

P.E.P. TECHNOLOGY[©]

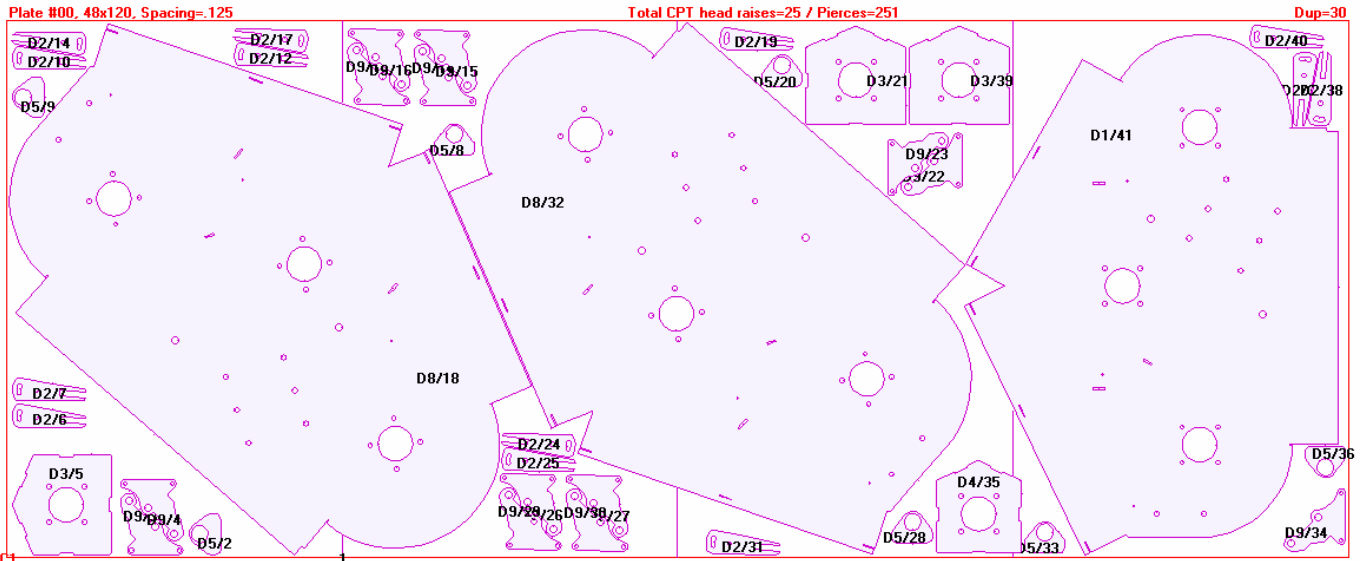
Automated Manufacturing with High Tech Software

P.E.P. Automatic Nesting Results – 16 nests totaling 124 sheets (a savings of 9 sheets)

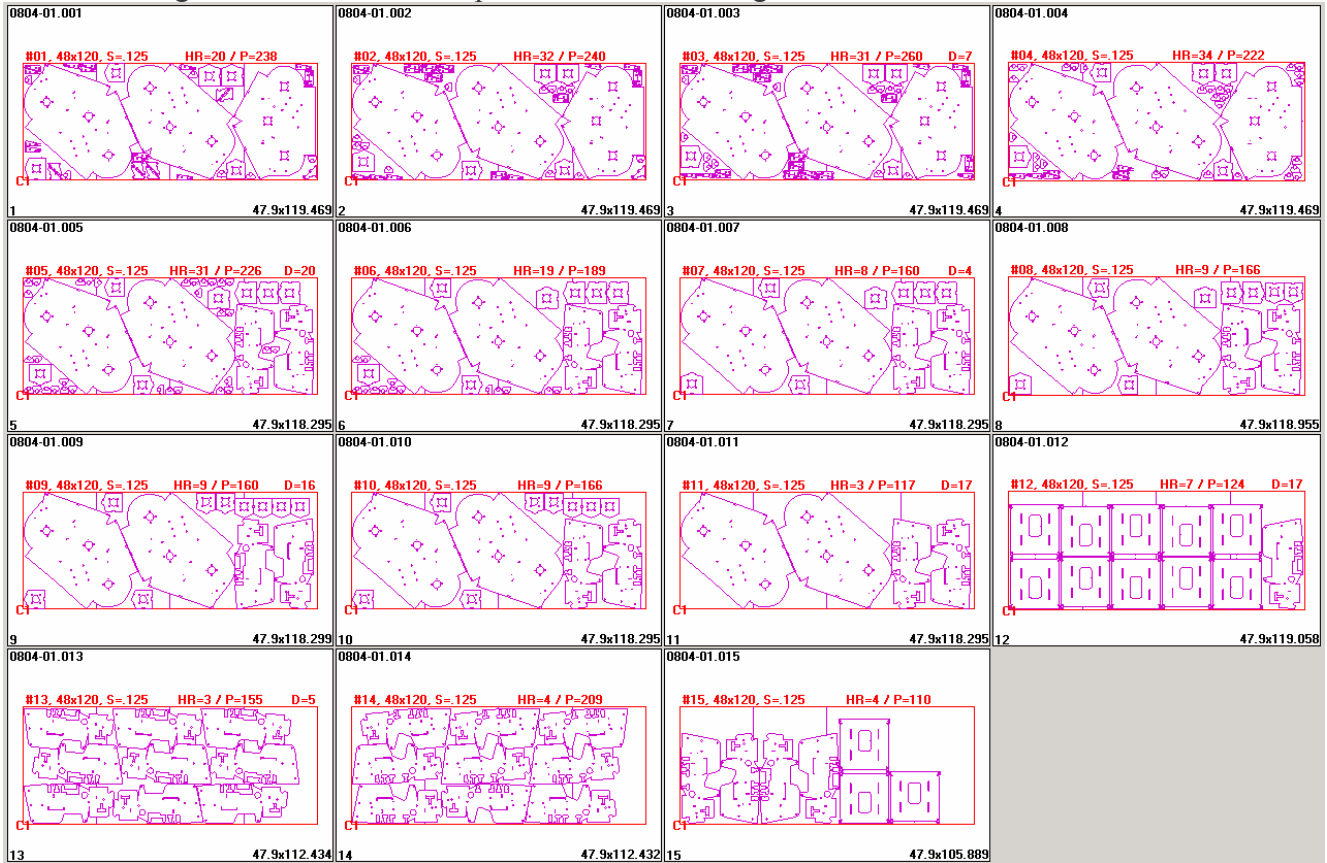
All 124 nested sheets were created, sequenced, assigned lead-ins, etc. automatically (steps 1-24)!

All plotted sheets display the work order #, drawing name, part quantity, cut sequence #, sub routine #, # of head raises, # of pierces, sheet size, spacing between parts, # of duplicated sheets, (i.e. #1=dup. 30).

Work Order	Drawing	Qty / Req	Loops	Work Order	Drawing	Qty / Req	Loops	Work Order	Drawing	Qty / Req	Loops
WHIT-01	356220	60 / 200	(D8)40,44	WHIT-01	358333	30 / 249	(D4)45	WHIT-01	360677	390 / 400	(D9)30,31,35,37
WHIT-01	356733	90 / 249	(D3)32	WHIT-01	358879	210 / 996	(D5)29,34,42,43				
WHIT-01	358259	30 / 40	(D1)47	WHIT-01	360479	390 / 664	(D2)33,36,38,39,41,46				



The remaining 15 nests contained duplicated sheets totaling 94 sheets for a total of 124 sheets.



P.E.P. vs. Whitney's OEM Software

P.E.P. SAVES A "LASER" PRODUCTION JOB AT W.A. WHITNEY MORE THAN \$6,000.00.

This document highlights the engineering errors, the material savings and the 30% plus increase in laser productivity attained at the W.A. WHITNEY factory while cutting a customer's production job with the P.E.P. Technology software. The recommended software at that time was the **SigmaTec software**.

PROJECT

W.A. Whitney's customer required 10 parts having a combined total of 3,166 parts to be laser cut.

JOB OVERVIEW

While on site at W.A. Whitney conducting a laser presentation, a P.E.P. Technology engineer converted the customer's drawings, nested the parts, loaded the posted files into the control and then watched as sheet after sheet were cut for more than two hour. The 2nd and 3rd shift laser operators went on to cut parts continuously for 26 hours. The results of that job are discussed in this document.

HIGHLIGHTS of the LASER JOB

	Item	P.E.P. Technology Results	SigmaNest Results	P.E.P. Savings
1	Engineering time to correct drawings errors	0 minutes	Unknown	2 hours
2	CAD file translation to a finished cutter path. Includes the analysis of each Cad drawing, locating of errors, correcting the error, sequencing the finished cutter path, saving of the finished cutter path.	1 minute to automatically locate errors, fix errors & save all 10 parts as a finished cutter path. Refer to error log on page #3 to view list of fixed items; 10 duplicated geo., 2 gaps, 69 geometry combined, 2 line arc blends fixed	Unknown	1 hour
3	Programming time – steps 1-24 (Fig #1)	Under 6 minutes	Est. 8 hours	7.5 hours
4	Material required (11 ga. 48x120 mild steel)	124 sheets	133 sheets	9 sheets
5	Intersections radiused by CAM software	4,149	?	\$884.67
6	Rapids / Required head raises Laser up / down time 4 seconds / rapid	23,482 rapids / 2,079 actual head raises using PEP CPT	?	\$5,350.75
7	Estimated Laser time to complete job	25.8 hours	?	n/a
8	Actual laser time to cut job start to finish	25.8 hours	50 hours	25 hours
9	Lost machine time from damaged tips	0 damaged tips	Several tips damaged	\$1,000.00
10	Remark #1	At no time did the laser stop cutting, dive into the material, damage a tip or lose a cut, every Every part was cut exactly as programmed.	The machine stopped continuously for multiple reasons.	
11	Remark #2	No less than 20 Whitney employees saw the laser run and remarked that they had never seen the laser cut as fast or rapid with the head down throughout an entire nest.	A Sigmatec tech went on site to run the job and ended up staying over thru Saturday	
Total savings using P.E.P. on this ONE job				\$6,000.00 plus

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IN-DEPTH EXPLANATION OF HIGHLIGHTS (items 1-11)

- #1 The P.E.P. Cad Converter automatically fixed all drawing errors eliminating the need for the engineering department to correct the errors discussed in #2.
- #2 Cad drawing errors AUTOMATICALLY found and fixed by the P.E.P. software
 The P.E.P. Cad Converter loads the Cad file into memory and then analyzes each geometry to determine whether the geometry is part of an internal cutout or the outside boundary of the part. Having determined which geometry are to be connected,, the software then checks all the part geometry for errors as defined in the conversion parameter table.

The conversion parameter fields shown below come set with default parameter settings that in most cases never need to be altered. In cases where an engineer places geometry to be cut on a specific layer, as in the case of Whitney's customer, parameter #9 and #10 can be used to filter out un-necessary text and geometry allowing the files to be converted automatically. As circled, parameter #9 in the picture below was set to yes and the pop up window edited to include By*. This change was required because the valid geometry that engineering wanted cut was located on a layer that started with By. Adding By* to the list of acceptable layer names allowed P.E.P. to convert all 10 Cad files automatically.

Item	Setting	Description
1	Loading options	
2	Move full circles to separate layers	Yes / No
3	Move line types to separate layers	Yes / No
4	Move different colors to separate layers	Yes / No
5	Load and display text	Yes / No
6	Metric / Inch conversion	Metric to inch / Inch to metric / None
7	Ellipse minimum chord length / # of arcs	.25/.28
8	Valid line types	8 of 8
9	Auto-filter by layer	Yes
10	Layer mapping	0 mappings
11	List of keywords to watch for	Press F3 to add / edit / ma
12	Converting options	
13	Exterior geometry has display code	No / Yes / No
14	Point accuracy	.005
15	Minimum line segment length	.001
16	Minimum arc segment length	.001
17	Maximum distance between geometry	.05
18	Auto-fixing options	
19	Combine similar lines	Yes / No
20	Combine similar arcs (tolerance)	.005
21	Fix shallow arc-arc intersections	Yes / No
22	Maximum tip height allowed to fix	.02
23	Fix shallow line-line intersections	Yes / No
24	Maximum tip height allowed to fix	.02
25	Force alignment of blends	Yes / No
26	Maximum intersect angle for blends	10
27	Maximum distance the blend may move	.03
28	Add close blends to the report	Yes / No / Pause, pauses v
29	Force alignment of arc-slots	Yes / No
30	Convert shallow arcs to a single line	Yes / No
31	Maximum allowable offset tolerance	.02
32	Saving options	
33	Convert polygons to loops	Duplicates only / No / Duplicates only
34	Drive to save converted drawings	C
35	Archive location for converted files	Press F3 to select path fro
36	Master nest directory (for searches)	Press F3 to select path fro

Layer	
1	Center-punch
2	Counter-sink
3	*Cut*
4	*Cycle*
5	D=*
6	*Display*
7	*Punchmark*
8	*No kerf*
9	*Scribe*
10	*Scribe-Text*
11	*Sensor off*
12	Tap
13	*Object*
14	*Tool*
15	*Pressbrake*
16	*Grain*
17	Bentrim
18	By*

COMMANDS

F1.....Accept and save as defaults
 F2.....Accept for this session only
 ALT-D...Restore defaults

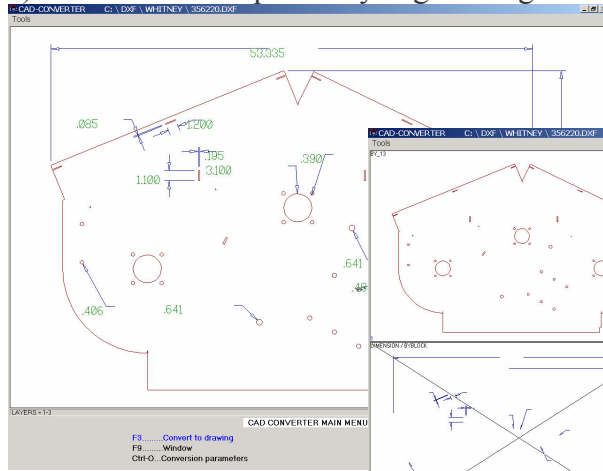
SPACE...Toggle option
 ESC.....Exit / Cancel

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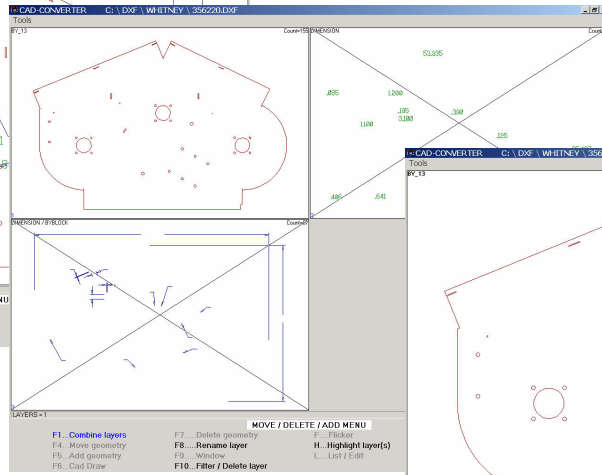
#2 Cad drawing errors found and fixed by the P.E.P. software (continued)

P.E.P. automatically converted the Cad files to a perfect cutter path as follows:

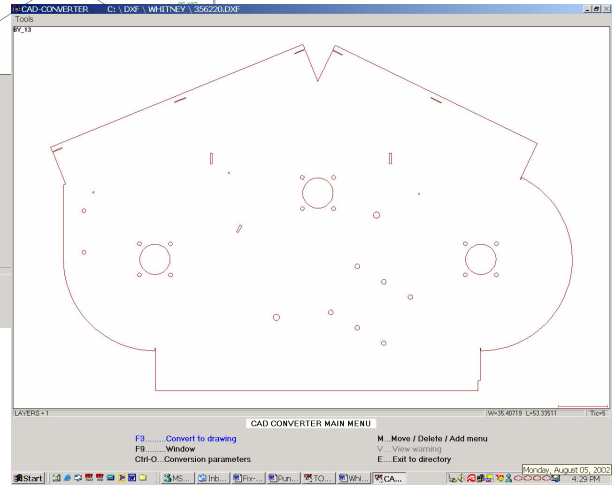
a) Each Cad file exported by engineering is loaded into memory (i.e. drawing 356220.dxf).



b) Invalid CAD data is filtered out.



c) The valid data is analyzed



Although all 10 DXF files were converted automatically, the software still found and fixed all of the errors shown in columns 1 – 20 (i.e. File name, Geos, Ellps, PlyLn, Splne, Lyrs, Polys, etc.).

Columns 1-14 saved to the DXF log (Errors Found & Fixed by the P.E.P. Cad Converter Automatically)

	Filename	Geos	Ellps	PlyLn	Splne	Lyrs	Polys	Size	Time	Date	Parts	Dups	Ovrp	Cmb-A
1	356220.DXF	252		34		3	34	35.4072x53.3351	00:01:09	08-04-02 18:50:02	R	1		
2	356733.DXF	90		6		3	6	8.8x8.9	00:00:18	08-04-02 18:50:34	R	1		
3	358259.DXF	246		34		3	34	33.4418x46.4571	00:00:20	08-04-02 18:50:55	R	1		
4	358333.DXF	90		6		3	6	8.3123x7.5	00:00:18	08-04-02 18:51:20	R	1		
5	358879.DXF	37		2		3	2	2.8125x3.625	00:00:18	08-04-02 18:51:43	R	1		
6	359760.DXF	230				11	22	16.1963x36.8126	00:00:47	08-04-02 18:52:21	R	1		
7	359778.DXF	227				9	16	16.1963x36.8126	00:00:36	08-04-02 18:53:07	R	1		
8	360479.DXF	82		3		3	3	6.5691x2.0437	00:00:18	08-04-02 18:53:36	R	1		
9	360677.DXF	74		5		3	5	4.0125x7.328	00:00:19	08-04-02 18:53:59	R	1		
10	363507.DXF	162		10		3	10	21.25x20.82	00:00:33	08-04-02 18:54:38	R	1		

Columns 15-20 (far right columns) are also saved to the DXF log

	Filename	Time	Date	Parts	Dups	Ovrp	Cmb-A	Cmb-L	Orphn	Blnds	Gaps	L-Gap	Shllw
1	356220.DXF	00:01:09	08-04-02 18:50:02	R	1			28					
2	356733.DXF	00:00:18	08-04-02 18:50:34	R	1			5					
3	358259.DXF	00:00:20	08-04-02 18:50:55	R	1			28					
4	358333.DXF	00:00:18	08-04-02 18:51:20	R	1			5					
5	358879.DXF	00:00:18	08-04-02 18:51:43	R	1			1					
6	359760.DXF	00:00:47	08-04-02 18:52:21	R	1						1		
7	359778.DXF	00:00:36	08-04-02 18:53:07	R	1						1		
8	360479.DXF	00:00:18	08-04-02 18:53:36	R	1			1					
9	360677.DXF	00:00:19	08-04-02 18:53:59	R	1			4					
10	363507.DXF	00:00:33	08-04-02 18:54:38	R	1			2					

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- #3 Programming time - P.E.P. performed all 24 programming steps below AUTOMATICALLY without ANY operator intervention. **The processing of all 24 steps (124 sheets) took less than 6 minutes.**
1. Verified the drawing material inside the drawing was the same material type select to be nested on.
 2. Verified that the drawing being nested was the most current revision of the drawing.
 3. Loaded the machine parameters for controlling cutting direction, zones, clamps, cut conditions, etc.
 4. Analyzed each part to determine whether it can be common or combine cut on one or more geometry.
 5. Nested the 3,166 parts on 124 sheets as shown on the following pages and in the report.
 6. Analyzed parts checking for parts that can be common cut.
 7. Created a common cut "cutter path" for all parts that can be common cut. Parts that can be common cut are nested at the kerf distance, otherwise the parts were nested at .125 spacing between parts.
 8. Sequenced the nested parts on all 124 sheets, a total of 3,166 parts.
 9. Assigned all the lead-ins to the inside cutouts and the outside cutter path of each part using CPT crash avoidance logic (a total of 2,079 MANDATORY head raises output).
 10. Radiused each line line intersection having a line length greater than .03" with a .015" radius
 11. Blended each line arc intersection having a geometry length greater than .03" with a .015" radius
 12. Checked for cutouts that fit the micro tab range and micro tabbed parts where required.
 13. Vertically sliced the 1st sheet at 30" between parts and at the right edge on the last sheet.
 14. Double checked the cutter path for possible head crashes at the time of exiting and saving the nest, specifically done for those customers running in the interactive mode.
 15. Verified that every required part was nested.
 16. Verified that every cutout and every part had a lead-in.
 17. Compared the finished cutter path of each part "in the nest" to the original master drawing
 18. Documented the nesting time and results in the nest log.
 19. Post processed the nest for the Whitney laser.
 20. Calculated the total cost of the Job.
 21. Print / plotted the finished nest
 22. Printed a finished report with the total job cost, including two feed rate comparisons (-20, -40 ipm.).
 23. Printed labels for each part.
 24. Updated the WIP database allocating work orders and part quantities.

THE NESTING LOG

The Nest Log below tracks the total processing time. The processing time is the total time required to perform the 24 steps discussed above.

NEST.LOG											
	File	Date	Time	Work Order	Approach	Mode	CPT	Integrity	Analysis	Autonest	Total time
1	0804-01	08-04-02	10:05:32 PM	WHIT-01	WIP (auto)	3	Yes		00:01:35	00:04:32	00:05:41

#3 Programming time (continued)

As mentioned in step 8 and 9, the software automatically sequenced the nested parts on all 124 sheets and then assigned lead-ins to the inside cutouts and the outside cutter path of each part using CPT crash avoidance logic. Of the 23,482 rapids, only 2,079 required a MANDATORY head raise be output.

As seen in fig 1 and 2, the CPT (crash protection technology) sequenced and assigned the lead-ins so that the laser would not have to raise the head, nor would it dive into a previously cut cutout.

Fig. #1

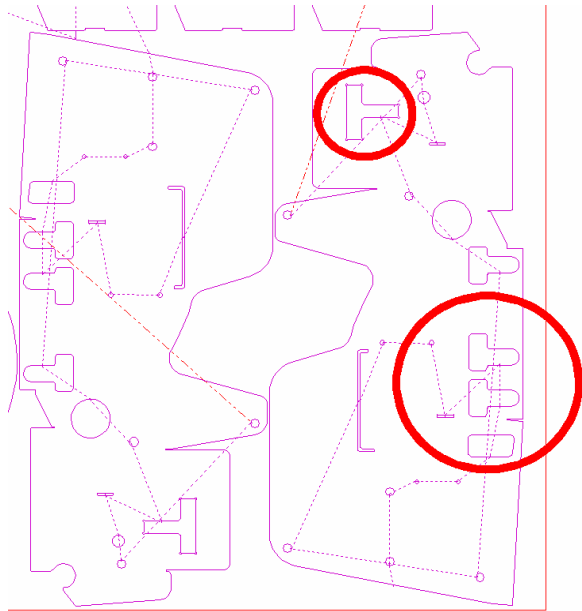
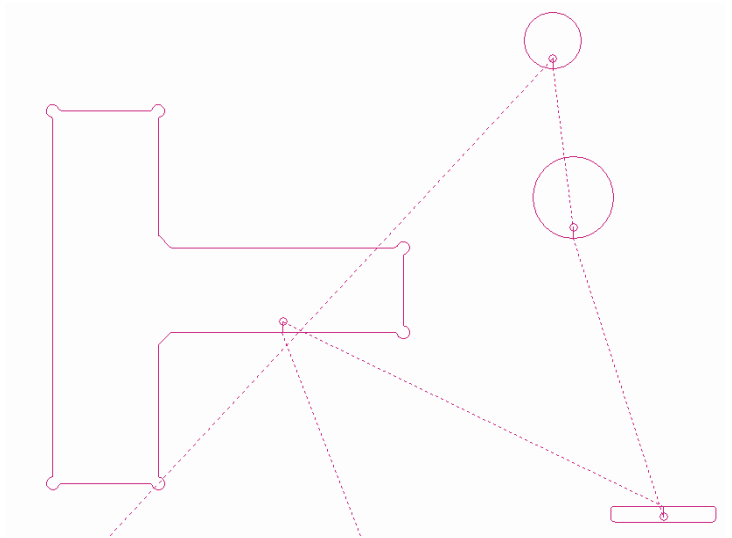
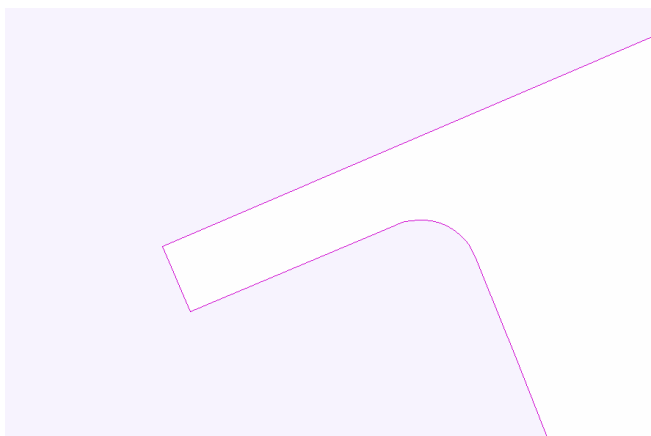


Fig. #2

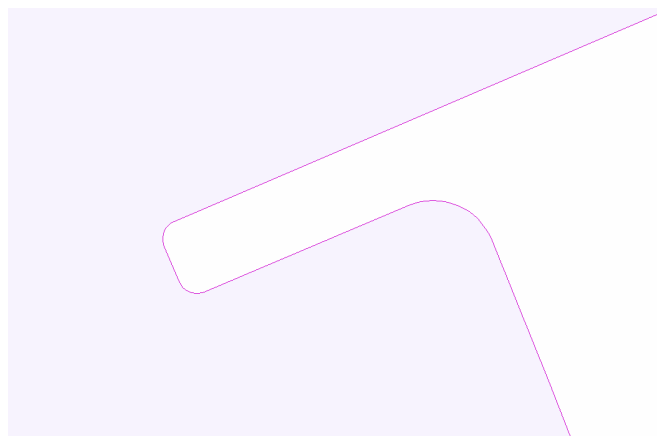


As mentioned in step 10 and 11, the software automatically radiuses intersections. In this case, the software found and radiused 4,149 intersections on the 3,166 parts. As shown in the relief cut below, the original drawing did not have a radius in either 90 degree intersect. Not radiusing the intersection of a relief will in most cases require the laser operator to slow the entire nest down, lose the cut or distort the accuracy of the intersection.

Before



After Corner Radius



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#3 Programming time (continued)

As mentioned in step 20, the software reports real time Job Costing numbers that are far more accurate than products that estimate the job.

REPORT

Report
Drawing labels
Labels for every part

Date: 08-04-2002 Time: 10:53 PM
PLATE REPORT
Page 1 of 2

Program.....: C:\LASERDATA\WHITNEY\0804-01	Customer.....:
Date programmed: 08-04-02	Drawing number:
Programmed by...: Bob	Revision number:
Comments.....: Whitney Laser	Material.....: 0007, MILD STEEL 12GA
Remarks.....:	Machine.....: 7

JOB COSTING

Description	Cost	Unit	Total (F220)	Total (F200)	Total (F180)
Cost of machine usage per hour	\$200.00 *	25.85 hr.	= \$5,170.66	\$5,568.76	\$6,055.32
Cost of material per pound	\$0.20 *	21,278.80 lbs	= \$4,255.76	\$4,255.76	\$4,255.76
Cost of handling per plate	\$3.00 *	124 plates	= \$372.00	\$372.00	\$372.00
Cost of handling per part	\$0.25 *	3,166 parts	= \$791.50	\$791.50	\$791.50
Cost of consumables per pierce	\$0.03 *	23,482 pierces	= \$704.46	\$704.46	\$704.46
Cost of gas per CF	\$0.03 *	42.71 cf	= \$1.28	\$1.28	\$1.28
Total cost of job			\$11,295.66	\$11,693.76	\$12,180.33
Value of remnant not used (48x13.8579)			\$3.97	\$3.97	\$3.97
Total including remnant			\$11,299.62	\$11,697.73	\$12,184.29

Notes: Job cost difference #1 \$398.10 Increase in job cost based upon slower feedrate F200 - F220
 Job cost difference #2 \$884.67 Increase in job cost based upon slower feedrate F180 - F220
 Head raise savings 1 \$5,350.75 Machine cost * HR time * (Total rapids - CPT HR) \$200 * .0013 * (23482 - 2079)
 Head raise savings 2 \$302.75 Machine cost * HR time * (Total parts - CPT HR) \$200 * .0013 * (3290 - 2079)
 Radiused corners 4,149 CPT radiused corners
 Intersections 1,644 Intersections (line-line, line-arc, and arc-line)

NESTED PLATES

Plate number	Thickness	Plate Size	Material	Material Description	Dup plates	Plate Util	Material Util	Total Area1	Total Area2
0804-01	.105	48x120	0007	MILD STEEL 12GA	30	78.05%	80.52%	4,495.67	4,638.00
0804-01.001	.105	48x120	0007	MILD STEEL 12GA	1	77.97%	80.51%	4,491.16	4,637.09
0804-01.002	.105	48x120	0007	MILD STEEL 12GA	1	78.00%	80.71%	4,492.77	4,648.86
0804-01.003	.105	48x120	0007	MILD STEEL 12GA	7	78.46%	81.08%	4,519.43	4,670.26
0804-01.004	.105	48x120	0007	MILD STEEL 12GA	1	77.22%	80.29%	4,447.86	4,624.57
0804-01.005	.105	48x120	0007	MILD STEEL 12GA	20	74.21%	78.26%	4,274.77	4,507.66
0804-01.006	.105	48x120	0007	MILD STEEL 12GA	1	72.37%	75.85%	4,168.29	4,368.76
0804-01.007	.105	48x120	0007	MILD STEEL 12GA	4	70.93%	73.97%	4,085.47	4,260.72
0804-01.008	.105	48x120	0007	MILD STEEL 12GA	1	71.48%	74.66%	4,117.27	4,300.62
0804-01.009	.105	48x120	0007	MILD STEEL 12GA	16	71.05%	74.62%	4,092.23	4,298.27
0804-01.010	.105	48x120	0007	MILD STEEL 12GA	1	70.46%	73.64%	4,058.25	4,241.59
0804-01.011	.105	48x120	0007	MILD STEEL 12GA	17	63.99%	66.05%	3,685.84	3,804.39
0804-01.012	.105	48x120	0007	MILD STEEL 12GA	17	69.96%	79.01%	4,029.73	4,550.72
0804-01.013	.105	48x120	0007	MILD STEEL 12GA	5	67.35%	73.56%	3,879.09	4,237.00
0804-01.014	.105	48x120	0007	MILD STEEL 12GA	1	68.33%	73.40%	3,935.64	4,227.89
0804-01.015	.105	48x120	0007	MILD STEEL 12GA	1	48.89%	53.91%	2,816.22	3,105.07

Total number of plates = 124	Total cutting distance = 195,641.70	Cutting feedrate = 220
Total number of programs = 16	Total rapid distance = 184,002.81	Rapid feedrate = 0.5 seconds
Total cutting time = 25 hrs, 51 mins, 13 secs	Total number of pierces = 23,482	Pierce time = 0.01 seconds
Total gas used = 42.71 CF of O2	Total CPT head raises = 2,079 / Rapids = 23,482	

QUANTITIES NESTED

Customer Name	Drawing Name	Qty Req	Qty Nstd	Qty Rem	Cut Dist	Cut Time	# of Pierces	Inter-sections	True Area	Rect Area	Net Weight	Gross Weight	
Whitney	356220	200	200	N/A	239.76	00:01:50	34	4	1,405.63	1,432.43	41.92	56.47	
Whitney	356733	249	249	N/A	48.91	00:00:20	6		61.31	69.41	1.83	2.36	
Whitney	358259	40	40	N/A	223.50	00:01:44	34	4	1,129.16	1,156.07	33.67	46.47	
Whitney	358333	249	249	N/A	45.25	00:00:19	6		46.55	54.65	1.39	1.88	
Whitney	358879	996	996	N/A	15.47	00:00:08	2		5.92	7.72	0.18	0.30	
Whitney	359760	99	99	N/A	223.52	00:01:31	22	4	437.29	469.77	13.04	17.78	
Whitney	359778	96	96	N/A	218.76	00:01:23	16	3	431.01	470.78	12.85	17.78	
Whitney	360479	664	664	N/A	24.14	00:00:10	3		8.41	8.90	0.25	0.40	
Whitney	360677	400	400	N/A	26.18	00:00:23	5		13.40	14.18	0.40	0.88	
Whitney	363507	173	173	N/A	157.63	00:00:55	10		359.87	407.99	10.73	13.19	
Totals..	SKELETON	N/A	N/A	N/A	36.64	00:00:14	7		0.00	0.00	0.00	85.70	
								1644					

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The P.E.P. Timing information used to calculate the Job Cost.

REPORT

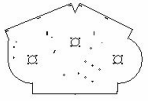
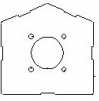

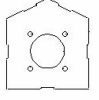
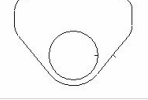
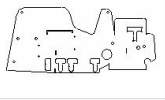
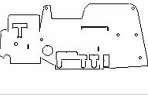
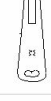

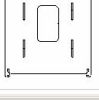
Report | Drawing labels | Labels for every part

TIMING INFORMATION				
	Unit	Total Units	Cost	Savings
CPT Logic applied.....	: Yes	n/a	n/a	
Cutting pierce, dwell & lead-in time.....	: 0.01 seconds	403	\$0.22	
Scrubbing pierce time.....	: 0 seconds			
Intersect delay time.....	: 0.05 seconds	1,644	\$4.57	
Head up/down time between cutouts.....	: 4.5 seconds	403	\$100.75	\$5,769.75
Head up/down time between parts.....	: 4.5 seconds	1,676	\$419.00	\$403.50
Rapid traverse feed rate (s is for seconds).....	: 0.5 seconds	184,002.81	\$20,444.76	
Percentage of feedrate for all arc cuts.....	: 50%	44,532.68	\$1,237.02	
Percentage of feedrate for holes (0" to 1/4" dia).....	: 50%	282.74	\$7.85	
Percentage of feedrate for holes (1/4" to 1/2" dia).....	: 70%	11,318.86	\$440.18	
Percentage of feedrate for cutouts (0" to 5").....	: 50%	17,438.94	\$484.42	
Assist gas pressure.....	: 70.00 psi			
Type of assist gas.....	: O2			
Nozzle size.....	: .06			
Cost of machine usage per hour.....	: \$200.00	25.85 hr	\$5,170.66	\$6,173.25
Cost of material per pound.....	: \$0.20	21,278.80	\$4,255.76	
Cost of handling per plate.....	: \$3.00	16	\$48.00	
Cost of handling per part.....	: \$0.25	3,166	\$791.50	
Cost of consumables per pierce.....	: \$0.03	23,482	\$704.46	
Cost of gas per CF.....	: \$0.03	42.71 CF of O2	\$1.28	
Total cutting distance.....	: F220.00	195,641.70	\$49.40	
Total rapid distance.....	: 0.5 seconds	184,002.81	\$20,444.76	
Edge starts.....	: N/A			
Bubble starts.....	: N/A			
Radiused corners.....	: N/A	4,149		

The labels output from the P.E.P. software

REPORT

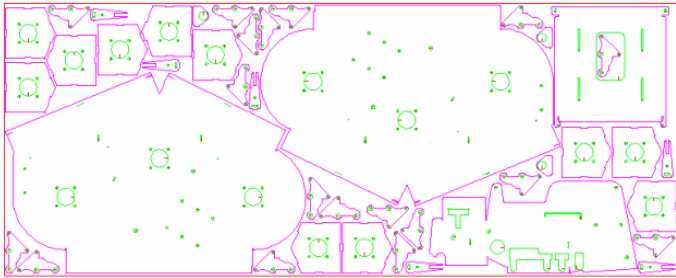
Report | Drawing labels | Labels for every part

Program...: 0804-01 Company...: Whitney Drawing...: 356220 Material...: 0007, MILD STEEL 120A Thickness...: Size...: 35.51x53.34 Comment...: Layer By* Description...: 	Program...: 0804-01 Company...: Whitney Drawing...: 356223 Material...: 0007, MILD STEEL 120A Thickness...: Size...: 8.89 Comment...: Layer By* Description...: 
Program...: 0804-01 Company...: Whitney Drawing...: 358259 Material...: 0007, MILD STEEL 120A Thickness...: Size...: 33.5x46.46 Comment...: Layer By* Description...: 	Program...: 0804-01 Company...: Whitney Drawing...: 358263 Material...: 0007, MILD STEEL 120A Thickness...: Size...: 8.31x7.6 Comment...: Layer By* Description...: 
Program...: 0804-01 Company...: Whitney Drawing...: 358879 Material...: 0007, MILD STEEL 120A Thickness...: Size...: 2.81x3.63 Comment...: Layer By* Description...: 	Program...: 0804-01 Company...: Whitney Drawing...: 359760 Material...: 0007, MILD STEEL 120A Thickness...: Size...: 16.2x6.81 Comment...: Layer By* Description...: 
Program...: 0804-01 Company...: Whitney Drawing...: 359778 Material...: 0007, MILD STEEL 120A Thickness...: Size...: 16.2x6.82 Comment...: Layer By* Description...: 	Program...: 0804-01 Company...: Whitney Drawing...: 360479 Material...: 0007, MILD STEEL 120A Thickness...: Size...: 5.7x2.04 Comment...: Layer By* Description...: 
Program...: 0804-01 Company...: Whitney Drawing...: 360677 Material...: 0007, MILD STEEL 120A Thickness...: Size...: 4.01x1.23 Comment...: Layer By* Description...: 	Program...: 0804-01 Company...: Whitney Drawing...: 362307 Material...: 0007, MILD STEEL 120A Thickness...: Size...: 21.25x20.82 Comment...: Layer By* Description...: 

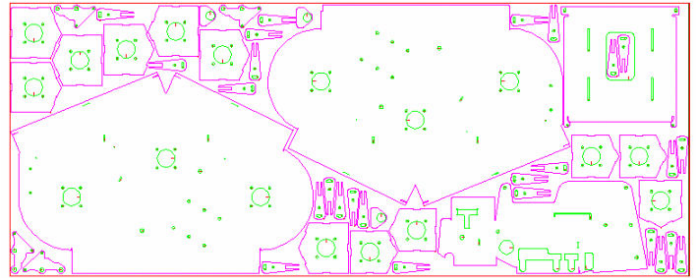
Whitney's OEM Automatic Nesting Results – 133 sheets

Below are the 133 nested sheets created with the Sigmanest software

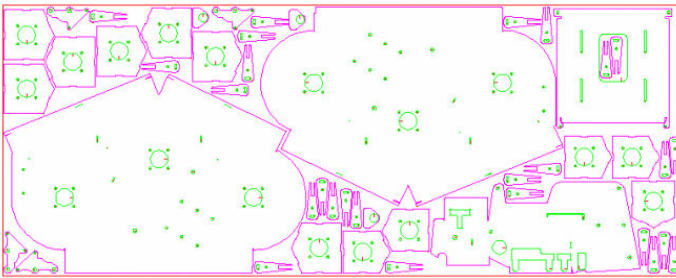
Duplicated 22 times



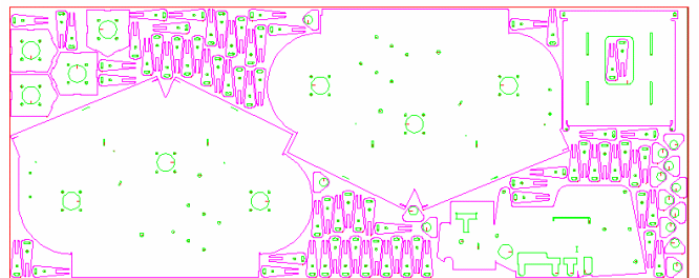
Duplicated 1 Times



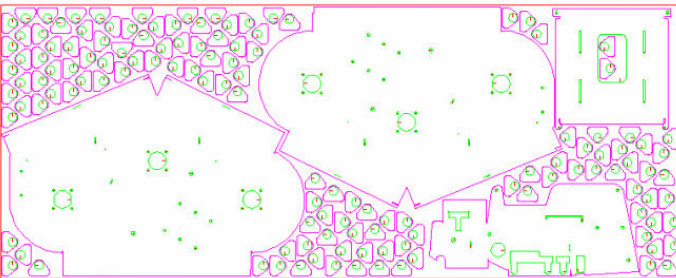
Duplicated 16 Times



Duplicated 1 Time

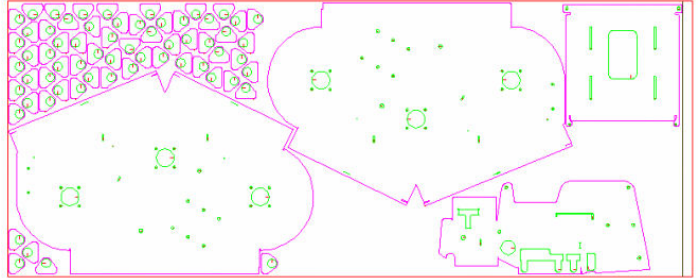


Duplicated 6 Times

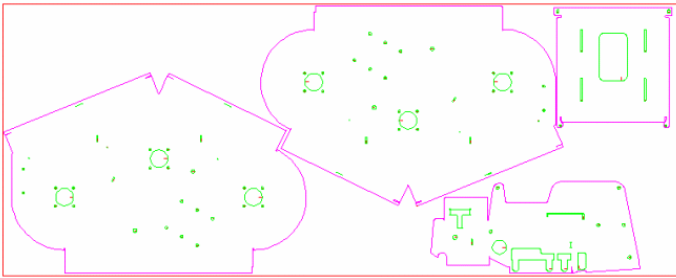


mmmm

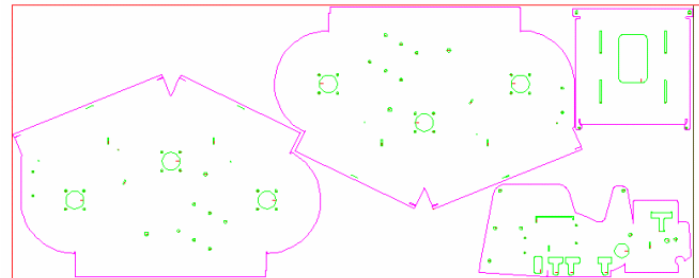
Duplicated 1 Time



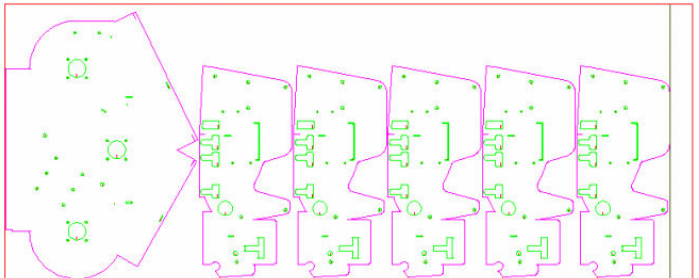
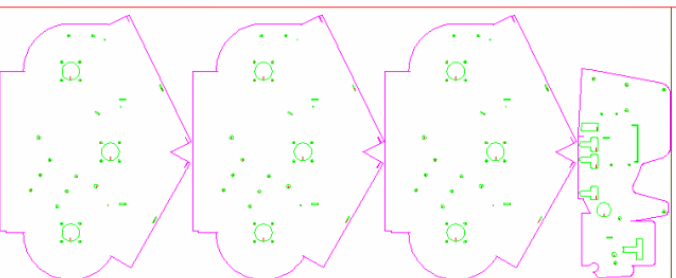
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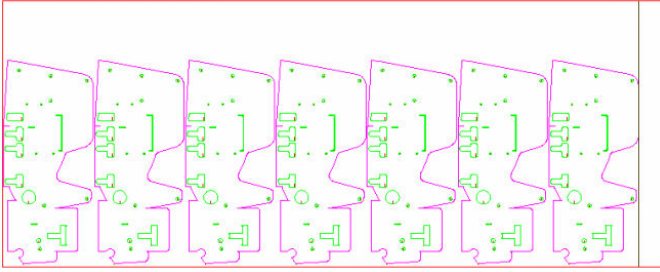
Duplicated 4 Times



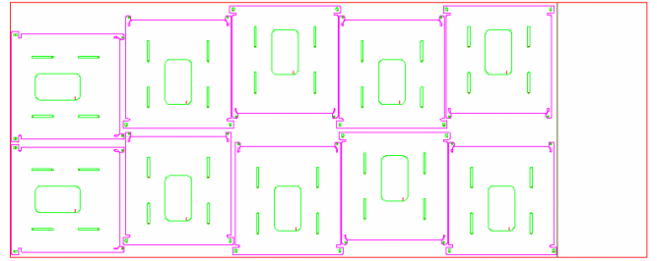
Duplicated 13 Times



Duplicated 11 Times



Duplicated 7 Times



Duplicated 1 Time – Plate #133

