Maintenance work order handling

Process Definition Document (PDD): template and worked example

Example company (fictional): Kovář Precision Components s.r.o., an automotive parts manufacturer in Mladá Boleslav, Czechia (CNC machining lines, presses and robotic welding cells, three shifts).

Document control

Field	Value
Process name	Maintenance work order handling
Process owner	[Name, role]
Prepared by	[Name]
Reviewed by	[Names of the people who do the work]
Approved by	[Name, date]
Version	1.0 (as-is)
Status	Draft

How to use this template

This is a complete process definition document (PDD) for maintenance work order handling, also called the maintenance request process, the breakdown and preventive maintenance workflow or the work order lifecycle in a CMMS. It describes the process as it runs today at a fictional automotive supplier, with the roles, systems, steps, decisions and controls you would expect in a real maintenance department.

Use it as a starting point. Replace the company details, keep the sections, and walk through each step with the planner and the technicians, not only the maintenance manager. Most plants change the cost threshold for approval, the urgency rules and the way permits are handled. The structure stays the same.

- Replace the company, plant and systems with yours. If you use a different CMMS, name the screen or module where each step happens.
- Set your own cost threshold in step 7 and your own urgency rule in step 2. Both vary a lot between plants.
- Check the percentages with real data. A month of work orders shows how many are urgent, returned or waiting for parts.
- Decide how out-of-hours breakdowns are handled. Many plants create the order after the repair, which is worth showing as a separate path.
- Walk through the steps with technicians on the shop floor. The paper job card and the retyping are where the workarounds sit.
- Keep the as-is version even after you redesign the process. It is your baseline for measuring the change.

1. Purpose and scope

This procedure describes how corrective and preventive maintenance work orders are raised, planned, executed and closed on production equipment at the Mladá Boleslav plant. It gives production, maintenance, the spare parts store and controlling one shared description of who does what, so that breakdowns are repaired safely, preventive tasks are done on time and costs land on the right cost centre.

In scope

- Corrective work orders after a breakdown or fault on production equipment
- Preventive work orders generated by the SAP maintenance plan

- Spare part reservation, purchase requisition and issue
- Specialist repairs by an external service contractor
- Lockout and tagout permit, confirmation, technical completion and cost settlement

Out of scope

- Building maintenance
- Capital projects
- Calibration of measuring instruments

2. Process at a glance

Item	Description
Trigger	A machine stops or a fault is noticed, or a preventive task falls due in the SAP maintenance plan.
Starts when	The line operator presses the Andon call and tells the shift supervisor.
Ends when	The work order is technically completed, the machine is back in production and costs are settled to the cost centre.
Inputs	Fault report from the line, Maintenance plan from SAP, Equipment master data, Spare parts stock, Technician availability
Outputs	Completed work order with hours, parts and failure cause, Machine released to production, Signed lockout and tagout permit, Costs settled to the cost centre
Volume	About 5,400 work orders a year: roughly 2,300 corrective and 3,100 preventive
Working hours	The plant runs three shifts, Monday 06:00 to Saturday 06:00. The planner works 07:00 to 15:30 on weekdays.

3. Roles and responsibilities

Role	Responsibilities
Line Operator	Notices the fault, presses the Andon call and takes the machine back after the repair.
Shift Supervisor	Sets the priority, enters notifications, stops the machine, applies lockout and tagout and releases the machine to production.
Maintenance Planner	Reviews notifications, creates and schedules work orders, reserves spare parts, requests contractor quotes and checks confirmations.
Maintenance Technician	Carries out the repair or preventive task, tests the machine and confirms hours, parts and failure cause in SAP.
Maintenance Manager	Approves work orders above the cost threshold, contractor purchase orders and deferrals, and signs off the root cause after long downtime.
Warehouse Clerk	Picks and issues spare parts from the maintenance store against the reservation.
Controlling	Settles work order costs to the cost centre at month end.
External Service Contractor (external)	Provides specialist repairs on robots and presses and quotes for them.

4. Systems

- SAP S/4HANA Plant Maintenance (PM): notifications, work orders, confirmations and cost settlement
- SAP MM: spare part reservations and purchase requisitions
- Andon boards: urgent calls from the line
- Paper forms: lockout and tagout permit and technician job card
- Excel: weekly shutdown plan

5. Process map

Process diagram goes here

Draw one lane per role from section 3, the steps from section 6 in order, and a diamond for each decision in section 7.

6. Procedure, step by step

#	Step	Who	What happens	System	Output
1	Raise the Andon call	Line Operator	Notices a fault or a machine stop, presses the Andon call and tells the shift supervisor. It takes about 2 minutes.	Andon board	Fault reported
2	Set the priority	Shift Supervisor	Decides the priority. If the line is stopped it is urgent, otherwise normal. About 30% of cases are urgent.	Andon board	Priority set
3	Enter the notification	Shift Supervisor	Enters a maintenance notification with equipment number, symptom and priority. It takes 3 to 5 minutes. Preventive tasks are generated automatically by the SAP maintenance plan each week.	SAP PM	Notification in SAP
4	Triage the notification	Maintenance Planner	For urgent notifications, phones the on-shift technician directly and creates the work order afterwards. Normal notifications are reviewed from the queue within 1 to 3 hours.	SAP PM, phone	Technician alerted, or notification picked up
5	Check for completeness	Maintenance Planner	Checks the notification. If the symptom or equipment number is missing or wrong, it goes back to the shift supervisor for correction. This applies to about 15% of notifications.	SAP PM	Complete notification, or returned notification
6	Create the work order	Maintenance Planner	Creates the work order with operations, planned hours and expected spare parts. It takes 8 to 12 minutes.	SAP PM	Work order in SAP
7	Approve above the threshold	Maintenance Manager	Approves the work order in SAP if the estimated cost is above EUR 1,500. Otherwise the planner releases it. About 20% need approval, which can take up to one working day.	SAP PM	Released work order
8	Reserve spare parts	Maintenance Planner	Reserves the parts. If a part is not in stock (about 12% of orders), the planner raises a purchase requisition and the order waits 2 to 5 days for delivery. Otherwise the reservation goes to the warehouse.	SAP MM	Reservation, or purchase requisition
9	Issue the parts	Warehouse Clerk	Picks and issues the parts against the reservation and books the goods issue. The work takes 10 to 15 minutes after a wait of 20 to 40 minutes.	SAP MM	Parts issued
10	Schedule the technician	Maintenance Planner	Assigns a technician and a time slot. Non-urgent work goes into the weekly shutdown	SAP PM, Excel	Assigned and scheduled order

#	Step	Who	What happens	System	Output
			plan in Excel.		
11	Request a contractor quote	Maintenance Planner	If the repair needs specialist knowledge (about 8% of corrective orders), requests a quote from the external service contractor by email. The Maintenance Manager approves the purchase order.	Email	Quote and purchase order
12	Apply lockout and tagout	Shift Supervisor	Stops the machine, applies lockout and tagout and signs the permit on paper.	Paper permit	Signed permit, machine isolated
13	Carry out the work	Maintenance Technician	Performs the repair or the preventive task and records findings on a paper job card. Execution takes 45 to 240 minutes.	Paper job card	Completed work, job card
14	Test with the operator	Maintenance Technician	Tests the machine with the operator present. If the fault persists (about 10% of corrective jobs), the technician reworks the repair and tests again.	Machine	Tested machine
15	Confirm in SAP	Maintenance Technician	Confirms hours, used parts and failure cause code, usually at the end of the shift by retyping from the job card. It takes 5 to 10 minutes.	SAP PM	Confirmed order
16	Release the machine	Shift Supervisor	Signs the permit back and releases the machine to production.	Paper permit	Machine back in production
17	Check and complete	Maintenance Planner	Checks the confirmation and sets the status technically completed. If hours or parts are missing, the order goes back to the technician. This applies to about 18% of orders.	SAP PM	Technically completed order, or returned order
18	Sign off the root cause	Maintenance Manager	Signs off the root cause for orders with downtime above 4 hours, which is about 6% of orders.	SAP PM	Signed-off root cause
19	Settle the costs	Controlling	Settles the order costs to the cost centre at month end.	SAP	Costs settled

7. Decision points and business rules

- Is the line stopped? Yes: the priority is urgent and the planner phones the technician. No: the priority is normal and goes through the queue (steps 2 and 4).
- Is the symptom or equipment number missing or wrong? Yes: return the notification to the shift supervisor (step 5).
- Is the estimated cost above EUR 1,500? Yes: the Maintenance Manager approves in SAP. No: the planner releases it (step 7).
- Is the part in stock? No: raise a purchase requisition and wait for delivery (step 8).
- Does the repair need specialist knowledge? Yes: request a contractor quote and a purchase order (step 11).
- Does the fault persist after the test? Yes: rework and test again (step 14).
- Are hours and parts complete in the confirmation? No: send the order back to the technician (step 17).
- Was downtime above 4 hours? Yes: the Maintenance Manager signs off the root cause (step 18).

8. Exceptions

- Breakdown outside the planner's hours (about 35% of corrective orders): the technician acts on a verbal instruction and the order is created next morning.
- Preventive task cannot be done because production needs the machine (about 10%): the Maintenance Manager approves a deferral of up to 14 days.
- Wrong spare part issued or delivered (about 4%): the order is put on hold and the part is re-ordered.
- Contractor does not arrive on the agreed date (about 3% of contractor jobs): the planner reschedules.

9. Controls

- Orders above EUR 1,500 need manager approval in SAP, and the planner cannot approve their own orders.
- A lockout and tagout permit is signed by the technician and the shift supervisor before work on energised equipment.
- Full audit trail in SAP of status changes, confirmations and goods issues.
- Preventive tasks on safety-relevant equipment must be done within 14 days of the due date, as checked in IATF 16949 audits.

10. Known issues today

- Technicians write on paper and retype into SAP, so confirmations are late and often incomplete.
- Failure cause codes are often "other", which makes analysis hard.
- Planners chase managers by phone for approvals that sit in SAP unnoticed.
- Spare part availability is not visible when the order is created, so orders stall.
- About 35% of corrective orders are created after the work has started, so planning data arrives late.

11. RACI matrix

R = responsible (does the work), A = accountable (owns the outcome), C = consulted, I = informed.

Activity	Operator	Supervisor	Planner	Technician	Manager	Warehouse
Report the fault and set priority	R	A	I			
Enter and review the notification		R	A			
Create and release the work order			A/R		C	
Approve orders above EUR 1,500			R		A	
Reserve and issue spare parts			A			R
Lockout and tagout, release the machine	C	A/R		R		
Carry out and confirm the work	C	I	A	R		
Sign off root cause after long downtime			R	C	A	

12. KPIs

KPI	Definition	Target
Mean time to repair for urgent orders	Average time from the Andon call to the machine being released for urgent corrective orders.	[set]
Preventive tasks completed on time	Share of preventive tasks finished on or before the due date, or within 14 days on safety-relevant equipment.	[set]
Orders returned for missing data	Share of work orders sent back to the technician for missing hours or parts. Today about 18%.	[set]
Unplanned downtime	Hours of unplanned stoppage per line per month.	[set]
Notification to release time	Average time from notification entry to work order release.	[set]

13. Revision history

Version	Date	Author	Change
1.0	[date]	[name]	First as-is version

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