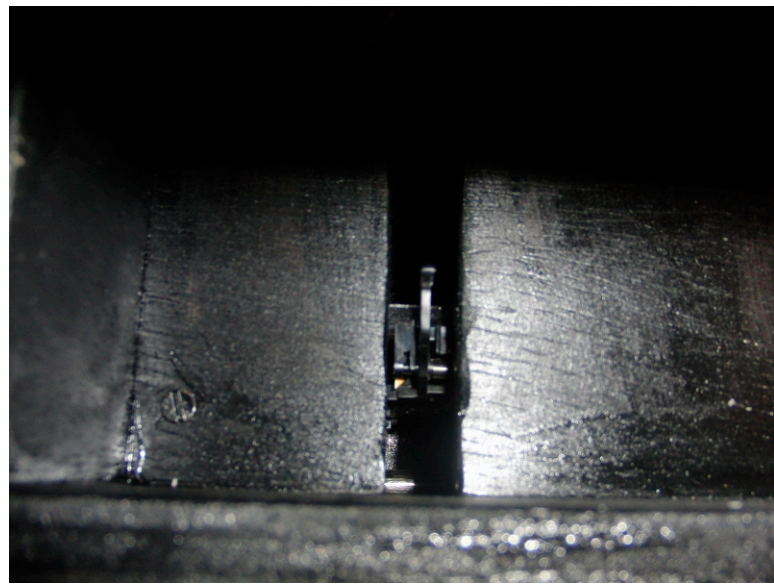
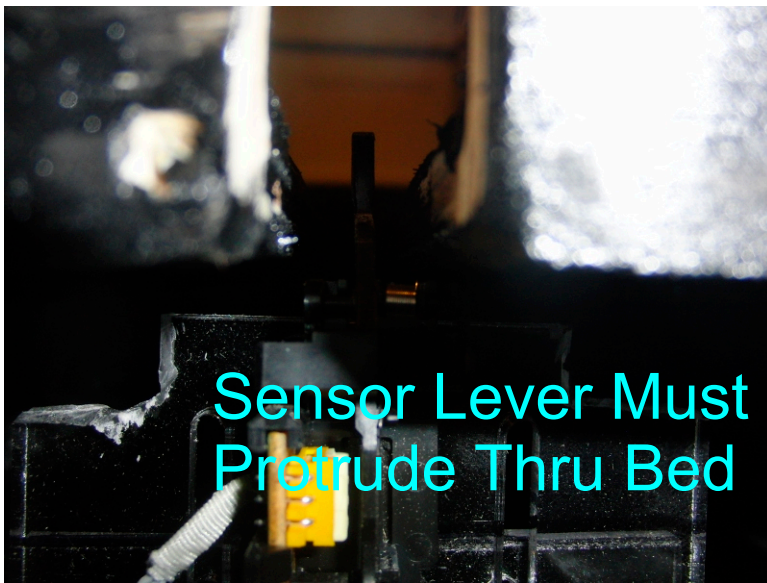
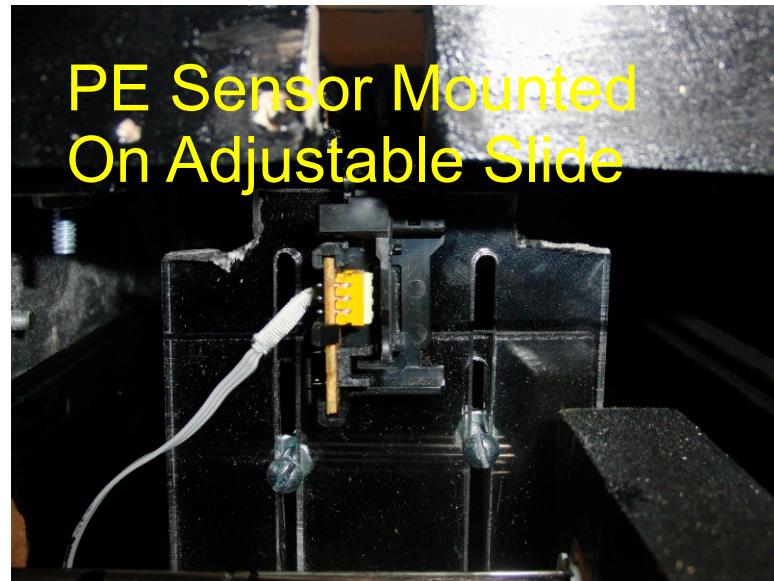
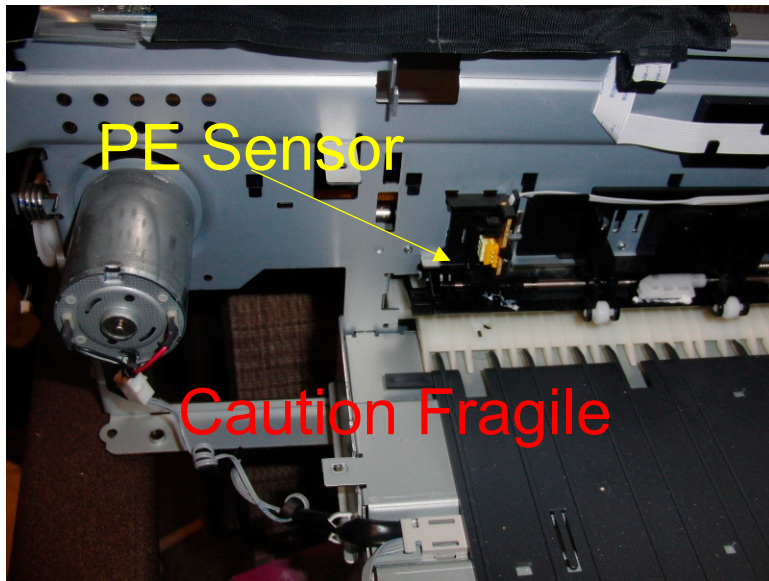
PAPER FEED
DRIVE MOTOR

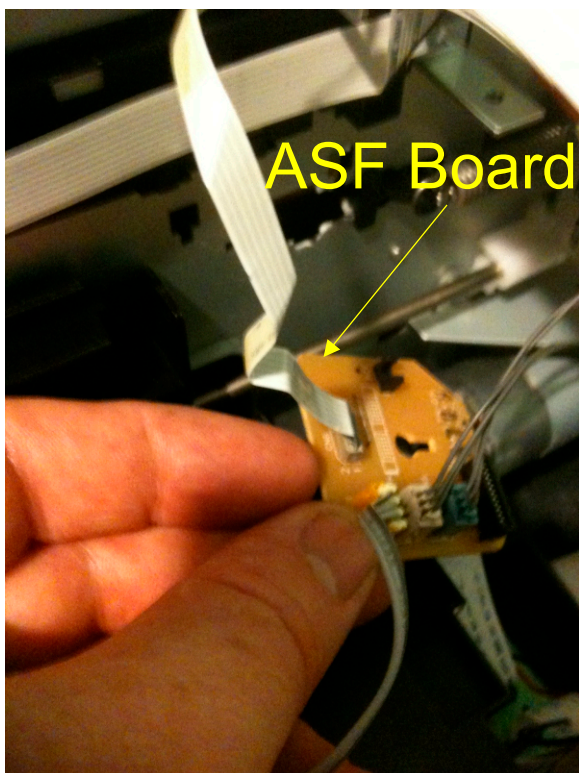
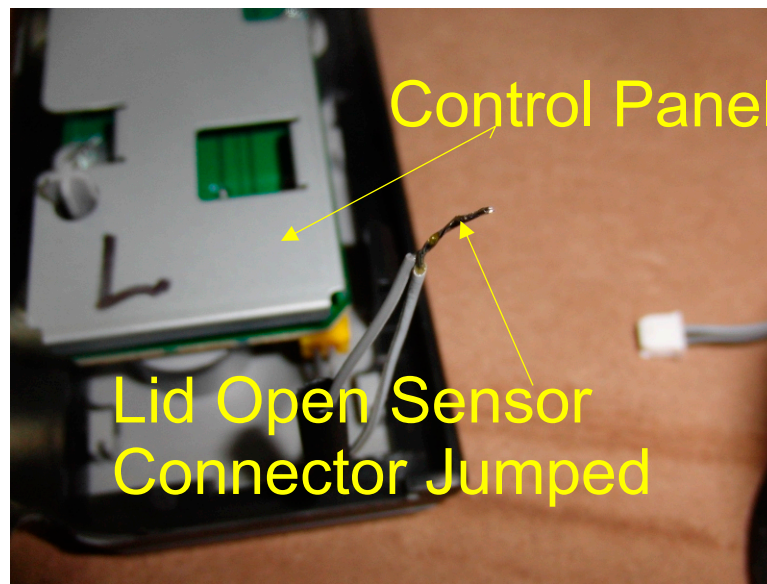
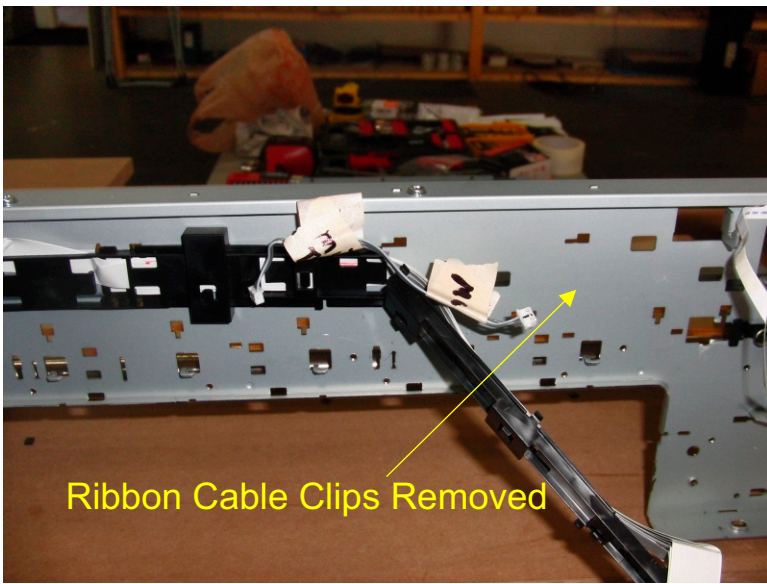




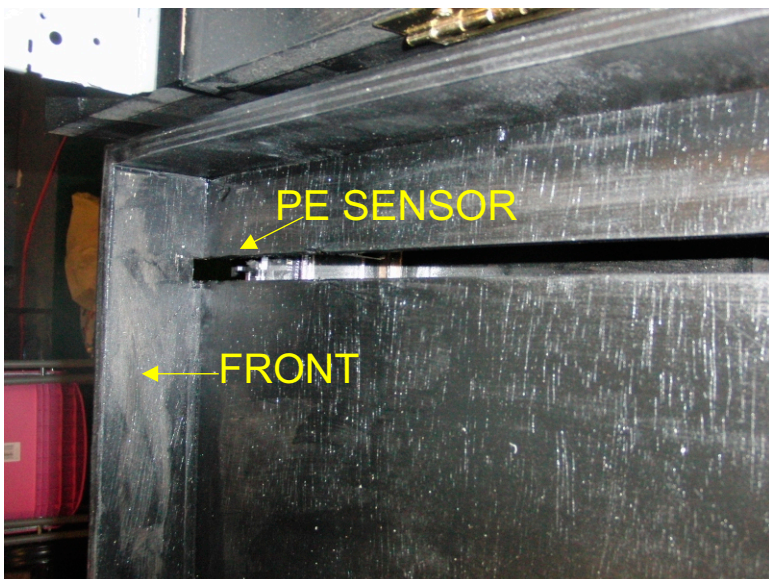
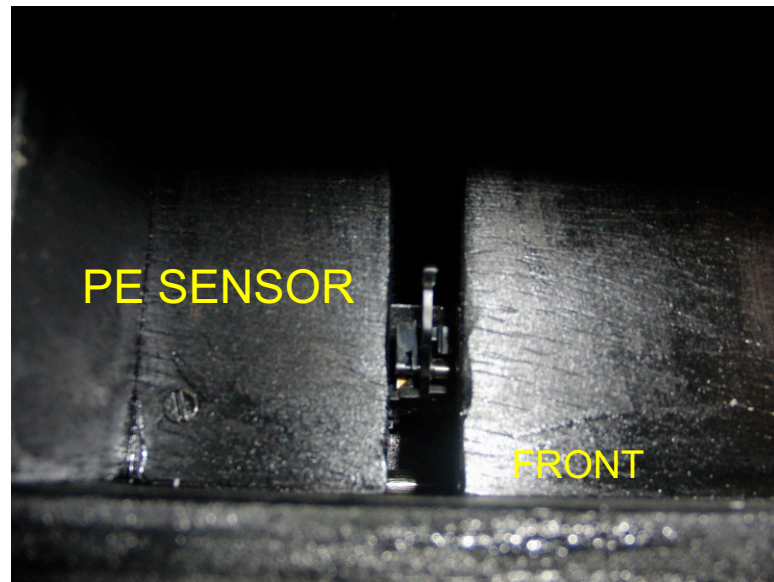
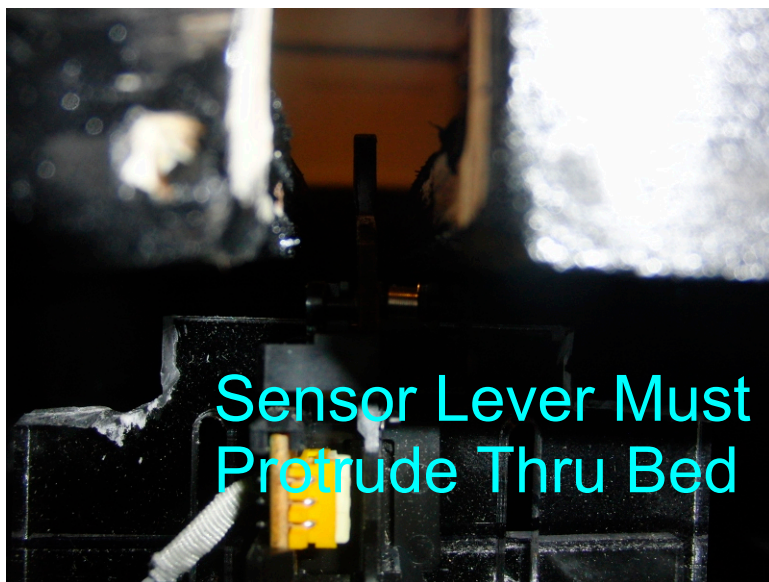
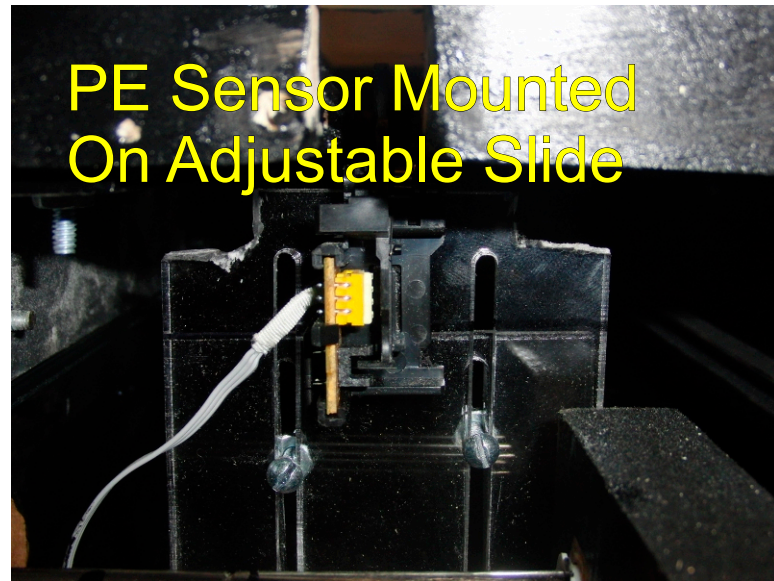
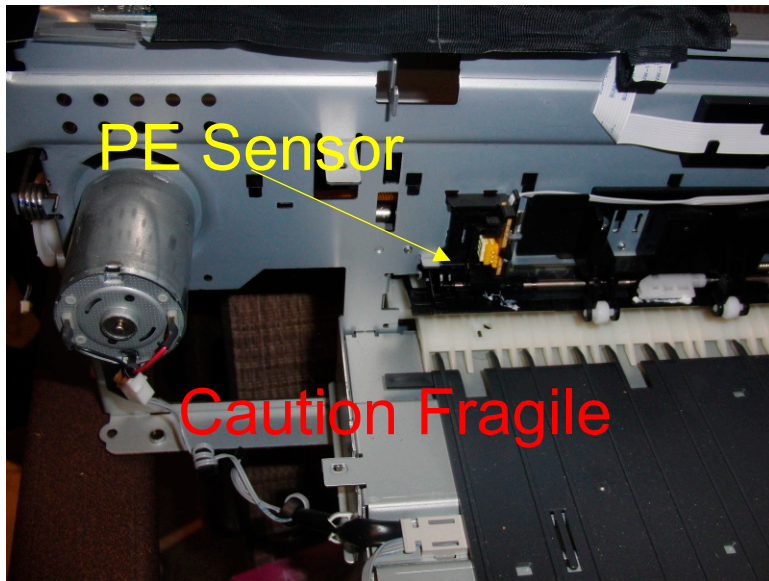


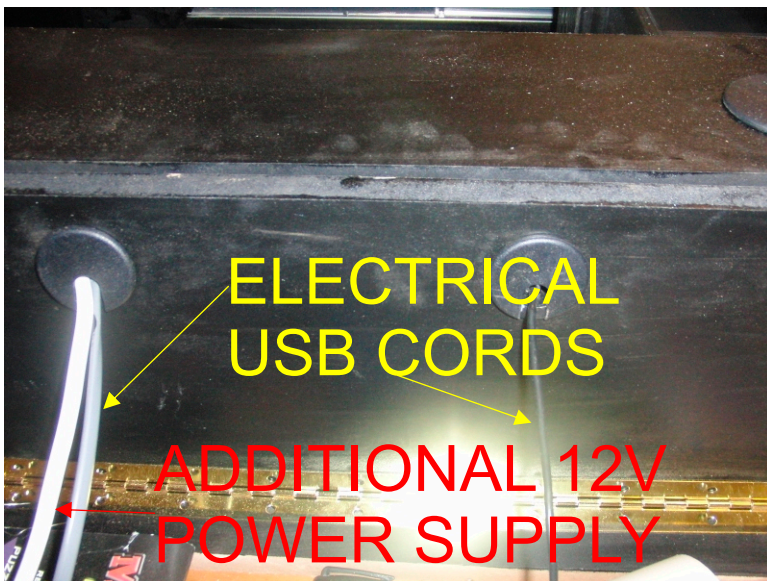
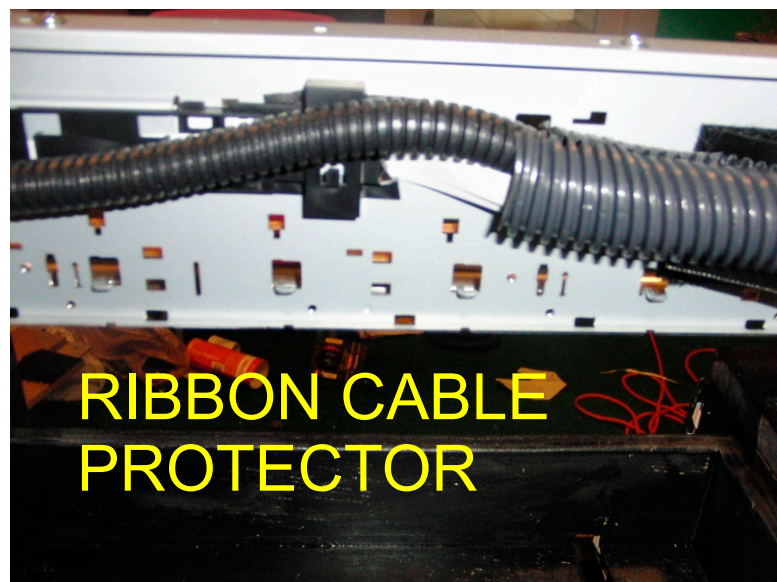
PE Sensor





PE Sensor





ADDITIONAL PICS OF GERMAN 13 BUILD T-DOZER LEADER OF THE PACK

