

## Training Class Outline

- 1- 8:30 – 9:00 Introduction to ZPS and ZPS America
  - a. ZPS Products
- 2- 9:00 – 9:30 Tour of ZPS America
- 3- 9:30 – 9:45 Break
- 4- 9:45 – 12:00 Machine Basic features Overview:
  - a. Machine Models
  - b. Kinetic Diagram
  - c. Spindle Drum
  - d. End working Slides
  - e. Cross working slides
  - f. Compound Slides
  - g. Gear Models / AC Models
- 5- 12:00 – 12:30 Lunch
- 6- 12:30 – 5:00 Breakout groups:

### Basic Operation

- 1- Cam Principles
- 2- Ratio Arms
- 3- CAM Charts
- 4- Main Parts of the machine
- 5- Transfer Pump
- 6- Spindle Drum Locking / Indexing
- 7- Cross Slide Drive system
- 8- Cam Tower
- 9- Bar Stop
- 10- Clamping and Feeding
- 11- Gear Box
- 12- Coolant Tank
- 13- Operator Panel

### Machine Setting

- 1- Setting Features
- 2- Slide setting
  - a. End Slides
  - b. Cross Slides
  - c. Hard Stops
- 3- Cam Charts
  - a. Ratio Arms
  - b. Reading Cam Charts
  - c. Selecting Cams
- 4- Advancing / Retarding Cams
- 5- Gear Box
  - a. Gear Selection
  - b. Sync Gear
  - c. Cross Slide attachment gearing
  - d. Threading Gears
- 6- Threading Attachment
  - a. Adjustment
  - b. Cams
  - c. Features
- 7- Pick-off attachment
  - a. Cams
  - b. Setting
  - c. Part Ejection

## Training Class outline

1. 8:30 – 9:00 Basic Machine Information:
  - a. How the machine works and explanation of its functionality
  - b. Location of places to fill oils
  - c. Location of flats for leveling machine
  - d. Where to install cams
  - e. Location of shear pins
  - f. Location of overload clutches
  - g. Location of pressure gages for air, hydraulics, and lubrication
  - h. Location of the engage/disengage for feeding, clamping, and index
  - i. How to turn the machine on
  - j. How to work the control panel
2. 9:00 – 10:00 Machine Functions:
  - a. Changing the CAM and Setup Lever
  - b. Changing the main collet and feed fingers
  - c. Changing pick-off collet and ejector
  - d. Installing/uninstalling CAM for mail spindle break/clutch
  - e. Setting tool height
3. Break 10:00 – 10:15
4. 10:15 – 10:45 Daily Maintenance:
  - a. Check lubrication, hydraulic, and cooling oil levels
  - b. Check hydraulic and lubrication oil pressure
  - c. Importance of keeping the machine clean
5. 10:45 – 11:15 Weekly Maintenance:
  - a. Check lubrication, hydraulic, and cooling oil levels
  - b. Check, and if necessary, clean the sedimentation tank and overflow tank
6. 11:15 – 12:00 Monthly Maintenance:
  - a. Check lubrication, hydraulic, and cooling oil levels
  - b. Check accumulator pressure
7. 12:00 – 12:30 Lunch
8. 12:30 – 2:00 Basic Service:
  - a. How to change a shear pin
  - b. How to fix if machine overloads
  - c. How to change filters
  - d. How to fix open collet in station 1 of  $\frac{3}{4}$  depending on machine model
  - e. How to fix basic alarms.
9. 2:00 – 3:30 Do NOT DO'S:

- a. Don't reverse through the index if the carriage is engaged
  - b. If you lose something in the machine, find it before moving any parts within the machine
  - c. Don't adjust red marked set screws
  - d. Don't use collets without seals
10. 3:30 – 5:00 Machine controls:
- a. How to move through the screens
  - b. Functions of the control buttons
  - c. How to set K values
  - d. What K values should never be changed
  - e. How to read the error code and correct errors.