MTTR Analysis Worksheet

Find the asset-failure-mode combinations driving your availability loss, diagnose what makes them slow, and track job plan and parts readiness for the top three.

Companion to: *Fix the System*, Chapter 23. **Who uses it:** the maintenance manager, planner, and reliability engineer. **When to use:** at the start of the Downtime Reduction playbook, then monthly until availability stabilizes above 97%.

Plant / Line: _____ Date: _____ Completed by: _____

PART 1 — Downtime Event Log (Last 6 Months)

Pull all unplanned downtime events. Record asset, failure mode, and total MTTR. Sort by total downtime hours contributed — not by frequency.

Event #	Date	Asset	Failure Mode	Start Time	End Time	MTTR (hrs)	Primary Delay Cause

Primary Delay Cause codes:

- **PRT** — Waiting for parts
- **DX** — Diagnosis / troubleshooting time (unclear failure mode)
- **SKL** — Waiting for technician with specific skill
- **ACC** — Access, permit, or LOTO delay
- **RWK** — Rework from incorrect first repair

PART 2 — Top 3 Asset-Failure-Mode Combinations

Group events from Part 1 by asset-failure-mode combination. Calculate total downtime hours per combination. Rank and select the top 3.

Rank	Asset	Failure Mode	# of Events	Total Down-time Hours	Avg MTTR	Dominant De-lay Code
1						
2						
3						
4						
5						

Top 3 account for _____% of all downtime hours.

Focus the next 90 days on the top 3 only. Address 4 and 5 in the following quarter.

PART 3 — Job Plan Readiness Assessment

For each of the top 3 combinations, assess the current job plan state.

Combination 1: _____

Assessment Item	Status	Gap / Action
Job plan exists in CMMS	Yes No Outdated	
Step sequence matches actual repair method	Yes No Unknown	
Parts list complete with part numbers and quantities	Yes No Partial	
Time estimate reflects actual repair du-ration	Yes No Unknown	
"Most common errors" section included	Yes No	
LOTO / isolation procedure current	Yes No Missing	

Job plan action required: Write new Rewrite existing Minor update None

---

Combination 2: _____

Assessment Item	Status	Gap / Action

Job plan exists in CMMS	Yes No Outdated	
Step sequence matches actual repair method	Yes No Unknown	
Parts list complete with part numbers and quantities	Yes No Partial	
Time estimate reflects actual repair duration	Yes No Unknown	
"Most common errors" section included	Yes No	
LOTO / isolation procedure current	Yes No Missing	

Job plan action required: Write new Rewrite existing Minor update None

---

Combination 3: _____

Assessment Item	Status	Gap / Action
Job plan exists in CMMS	Yes No Outdated	
Step sequence matches actual repair method	Yes No Unknown	
Parts list complete with part numbers and quantities	Yes No Partial	
Time estimate reflects actual repair duration	Yes No Unknown	
"Most common errors" section included	Yes No	
LOTO / isolation procedure current	Yes No Missing	

Job plan action required: Write new Rewrite existing Minor update None

---

PART 4 — Parts Staging Readiness

For each of the top 3 combinations, verify parts staging.

Combination	Parts List Verified?	Parts in Dedicated Location?	Location / Label	Qty Sufficient for 1 Repair?	Last Verified Date
1:	Yes No	Yes No		Yes No	

2:	Yes No	Yes No		Yes No	
3:	Yes No	Yes No		Yes No	

Rule: Parts for top failure scenarios must be in a dedicated, labeled location — not in the general storeroom requiring a pick list. Available without a retrieval process at any hour.

PART 5 — Technician Coverage Matrix

For each of the top 3 combinations, identify which technicians can execute the repair independently (not just assist).

Target: Minimum 2 technicians per shift who can execute the repair independently.

Combination	Day Shift	Afternoon Shift	Night Shift	Coverage Gap?
1:	Names:	Names:	Names:	Yes No
2:	Names:	Names:	Names:	Yes No
3:	Names:	Names:	Names:	Yes No

For each coverage gap: identify the cross-training candidate and the target completion date.

Combination	Technician to Train	Trainer	Method	Target Date	Completed
			Shadowed Executed with guide- Executed independently		
			Shadowed Executed with guide- Executed independently		
			Shadowed Executed with guide- Executed independently		
			Shadowed Executed with guide- Executed independently		

			Shadowed Executed with guide- Executed independently		
			Shadowed Executed with guide- Executed independently		

Note: Training is complete when the technician executes the repair independently using the job plan. Shadowing alone does not count.

PART 6 — 90-Day Availability Tracker

Week	Scheduled Hours	Unplanned Downtime Hours	Availability %	Top Failure Mode This Week	MTTR
Week 1					
Week 2					
Week 3					
Week 4					
Week 5					
Week 6					
Week 7					
Week 8					
Week 9					
Week 10					
Week 11					
Week 12					
Week 13					

Formula: Availability % = (Scheduled Hours Unplanned Downtime Hours) / Scheduled Hours x 100

Benchmarks:

- Below 95%: Critical. Apply this playbook immediately. Segment by failure mode before any other action.

- 95-96.9%: Recovering. Identify remaining top failure-mode contributors and address in sequence.
- 97-98.4%: Target range. Focus on first-time fix rate and job plan coverage.
- 98.5%+: World-class. Sustain through job plan discipline and technician coverage maintenance.
