



Mechapacticum Outline

Mechanical Drives

Topic: Mechanical Drives

Estimated completion time: 16 hours

Purpose:

The purpose of this Mechapacticum is for the participant to demonstrate their ability to use and manipulate mechanical drives.

Instructional Outcomes:

The participant will demonstrate the application of their skill and knowledge in the following topical areas:

- Mechanical drives
- Safety

Instructions to Students:

The student will:

1. Place motor on bed plate, use appropriate standoffs and fasteners.
2. Test for 'Soft Foot' condition.
3. Demonstrate the ability to locate 'Soft Foot' condition to proctor.
4. Calculate the proper shim stock to correct the 'Soft Foot' condition.
5. Demonstrate the ability to correct the 'Soft Foot' condition to proctor.
6. Level the motor using appropriate shims.
7. Demonstrate the ability to level the motor to proctor.
8. Check motor run out and endplay.
9. Demonstrate the ability to measure run out and end play to proctor.
10. Install a single shaft supported by two (2) bearings, using appropriate supports and fasteners.
11. Calculate the shims required to level the shaft and bearings assembly
12. Level the shaft and bearings using appropriate shims.
13. Demonstrate the ability to level the shaft and bearing assembly to the proctor.
14. Raise the motor or Shaft and Bearings assembly to match the shaft height, level and alignment.
15. Calculate the proper shim sizes to apply and install.
16. Demonstrate the ability to align the motor shaft and the output shaft and bearing assembly to proctor.
17. Install flexible coupling between motor shaft and the shaft and bearings assembly.
18. Demonstrate the ability to install coupling correctly to proctor.
19. Operate the motor and inspect the shaft and motor alignment and the operation of the coupling.
20. Request a final inspection of the motor, coupling, shaft and bearings by the proctor.





**Multi-State
Advanced Manufacturing
Consortium**

US DOL SPONSORED TAACCCT GRANT: TC23767

PRIMARY DEVELOPERS:
Glenn Wisniewski – Corporate Trainer, Henry Ford College
Wes Bye – Mechatronics SME, Pontiac Coil

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Safety:

The student will demonstrate all safety practices learned in previous instruction.

Instructions to Evaluator:

The instructions for the evaluator are imbedded in the instructions to the students.

Equipment and Materials:

- Single phase electric motor,
- Assorted pillow block bearings,
- Couplings, fasteners, spacers, shim stock, shafts,
- Machinist level, feeler gauges, calipers, dial indicator and stand
- Reference materials.

Rubrics:

The proctor will rank each of the Rubric criteria based on observations and accuracy of calculations and ability of the student to achieve the outcomes to a given standard.





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Period 3

Student Name: _____ Date(s): _____

Instructor Name: _____

Scoring Guide: Maximum Points: 160

Highly Proficient – 10, Competent – 8, Developing – 6, Limited – 4 Scattered – 2, Unable to start - 0

Skill Number	Skill Title	Skill Rating
1	Followed Safety Procedures without prompting	
2	Used Proper PPE	
3	Install and Adjust a Pillow Block Antifriction Bearing and Shaft	
→	Proctor Sign Off:	
4	Performed LOTO of energy sources when necessary	
→	Proctor Sign Off:	
5	Mount an Electric Motor and Correct for a Soft Foot Condition	
→	Proctor Sign Off:	
6	Level Motor to Shaft and Bearing Assembly	
→	Proctor Sign Off:	
7	Installed Flexible Coupling to Specifications	
→	Proctor Sign Off:	
8	Submit Completed Documentation	
9	Efficient use of time	
10	Attention to Detail	
11	Work Attitude	
12	Work Procedure	
13	Professionalism	
14	Self Confidence	
15	Knowledge of Job	
	Total Points	





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