ESTENAD Industries

ESTENAD WORKSHOP

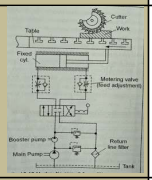
AUTONOMOUS MAINTENANCE PROCESS

Make	
Model	
S/N	
Equip	**Milling machine**

DAILY **MONTHLY** **ANNUALLY**


Sr. No.	Activity / Check List		Responsibility	Instructions
1	**Area of Operation**		**Operator**	Machine and area around the machine is clean safety covers are in good condition
2	**Lubrication**	**Automatic Lubrication system**	**Operator**	Visually inspect the efficiency of automatic lubrication system
3		**Guides**	**Operator**	Guides must be always be covered by an oil film
4	**Cleaning**		**Operator**	Remove all machining chips by brushes or Aspirator
5	**Feed box & knee** 		**Operator**	Check the operations all feeds are working normally.
6	**Saddle & Table** 		**Operator**	Check the feed for longitudinal, cross and vertical table feed. Check the saddle movement.
7	**Quill**		**Operator**	Check correct operation of feed trip linkage

8	**DRO Unit** 		**Operator**	No chips on the sensor. Check the cable damages.
9	**Slide way**		**Operator**	Wiper is not broken
10	**Brake** 		**Operator**	Check the noise and spindle stoping time
11	**Drive Belt** 		**Operator**	Abnormal noise, speed variations are correct
12	**Coolant pump and coolant level** 		**Operator**	Is the pump working properly. Evidence of coolant leakage. Check oil levels, make up if necessary. Check coolant level, make up if necessary
13	**Air Unit**		**Operator**	Keep air operating pressure under control in various pneumatic organs. Network compressed air pressure must be lower than 0.65 Mpa. During the use pressure drop in the pneumatic system must not be more than 0.05 Mpa.
14	**Electrical connections**		**Operator**	Check all electrical connections and lightings
15	**Spindle head** 		**Maintenance**	Lubricate from the grease nipples at the operting mode (manual, Automatic etc.)
16	**Interlock & Safety Devices**	**Protection Interlock in the working area**	**Maintenance**	By operating the protection in any operating mode, the machine must stop or not respond to starting command when stopped
17		**Emergency Stop Button** 	**Maintenance**	Motors must switch off, when pressing in any operating mode
18		**Screw Driver Interlock**	**Maintenance**	If the spindle is running, screw driver must not operate
19	**Main Drive and Column**		**Maintenance**	Check the brake and flexible couplings. Excessive heating of main spindle, check any noisy from the drive

20	**X Axis, Z Axis**	**Maintenance**	Check for noise, vibration or excessive heat generated by th motor
21	**Headstock Coolant Unit**	**Maintenance**	Clean filter
22	**Electrical Control Cabinets** 	**Maintenance**	Check all electrical connections
23	**Sensor, Solenoid Valve** 	**Maintenance**	Do valves operate correctly and smoothly
24	**General**	**Maintenance**	Check all machined surfaces for excessive wear or damage. Check all electrical points near main drive starting. Main spindle drive quickly stoping or not
25	**Headstock and coolant**	**Maintenance**	Check Insulation resistance heat producing in the main spindle. Check any abnormal noise near main drive starting. Main spindle drive quickly stoping or not.Change the coolant.
26	**Main Drive and Column**	**Maintenance**	Check any excessive heat producing in the main spindle. Check any abnormal noisy near main drive starting.
27	**Lubrication Unit**	**Maintenance**	Clean the suction filter. Clean oil filter port. Check the piping for leakage, crushed area and clogging.
28	**Hydraulic Unit** 	**Maintenance**	Clean the microseperator, Clean the strainer, Change the operating oil, Check the piping for any leakage of clogging.
29	**Air Unit**	**Maintenance**	Clean/ Replace filter
30	**X Axis, Z Axis**	**Maintenance**	Measurement and adjusting of backlash
31	**Electrical Control Cabinets**	**Maintenance**	Check terminals and retighten. Check contactors and relays. Check components for discolouration, fouling and heat

32	**Solenoid Valves , Sensors**	**Maintenance**	Inspection and tightening of terminals and sockets
33	**Feed box & knee**	**Maintenance**	Check the noise level of pump. Check the feed drive mechanism. Check the knee movement. Check the power feed movement. Check the vertical feed screw movement.
34	**General**	**Maintenance**	Check bed adjustment for level. Check the all safety guards are in positioned and operationable. Check axis drive mechanisms for wear. Check operation of chip connveyors