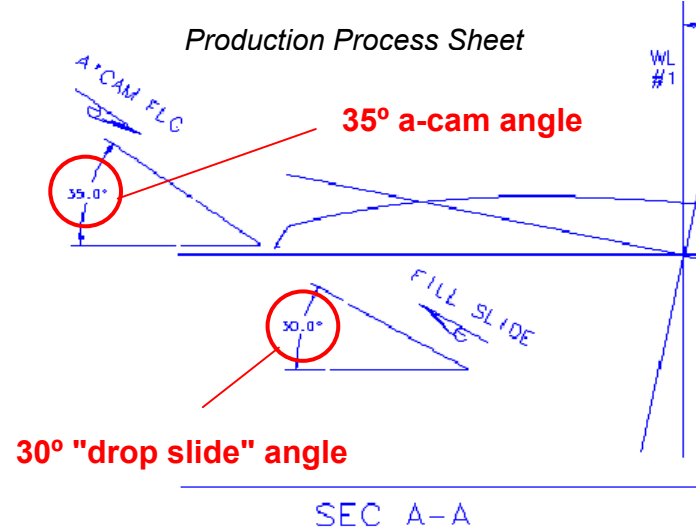
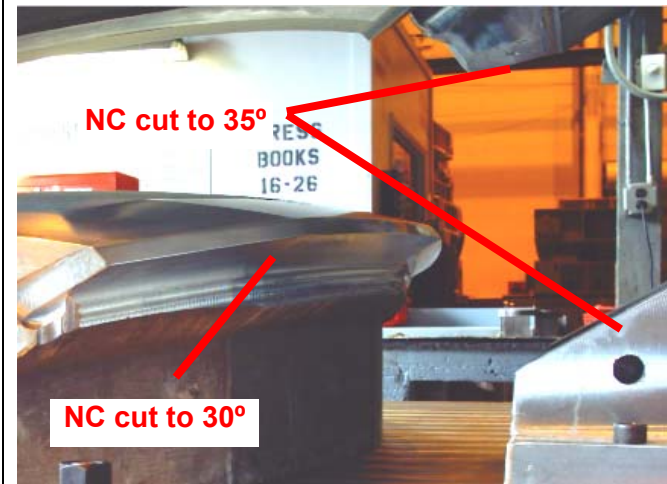


**PROBLEM SITUATION**

4819 – Mustang hood line aerial cam flange die



- Tools correctly programmed and cut to supplied surfaces from Surfacing group
- Die designs supplied to NC surface had 35° on all cam surfaces
- Surfacing group consulted with Program Manager to modify post angle to match production die process angle (for drop slide)
- Drop slide mechanism shown in production die process is not part of prototype die design
- WDX standard requires production drop slides to be 5° less than the aerial cam angle to enable automated panel removal

Resultant rework to correct problem totaled 56 man and equipment hours. Scheduled load date was missed resulting in additional errors and rework totaling 220 hours.

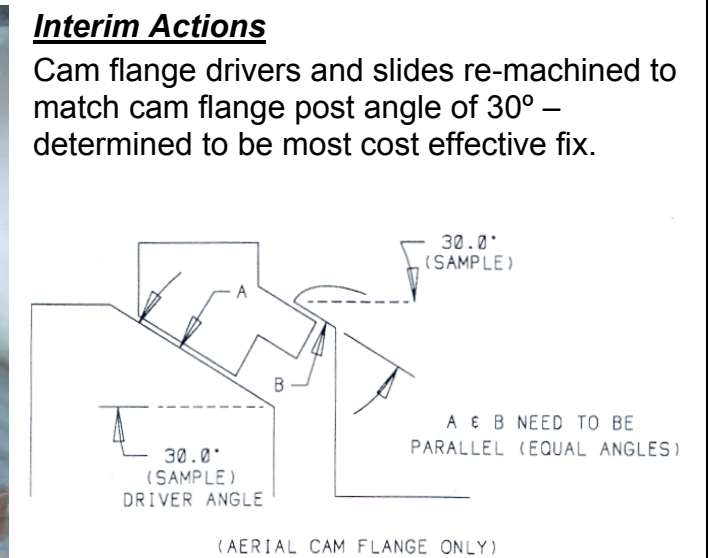
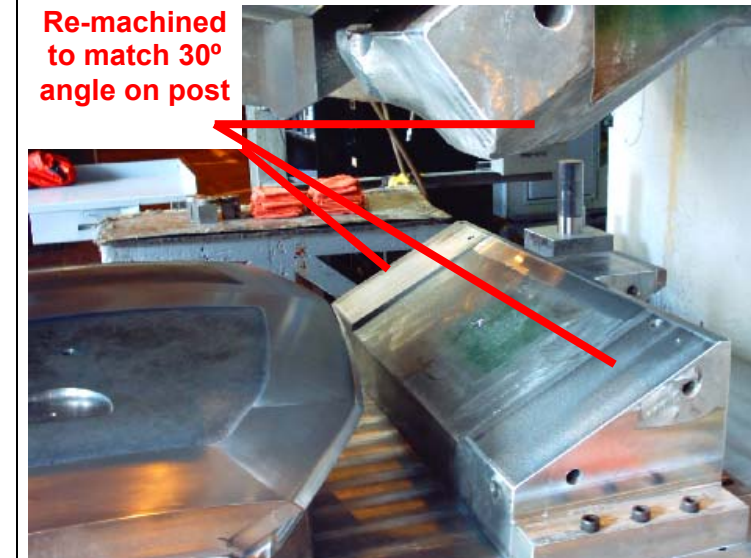
**TARGET/GOAL**

Eliminate tooling construction errors due to deviations from design intent.

**CAUSE ANALYSIS**

**PROBLEM:** Cam flange driver and slide angles do not match cam flange post angle.  
**MOST LIKELY CAUSE:** Cam flange post incorrectly machined to 30° angle versus machining of cam drivers and slides to 35°.  
**WHY?** NC cutter path supplied to the mills reflected 30° for cam flange post and 35° for cam flange drivers and slides.  
**WHY?** Die surfaces supplied to NC programming reflected 30° for post and 35° for drivers and slides  
**WHY?** Surfacing group modified die design for post to use 30° cam angle instead of 35°  
**WHY?** Surfacing group reviewed the production die process sheet and incorporated the 30° angle of the production drop slide believing that there was an error in the die design.  
**WHY?** Surfacing group was not aware of the 5° undersize WDX standard for production drop slides  
**ROOT CAUSE:** Surfacing group did not consult with die design team (design owner) before incorporating change to prototype die design

**COUNTERMEASURES**



**Permanent Corrective Action**

1. Incorporate sketch (shown above) describing required cam angle condition into NC programming check sheet for all future cam flange dies.
2. Review A3 and design change approval process with NC surfacing group → Requirement to consult with die design group prior to incorporating design changes
3. Investigate incorporating appropriate operating standards into TDM Lean Enterprise Strategy.

**IMPLEMENTATION**

<u>ACTION REQUIRED</u>	<u>RESPONSIBILITY</u>	<u>DUE BY</u>
Rework tooling	Warren Die Const. Dept.	Comp. 3-19-03
Update NC programming check sheet	S. Liberty	Comp. 3-21-03
Review A3 document with engineering	S. Stump	4-9-03
Follow up operating standards strategy	TDM Quality Council	TBD

**VERIFICATION and FOLLOW UP ACTIVITIES**

Progress to be tracked monthly through the rework reporting process and through TDM Quality Council follow-up.