

Using ERP Systems in Rotomolding

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- Dave Smith, Rotational Molding Technologies
- Steve Osborn, Trilogy Plastics

History of ERP

- MRP 60's and 70's
- MRP II 80's and early 90's
- ERP 90's until now

Trilogy ERP System

- Hybrid by combining two systems
- ERP to generate data
- Proprietary system for scheduling and capacity planning

ERP

- Enter orders and due dates
- System calculates latest start date
- System calculates material requirements
- System does not do scheduling or capacity planning

calculation

- Ship date
- Finish date
- Secondary time (fixed)
- CNC time (fixed)
- Machine time (calculated)
- Gives latest start date

Scheduler

- Data exported to scheduler
- Scheduler loads machines base on latest start date, machine capacity, mold compatibility and down stream capacity
- System calculates CNC and secondary capacity requirements for planning

Trilogy Plastics RotoLoader

Mold Overview | Machine Load | Expected Rounds | Load Overview | Mold Add - Manual | Mold Planning | Update Molds | OLD - File Import | DB - SQL

MACH 1	0	0	0	
	0	0	0	
MACH 2	0	0	0	
	0	0	0	
MACH 3	0	0	0	0
	0	0	0	0
MACH 4	0	0	0	0
	0	0	0	0
MACH 5	0	0	0	
	0	0	0	
MACH 6	0	0	0	0
	0	0	0	0
MACH 7	0	0	0	0
	0	0	0	0
MACH 8	1.0000	1.0000	0.9350	1.0400
	11.4000	12.0000	11.8800	11.8200
MACH 9	0.9500	0.8100	0.8700	0.9800
	10.3000	11.3300	12.5800	10.0000

Create Roto Snapshot

Restore Snapshot Data



Molding production

Roto 8 Calc		Total Rounds	25	25	0	0	0	25	25	25
Mold Name	Spider	Current Due	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday
MP5818T	2	1	-49	-99	-99	-99	-99	-149	-199	-249
MP5823T	1	19	-6	-31	-31	-31	-31	-56	-81	-106
MP5826T	1	198	173	148	148	148	148	123	98	73
ARM 2										
MP4829T	1	132	107	82	82	82	82	57	32	7
MP5802T	4	49	-51	-151	-151	-151	-151	-251	-351	-451
MP5810T	2	70	20	-30	-30	-30	-30	-80	-130	-180
ARM 3										
MP5929T	10	4859	4609	4359	4359	4359	4359	4109	3859	3609
MP4833T	1	1	-24	-49	-49	-49	-49	-74	-99	-124
MP5822T	1	2	-23	-48	-48	-48	-48	-73	-98	-123
MP5929T	5	4859	4734	4609	4609	4609	4609	4484	4359	4234

CNC capacity

CNC 4 Capacity Calculation								
Machine/Part	Current Due	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday
HT174M	387	0.72	0.72	0.72	0.00	0.00	0.72	0.72
HT364M	673	0.72	0.72	0.72	0.00	0.00	0.72	0.72
HT368M	378	0.60	0.60	0.60	0.00	0.00	0.60	0.60
HT70M	306	0.70	0.70	0.70	0.00	0.00	0.70	0.70
HT70M	306	0.70	0.70	0.70	0.00	0.00	0.70	0.70
HT367M	766	1.69	1.69	1.69	1.69	0.00	1.69	1.69
Total hours at Standard		5.13	5.13	5.13	1.69	0.00	5.13	5.13
Estimated Hours	Efficiency							
CNC	0.8	6.41	6.41	6.41	2.11	0.00	6.41	6.41

CNC Capacity

Capacity Planning							
	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday
Roto 1 CNC Capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Roto 2 CNC Capacity	12.68	12.68	12.68	0.00	0.00	12.68	12.68
Roto 3 CNC Capacity	15.00	15.00	15.00	0.00	0.00	15.00	15.00
Roto 4 CNC Capacity	15.28	15.28	15.28	15.28	0.00	15.28	15.28
Roto 5 CNC Capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Roto 6 CNC Capacity	11.46	11.46	11.46	11.46	0.00	11.46	11.46
Roto 7 CNC Capacity	14.52	14.52	14.52	0.00	0.00	14.52	14.52
Roto 8 CNC Capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Roto 9 CNC Capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CNC Totals	68.95	68.95	68.95	26.75	0.00	68.95	68.95

Secondary capacity

Capacity Planning							
secondary/assembly	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday
Roto 1	16.63	16.63	16.63	0.00	0.00	16.63	16.63
Roto 2	12.24	12.24	12.24	0.00	0.00	12.24	12.24
Roto 3	22.35	22.35	22.35	0.00	0.00	22.35	22.35
Roto 4	43.70	43.70	43.70	43.70	0.00	43.70	43.70
Roto 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Roto 6	25.54	25.54	25.54	25.54	0.00	25.54	25.54
Roto 7	29.87	29.87	29.87	0.00	0.00	29.87	29.87
Roto 8	57.90	57.90	0.00	0.00	0.00	57.90	57.90
Roto 9	20.67	20.67	0.00	0.00	0.00	20.67	20.67
Secondary Totals	228.90	228.90	150.33	69.25	0.00	228.90	228.90

ERP Workshop
2013 Fall ARM Meeting
Cleveland

Points of Interest.....

- Have ERP but CRM does not fully utilize the entire system.
 - Manually sync MRP, Plan, Personnel and Ship Dates for on time deliveries
 - ERP Software is called Syspro
 - Utilize 50% of it (MRP)
 - www.syspro.com
- Run MRP Weekly over rolling 1 month period
- Based on Customer Orders
- Weekly SOP Meeting to Finalize the Sync
- Metrics provide the Feedback on Performance

MRP Sample – Fuel Sending Unit

Prepared : 09/25/2013 15:41

Custom Roto-Mold, Inc.

Page : 1

Version : 6.0.014

MRP Material Requirements


Calculation date : 09/20/13

Stock code	P/Cls	Wh	Buyer	Mps	Part category	Batching rule	Supplier	Planner	GRR
CRM47	INV1	CR	CRM	No	Bought out	Lot for lot	CRM1384	PPP	H
FUEL SENDER									

< Weekly range >	Available stock	Purchase orders	Sug. qty to order	Outstanding demand	Result
Past due	6.000	0.000	1.000	7.000	0.000
09/22/13 09/28/13	0.000	0.000	8.000	8.000	0.000
10/13/13 10/19/13	0.000	0.000	6.000	6.000	0.000
10/20/13 10/26/13	0.000	0.000	2.000	2.000	0.000
11/10/13 11/16/13	0.000	0.000	3.000	3.000	0.000
12/22/13 12/28/13	0.000	0.000	1.000	1.000	0.000
12/29/13 01/04/14	0.000	0.000	2.000	2.000	0.000
01/05/14 01/11/14	0.000	0.000	4.000	4.000	0.000

Sample Production Plan

- based on orders
- excel spreadsheet
- 3 step process to finalize weekly plan – 8 Ovens
- Sync MRP, Promised Ship Dates and the Plan manually

<div></div>												Weekly Planner												Published every Wednesday												Wk Of:												9/23/2013																							
MONDAY												TUESDAY												WEDNESDAY												THURSDAY												FRIDAY																							
Oven: 280 1																																																																							
OHSP												SPSP												OHSP												OHSP												OHSP																							
30												1												2												3												4																							
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666666												666666												666666												666666												666666																							
Daily Revenue												\$ -												Daily Revenue												\$ -												Daily Revenue												\$ -											
Total Hours Capture												18												Total Hours Capture												18												Total Hours Capture												18											
Hours/% Captured												2090%												Hours/% Captured												2090%												Hours/% Captured												2090%											
																																				Weekly Revenue Generated												\$ -																							

Production Work Orders

- Plan confirmed – jobs created
- Bar Coding
- Times for Molding and Assembly
- List of required components



WORK ORDER



DATE PRINTED: 09/23/13 PRIORITY: 50

RECEIVED

TANK; FUEL **RECEIVED**

JOB NUMBER: 00057511

PAGE: 1

START DATE: 10/21/13

DUE DATE: 10/23/13

SALES ORDER #: **092307**

CUSTOMER NAME

AMERICAN

QTY TO MAKE UOM ITEM - DESCRIPTION
 12.000 EA CRM87 **RECEIVED**
 TANK; FUEL **RECEIVED**

OPERATIONS

OP NUMBER	WORK CENTER	DESCRIPTION	UNIT SETUP TIME	UNIT RUN TIME	TOTAL TIME
1	PLASSB	CRM CUSTOM ASSEMBLY	0.0000	0.3670	4.40
2	DUNKTK	CRM DUNK TANK	0.0000	0.0100	0.12
3	CRMREC	CRM RECEIVING	0.0000	0.0100	0.12

PICK LIST

PART NUMBER	DESCRIPTION	BIN	QTY PER	QTY NEEDED	UOM	WHSE
CRM17S	CAPLUG; 1.513"-.1.600"	182010	1.000	12.000	EA	CR
	CAPLUG 1 1/4"					
CRM87 RECEIVED	TANK ONLY RECEIVED		1.000	12.000	EA	CR
CRMC2040660	BAG; 59 X 43 X 135 5 MIL	181007	1.000	12.000	EA	CR
	BAG; 59 X 43 X 135 5 MIL					
CRMFAS-1138544	BOLT; M5 X16 STEEL ZP	181002	6.000	72.000	EA	CR
CRMFAS-40272	WASHER; M5 CONICAL WASH P		6.000	72.000	EA	CR
CRMT-13X	CAPLUG; 995"-1.145"	182009	1.000	12.000	EA	CR
	CAPLUG					
CRMT-230	CAPLUG; 2.136"-2.312"	182010	1.000	12.000	EA	CR
	CAPLUG					
CRMT-5	CAPLUG; .471"-.547"	182009	1.000	12.000	EA	CR
	CAPLUG					
CRMT-5	CAPLUG; .355"-.400"	182009	1.000	12.000	EA	CR

12

Labor Requirements (& Oven req's)

- Based on Open Orders
- Labor requirements = Headcount Required

CRM			October	
total hours @ 90% efficiency	2840		2840	2840
Custom Assy (Days Remaining)	26		26	26
Hours per Day	9		10	8
Total Hours per Month	234		260	208
People Needed @ 90% Efficiency	12		11	14
total hours @ 75% efficiency	3408		3408	3408
Custom Assy (Days Remaining)	26		26	26
Hours per Day	9		10	8
Total Hours per Month	234		260	208
People Needed @ 75% Efficiency	15		13	16



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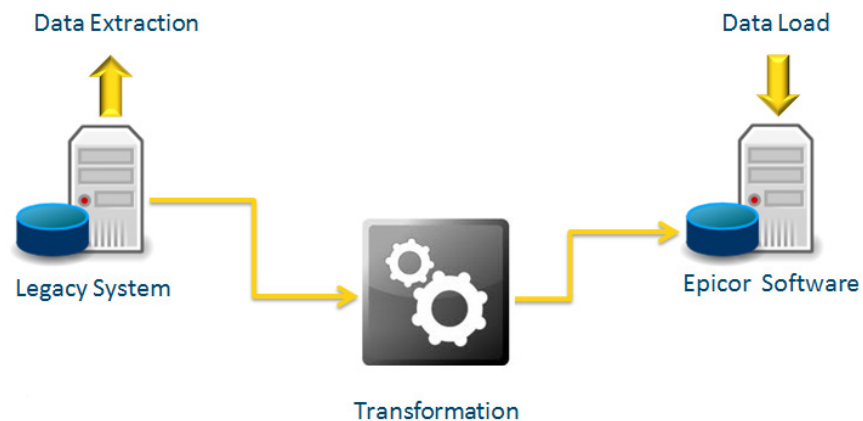


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EPICOR®

Version: 905.701

Microsoft Windows Based



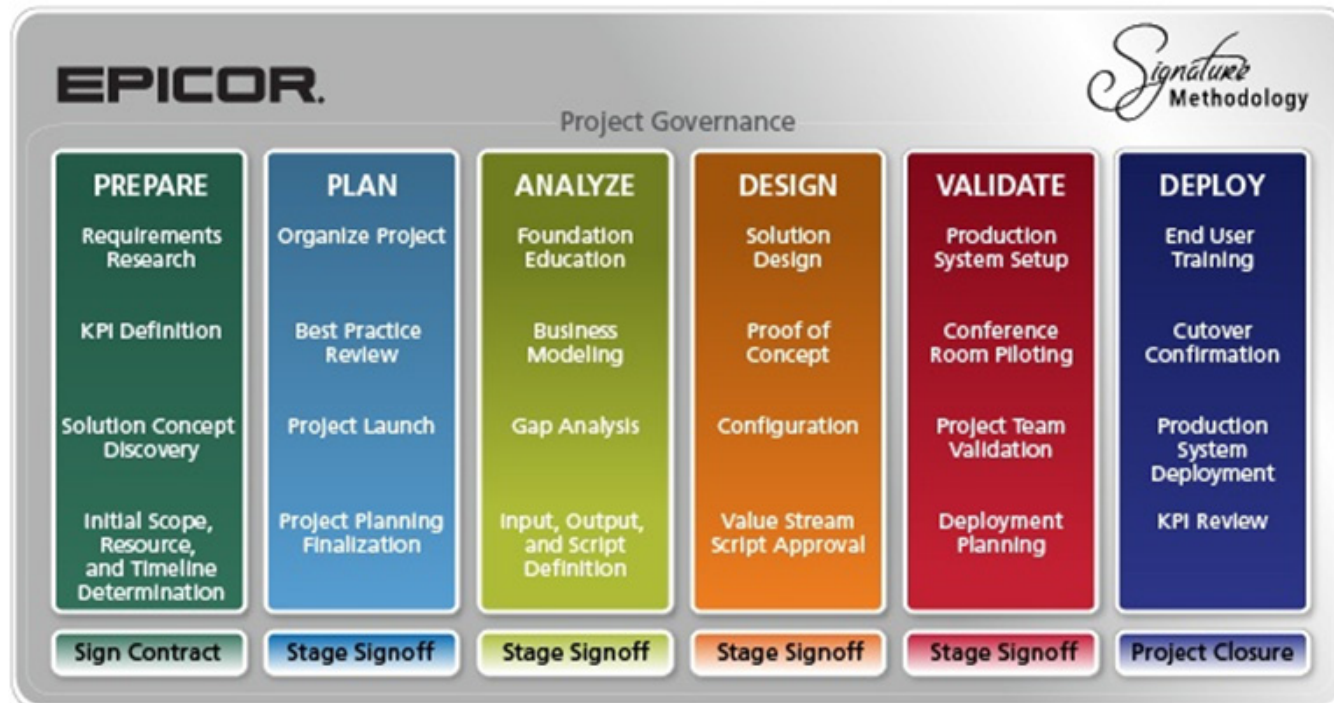


- Went from virtually a non-existent system to a full blown ERP system.
 - Progression SQL → Epicor
 - Used Progression SQL for Financials, BOM records, and “blind” purchasing
- Decided to pursue an ERP system in the spring of 2011 to streamline our business processes.
 - Signed with Epicor in August of 2011
 - Projected “Go-Live” date of September 1, 2012

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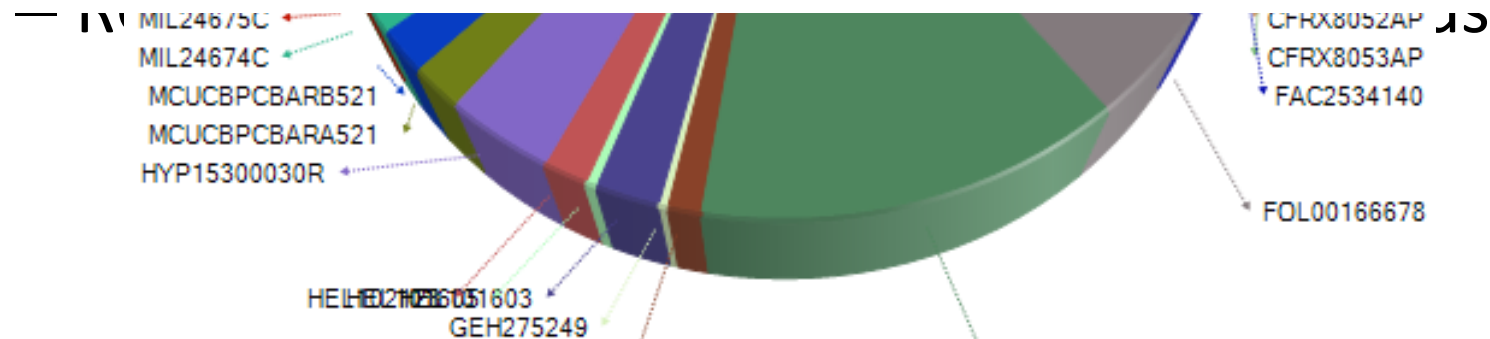
- Started on-site training in November of 2011.
 - Our 1st Conference Room Pilot pushed our “Go-Live” date back to October 1, 2012

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		NGIC912607	10625	
FAS1048115800	1/4-20 x 3/4L GR304	213.00	\$ 0.00	VMI
FAS1048116857	Cafe Table Instruction Kit	1.00	\$ 1.46	VMI
FAS1048117022	SAE Fuel Line	123.00	\$ 95.83	COMP
FAS1129049	PPHMS 10-32 x 1/2	150.00	\$ 2.58	VMI
FAS1133182	USS GALV FLAT 3/8	9.00	\$ 0.63	VMI
FAS1133782	3/8 L/W GALV	9.00	\$ 0.49	VMI
FAS41027	3/16 Dia .251-.375 Grip Rivet	5.00	\$ 0.20	VMI
FAS43383	ALUM SLEEVE 1/8 HG	18.00	\$ 1.62	VMI
FAS70001HEX	S/S HCS 1/4-20 x 1/2	1,344.00	\$ 127.54	VMI
FAS70858	10-32 Nylock Nut S/S	80.00	\$ 5.28	VMI



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Order Entry

- Standard Order Entry with the ability to find out if you have inventory or what has

Sys Time	Date ▾	Type	Quantity	UOM	Running Total	Bin	Job	User ID
▶ 34201	09/18/2013	STK-CUS	100.00	EA	40.00	SDOCK		BRETT
34100	09/18/2013	STK-STK	100.00	EA	140.00	SDOCK		BRETT
45669	09/04/2013	STK-CUS	100.00	EA	0.00	SDOCK		BRETT
45493	09/04/2013	STK-STK	100.00	EA	100.00	SDOCK		BRETT
Bins								
Plant		WareHse		Bin	Bin Type		Lot Number	On Hand
▶ Main Plant		New York Warehouse		NYFG	Standard			40.00

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Planning Workbench Suggestions

Suggestion Detail

Job Number:

Expedite Job, Earliest Due Date is: 10/11/13

Select...

Job Manager...

Order Job Wizard...

Create Job...

Suggestions

Type	Part	Revision	Due Date	Suggested Qty	UOM	Target Job	Warehouse
▶ Date	FER49948	1	10/11/2013	0.00	EA	015119	NY
Date	FER48752	1	10/18/2013	0.00	EA	015517	NY
Date	FER5103956		11/15/2013	0.00	EA	015872	
Increa	FER49948		11/15/2013	500.00	EA	015719	
Increa	FER5103176		10/25/2013	540.00	EA	015364	
Reduc	FER5103176		11/15/2013	140.00	EA	015706	
Reduc	FER5103953		10/25/2013	336.00	EA	015321	

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Purchasing in Epicor

Part...	LAKLA328LAG	LAGOON
Plant:	Main Plant	

Inventory				Manufacturing			
Min. On Hand:	0.00	LB	Min. Order Qty:	300.00	Min. Lot Size:	2,500.00	LB
Max. On Hand:	0.00	LB	Lead Time:	7	Max. Lot Size:	5,000.00	LB
Safety Stock:	0.00	LB	Days of Supply:	14	Lot Multiple:	2,500.00	LB
Re-Order to Max: <input type="checkbox"/>							

Suggestions: ☒ Transfer Order Suggestions: ☒

Due	Receipts	RequiredQty	Balance	Source	Exception	Order By	Lead	JobStatus	Job
▶	694.90	0.00	694.90	On-hand Quanti			0		
10/21/2013	0.00	602.70	92.20	Job: UNF00000			0	Engineered	UNF000000002
11/06/2013	5,000.00	0.00	5,092.20	Suggestion For			0		
11/12/2013	0.00	3,394.80	1,697.40	Job: UNF00000			0	Engineered	UNF000000001

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Scheduling

- Scheduling board has issues with how many jobs are running on each resource, so we individually schedule each job via open orders.

Job Manager

Detail

Part: FER5103176 EA

1500 LH Fuel Tank - EPA

On Hand (Entire Company): 40

Demand (Entire Company): 2,520.00

Available (Entire Company): 40

Inventory

Plant	Warehouse	Description	Qty On Hand	Available	Total Demand Qty
MfgSys	MAIN	MAIN WAREH	0.00	0.00	1,460.00
MfgSys	NY	New York Ware	40.00	40.00	1,060.00
MfgSys	SHIP	SHIPPING DO	0.00	0.00	0.00

Demand

Link Create Job Pull from Stock Delete Suggestion

Only Firm Releases ☐ Suggestions: All

Due	Quantity	Σ	UOM	Job	So
11/22/2013	140.00	EA			SO 925
11/29/2013	140.00	EA			SO 925
12/06/2013	380.00	EA			SO 925

Grand Summaries

Sum = 2520

Supply

Delete Job Split Job Entry

Get Details Schedule Delete Suggestion

Job	Req. By	Wip Qty	Σ	Released	Prod. Qty	Σ	RelievedQty	Σ	Complete
015364	10/25/2013	540.00		<input type="checkbox"/>	540.00		0.00		<input type="checkbox"/>
015706	11/15/2013	140.00		<input type="checkbox"/>	140.00		0.00		<input type="checkbox"/>
UNF000000002	12/06/2013	380.00		<input type="checkbox"/>	380.00		0.00		<input type="checkbox"/>

Grand Summaries

Sum = 2480

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Report Quantity

File Edit Tools Actions Help

Report Quantity

Detail | Co-Parts Labor Equipments

Employee ID... Employee Name: Billy Claerbout

Job... 015127 Operation... 20

Assembly... 0 Resource ID... NY-SEC New York Oven Secondary

Quantity Reporting

Prior: 0.00

Current: 20.00

Total: 20.00

Next Assembly: 0

Next Opr Seq: 0

Serial Numbers...

Request Move: ☒

Print Tags

OK Cancel Inspection Data

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Shipping

Plant: MfgSys

Material Queue Report

Date: 9/20/2013

Time: 11:10 am

(Sort by: none)

****REPRINT****

Quantity	Part Number	Rev	Date	Job\Asm\Mtl/Opr(Type)
TranType	Description	Customer Name		
40.00 EA	FER5103176	1	9/20/2013	
STK-SHP	1500 LH Fuel Tank - EPA			
From Whse\Bin: NY / NYFG (New York Warehouse / New York FG's)				



SO: 92564/55/1

To Whse\Bin: SHIP / SDOCK (SHIPPING DOCK / SHIPPING DOCK)

▶	▼	100.00	09/20/2013	0.34	92304	55000/2253	00	1	FER5103176	140.00	40.00	EA
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Questions?