

Illustrative Diagnostic Findings Memo

Example of the kind of findings package you receive after a diagnostic. This example is illustrative only and is not drawn from a live client engagement.

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You asked	Are missed completions caused by a genuinely infeasible workload, or by the planner spending too much flexibility before it reaches the hard part?
Short answer	The tested workload band remains feasible. The planner is failing because it loses viable continuations in a narrow mid-run decision window.
Why we believe that	Valid completions remain present, but the number of viable continuations collapses sharply before visible failure shows up in the end metrics.
Do this now	Strengthen branch discrimination and carry-forward memory in the compression window before spending more time on broad parameter sweeps.

1. What we examined

System	Forward scheduling planner for constrained work orders with stepwise commitment and limited tie-breaking visibility.
Inputs	Planner description, representative workloads, run traces, summary metrics, and current success criteria.
Scope	One focused question: is the failure caused by infeasibility, or by the planner burning good routes before it reaches the finish line?
What this memo is for	To tell you where the breakdown starts and what change is most worth making first.

2. What we found

Finding 1 - The main problem is the process, not the destination

The workload still contains valid completions in the tested range. The issue is that the current planner does not reliably stay on a live route long enough to reach them.

Finding 2 - The decisive loss happens before the planner visibly fails

The failure does not begin at the end of the run. It begins earlier, in a narrow middle band where several locally acceptable choices look similar but do not preserve the same future options.

Finding 3 - The planner is under-informed at the exact moment it needs sharper guidance

Near the failure boundary, the current scoring signal flattens. At that point the planner cannot reliably separate a branch that still carries good futures from one that only looks fine locally.

3. Evidence summary

Pattern	What we observed	What it means
Completion behavior	Success stays high early, then drops abruptly after a narrow middle decision band.	Visible failure arrives after the real structural loss has already happened.
Viable continuation count	The number of survivable next-step branches compresses from several to almost none across choices that look locally similar.	The planner is entering a tight corridor without recognizing it.
Rerun divergence	Small tie changes early produce very different end states later.	The system is path-dependent; history matters more than the current local score suggests.
Score signal	Local score differences flatten near the frontier where the route choice matters most.	The current scoring signal is too weak exactly where it needs to be strongest.



Illustrative only: the pattern matters more than the exact numeric boundary. The live route narrows in the middle, then failure becomes hard to avoid later.

4. What this means for you

This is not a case where the workload simply has no valid answer. It is a case where your current process cannot reliably stay on the routes that still work. That changes the recommended response. You should improve the decision signal around the compression window before spending more time on large parameter sweeps or declaring the workload hopeless.

- Do now**
- instrument the middle decision window explicitly
 - add a stronger tie-break signal for near-equal local moves
 - preserve lightweight path memory across the unstable segment

- Do not do yet**
- broad hyperparameter sweeps without better visibility
 - declaring the workload impossible from end-state failure alone
 - adding more random restarts without measuring where viability is spent

5. Typical live-engagement package

- findings memo in plain language
- failure location and bottleneck classification
- optional technical or reproducibility appendix
- small evidence packet with selected figures or tables
- priority-ranked next steps
- review call, if included in scope