



Ford
Dearborn Tool & Die

What Is Important?

- * People
- * Process
- * Technology

Dearborn Tool & Die

Focus Today: Process & Technology

* Current Timing Objectives

- Linear Machining – 1 week
- Build Up – 2 weeks
- CNC (3d machining) – 2 weeks
- Final Construction – 3 weeks

TOTAL – 8 weeks

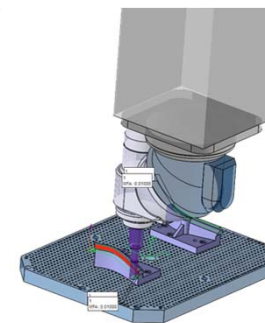
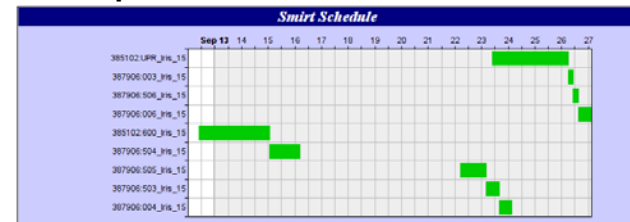
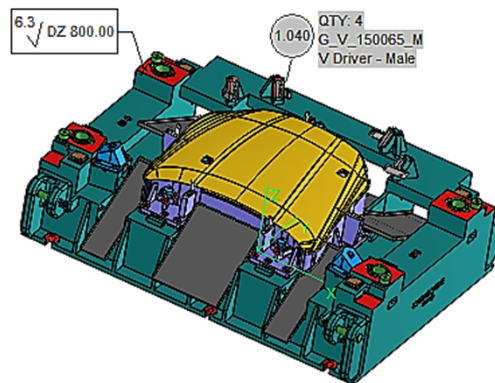
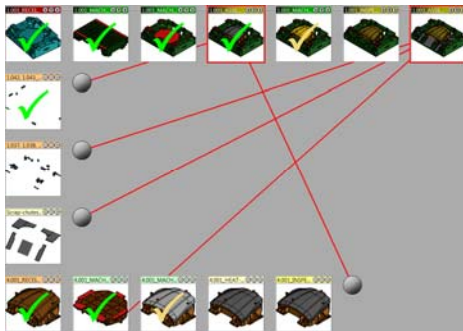
How Has Dearborn Tool & Die Achieved These Objectives ?

- * Utilize A Machine Intensive Approach.
- * Eliminate Hand Work As Much As Possible.
- * Eliminate Manual Input At A Machine.
- * Utilize Smirt Software To Leverage Technology and A Standard Best Practice Process.

What Is Smirt ?

❖ 3D Paperless Environment For Sheet metal Stamping Die Construction.

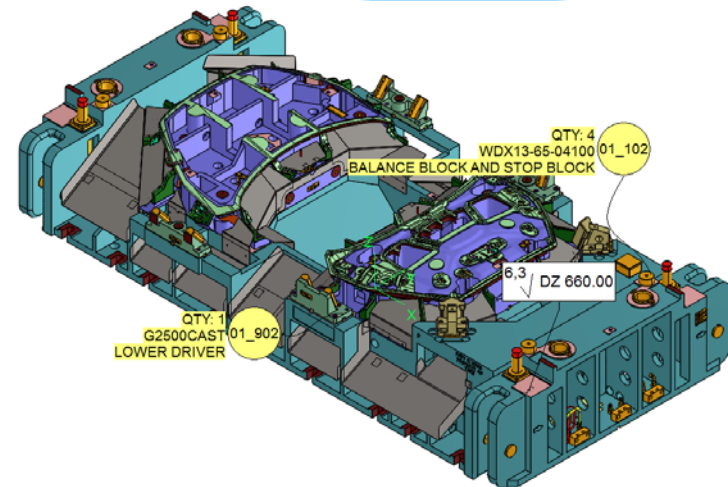
- Die Design Visualization And Communication Tool.
- Shop-Floor Machining For Castings and Steels.
 - Linear
 - CNC – 3d machining
- Manufacturing Planning For Graphical Step By Step Instructions.
- Scheduling – Micro Schedule The Plant For Optimal Work Flow.



Step 1

- * Read Solid Die Design

- Geometry
- Assembly
- Stock List
- Machining Features
- High Quality Surface Data

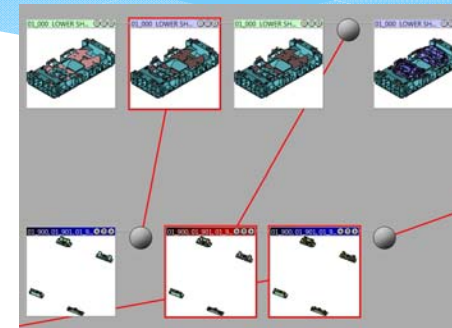


- * Smirt File Is 10 Times Smaller Than Original Design.

Step 2

Manufacturing Planning

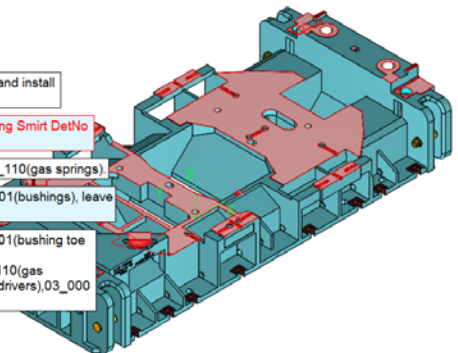
- * Each Detail Gets A Process.
- * Operations Are Created For Each Process.
- * Detailed Tasks Are Assigned To Operations.
- * Actual Geometry Is Associated With Each Task.
- * Hours Are Automatically Calculated For Each Task.
- * Suppliers Quote To Exact Processes; Simplifies and Takes Away Confusion.
- * Processes And Complete Plans Are Re-Used As A Template With Improvements Added.



Operation 01_000 LOWER SHOE_Linear Top_15

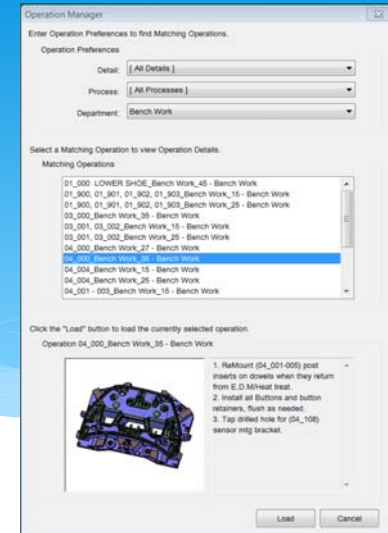


1. Indicate bottom keyways and install construction holes to smirt.
2. Finish Machine Linear Using Smirt DetNo 01_000
3. Drill clearance for det. 01_110(gas springs).
4. Rough bore for det. 01_101(bushings), leave 1mm stock.
5. Drill and tap for det. 01_101(bushing toe clamps), 102(stop blocks), 107, 109, 112(keys), 110(gas springs), 900-903, D33, D34(drivers), 03_000 and 04_000(posts).

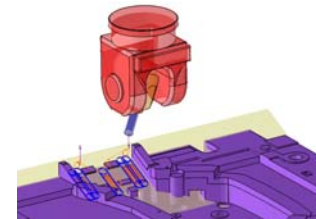
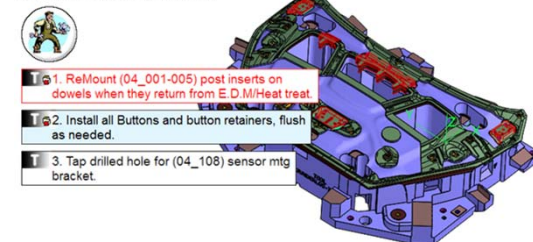


Step 3

- * Open Smirt File With Manufacturing Plan.
- * Select Operations Per The Schedule.
- * Perform Work Defined By The Tasks.
- * Machine Directly With Smirt
 - * Surfaces are clearly defined.
 - * Stock added to surface is passed to DieNC.
 - * Holes already collected in process are drilled.
- * Items To Be Assembled Are Listed And Shown.
- * Dearborn Tool & Die and Suppliers Work To Same Set Of Instructions.
- * No Additional “Paperwork” Is needed.

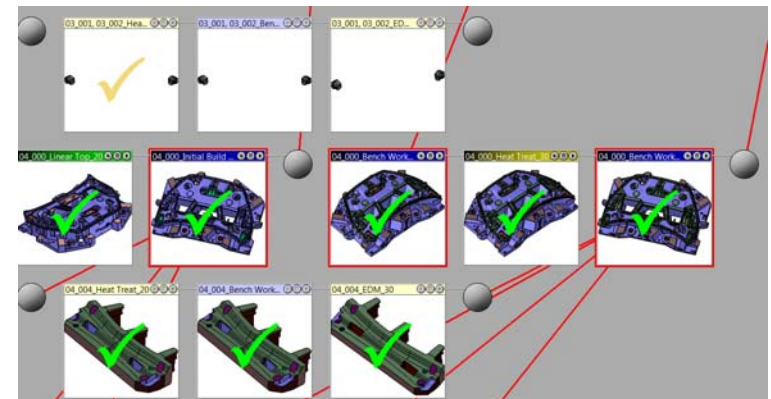
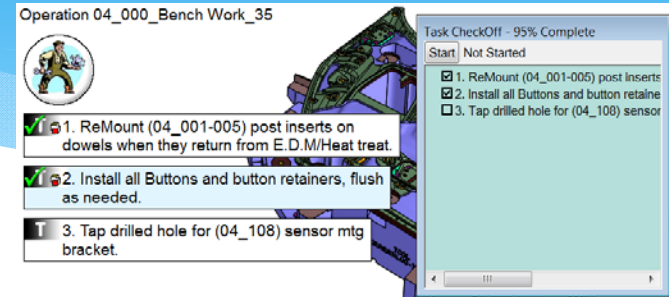


Operation 04_000_Bench Work_35



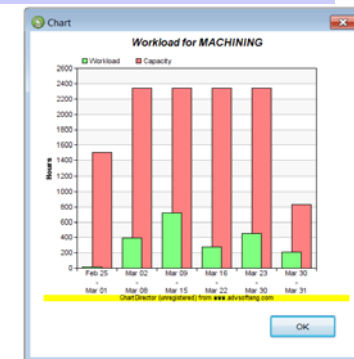
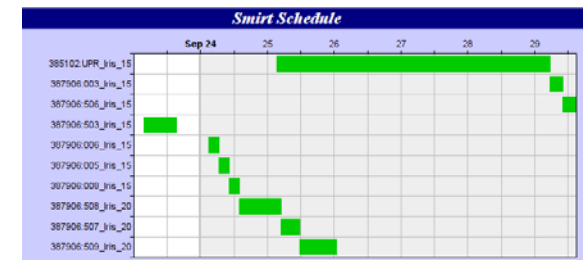
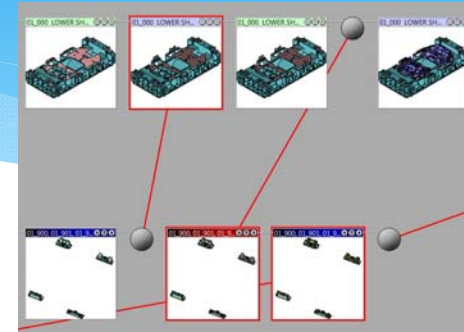
Step 4

- * Update Work In Progress Or Completed.
- * Check Off Tasks In Smirt By Workers On The Floor..
- * Suppliers Check Off And Send Updates For Total Die Progress Tracking.
- * Progress Is Immediately Visible By Entire Plant.
- * Actual Hours Can Be Input For Analysis.



Scheduling

- * Smirt Schedule Reads The CPA Plan.
- * Operations Mapped To Each Department.
- * Milestone Dates Are Assigned.
- * Priorities Assigned.
- * Schedule Suggests The Optimum Work Flow.
- * Warnings Are Shown If Operations Are Late.
- * Department Workloads Are Shown For A Given Time Frame.
- * All Job Percent Completes Are Shown.



Savings

- * Consistency In Construction.
- * Detailed Step By Step Plan.
- * Easy Check Off Of Operations In Process.
- * Routine Machine Intensive Approach.

Ford – Dearborn Tool & Die Integrated Process

- * Construction Time Reduction.
- * New Hires “Come Up To Speed” Quickly.
- * Transfer Same Efficiency To The Supplier Base.
- * Smirt Software Is An Important Tool That Helps Dearborn Tool & Die Achieve More Efficient Manufacturing.
- * Ford Wants Suppliers To Achieve Same Efficiency And TIMING!
- * Smirt Is Easy To Use; Designed For People On The Shop Floor.
- * Smirt Is Relatively Inexpensive Which Is Affordable By Suppliers.