

## BI-06: Operate Mill/Drill in MDI and Manual Modes

### SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.
- This task requires climbing on slick steps around rotating spindles and moving conveyors. Proceed with caution.

### EQUIPMENT

- none

### RESOURCES

- Sundstrand Operations Manual
- experienced Journeyman

### Change a Tool on the Sundstrand Using Manual Controls

1. Set the machine to Manual mode.

Set to the  
MAN Mode



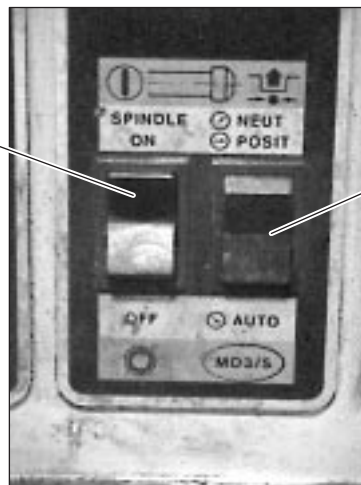
2. **Press the Tool Changer button to move the desired tool until aligned with the gripper.**



Press to Align Tool with the Gripper

- Select the tool located in position T34.

3. **Turn ON the spindle.**



Spindle <ON>

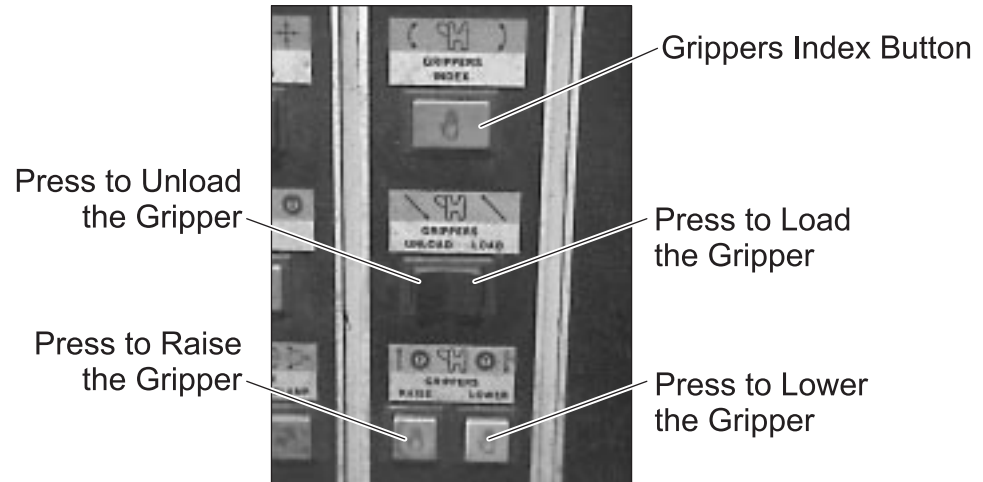
Spindle <POSIT> Setting

4. **Place the spindle in the POSIT setting.**

- Move the switch into the middle position.

**5. Move the gripper to the tool.**

- Press Grippers <RAISE> button until the gripper stops.

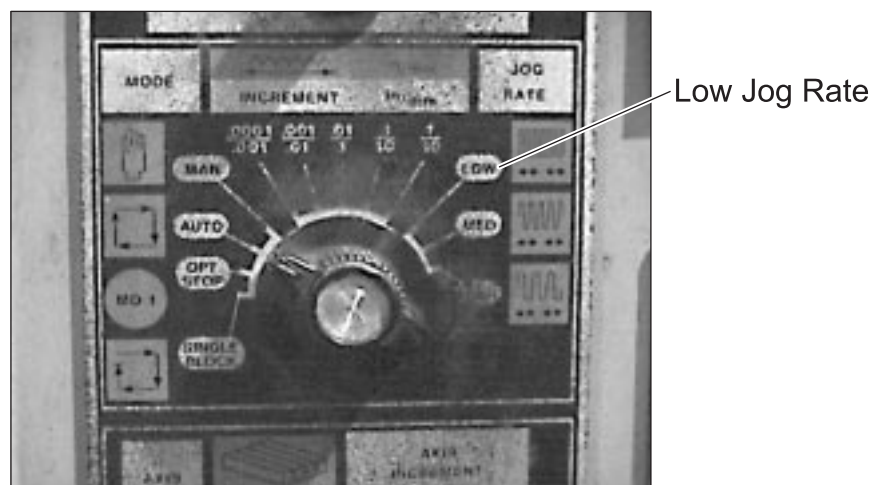


**6. Press the Grippers <UNLOAD> button to unload the tool.**

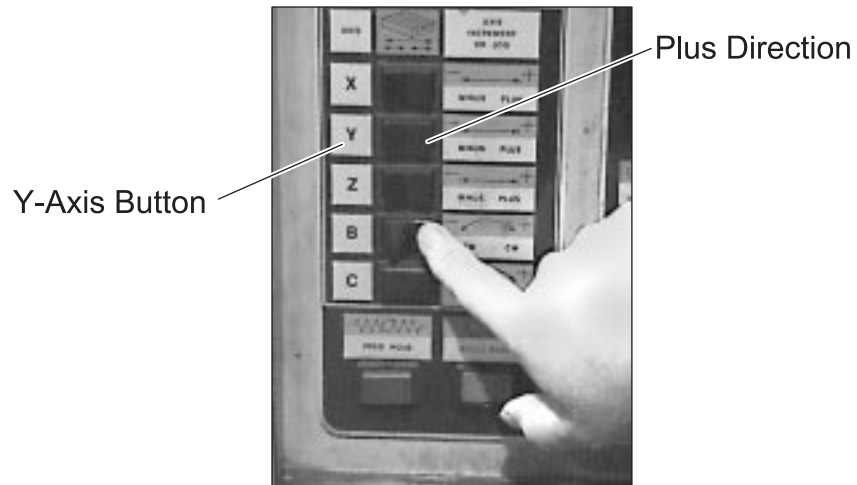
**7. Press the Grippers <LOWER> button.**

**8. Press the Grippers <LOAD> button.**

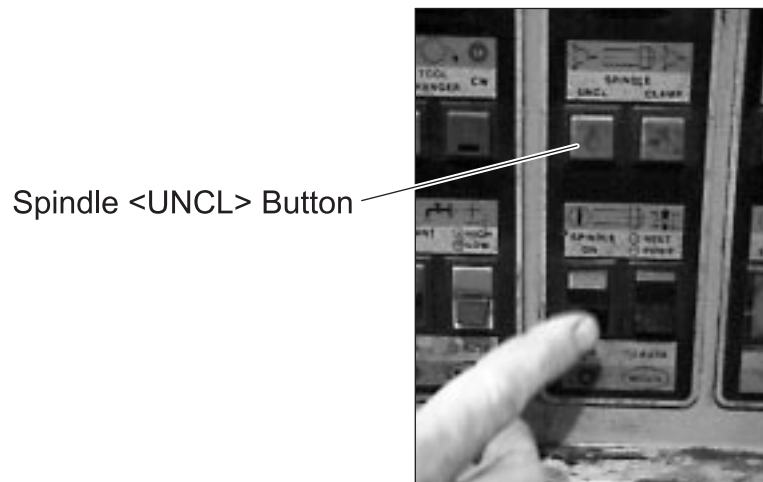
**9. Set the machine to the Low Jog Rate.**



10. Press the <Y> axis button in the PLUS (+) direction until it sets into the gripper.



11. Turn off the spindle.
12. Set the machine back to Manual mode.
13. Press the Spindle <UNCL> button to unclamp spindle.



14. Press the Grippers <UNLOAD> button to unload the tool.
15. Press the Grippers <INDEX> button to rotate the gripper to the new tool.

16. Press the Grippers <LOAD> button to load the tool.
17. Press the Spindle <CLAMP> button to clamp the tool in the spindle.
18. Set the machine to Low Jog Rate.
19. Press the <Y> axis button in the MINUS direction to lower the axis.
20. Set the machine back to Manual mode.
21. Press the Tool Changer button to move the tool changer until aligned with the required pocket for the tool.
22. Press the Grippers <UNLOAD> button to unload the tool.
23. Press Grippers <Raise> button until the gripper stops.
24. Press the Grippers <Load> button to load the gripper.
25. Press the Grippers <Lower> button.
26. Set the spindle to the Automatic mode.
27. Type RT and press the <Xmit> key.



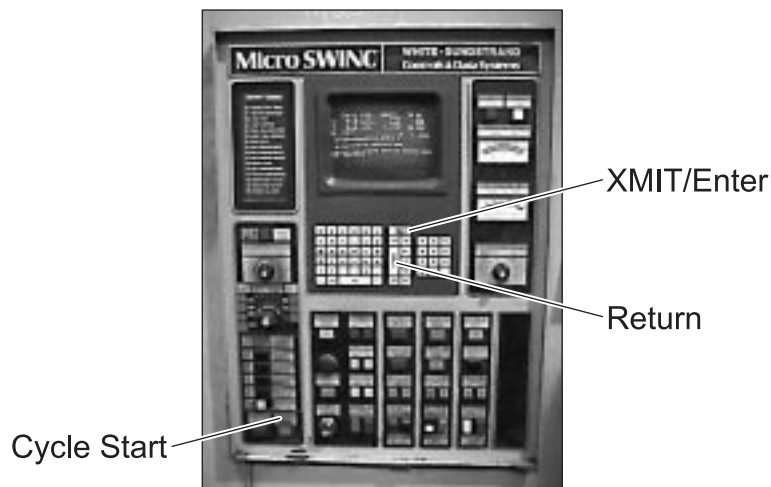
Alphanumeric Keys

XMIT Key

28. Type the tool number that was loaded and press the <Xmit> key.
29. Set the machine to the Automatic mode.



## Change a Tool on the Sundstrand Using Manual Data Input (MDI)



- 1. Make sure the main menu is displayed.**
  - Type RS and press the <Enter> key if the main menu is not displayed.
- 2. Type MD and press the <Enter> key.**
- 3. Type TXXM06 (where XX represents a specific tool number) and press the <Return> key, then the <Enter> key.**
  - Type TXXM06 if the format or control requires an offset number.
- 4. Press the <Cycle Start> button.**
  - Observe as the machine automatically removes the tool and replaces it in the same manner that you did manually.