Startup Procedure

Getting the Engine Running — Diagnostic Startup Procedure

Goal: get the Nissan A15 running so it can be diagnosed, **without** putting anyone in the platform and **without** relying on any safety circuit that hasn't been verified. This is a diagnostics-only procedure — see "Before this machine goes into service" at the end for what must be fully restored first.

Sourced from the actual factory Operators Safety and Maintenance Handbook plus the machine-specific findings in Research and Specs. Quoted manual text is marked as such.

> 🚫 Do this **after** the post-storage inspection, not instead of it — stale fuel and bad ignition components can masquerade as "the engine is broken" when they're actually a storage consequence.

0. The key idea: use GROUND CONTROLS only, nobody in the platform

The handbook documents that this machine can be **started and run entirely from the ground controls station** — this is the normal, correct way to do maintenance work, not a workaround:

> *“If the engine is not running, operate the ground controls as follows: 1. If possible, inform platform occupant(s) of your intent to use the ground controls. 2. Position and hold the PLATFORM CONTROLS/GROUND CONTROLS selector switch to GROUND CONTROLS. 3. Start the engine using the ground controls IGNITION switch.”*

Ground controls are on the left side of the machine. For all of this procedure:

- **Nobody in the platform basket.** No fall protection needed if nobody’s up there.
- **No boom movement** until the boom-position limit switches and the throttle solenoid are confirmed working (see §4). Chock the wheels; set the turntable lock pin.
- Keep the FUEL SELECT switch (bottom right of ground controls — only relevant if this unit turns out to be the dual-fuel-optioned A15, see My Story) in the gasoline position unless LP-gas is specifically confirmed connected and safe.

1. Before touching the key — mechanical prep

1. **Pistons**: PB Blaster the cylinders through the spark plug holes and work air through them to free anything stuck from sitting. Do this before cranking — confirm the crank turns freely by hand (barring at the crank pulley or via a socket on the crank bolt) before ever hitting the starter. Do not motor a seized engine with the starter.
2. **Spark plugs**: reinstall AC Delco R44T, gapped to the confirmed factory spec of **0.032–0.035 in (0.8–0.9 mm)** — from the Nissan manual’s Service Data page, p.MA-9. Torque to **11–14 ft-lb (15–20 N·m)**, also from p.MA-9 — don’t just snug them by feel on an aluminum head.
3. **Throttle/choke solenoid** (My Story, Grove P/N 7750000085): confirmed missing from its housing. **This does not need to be reinstalled just to get the engine idling** — its documented job is pulling the governor linkage to raise RPM under boom-function load (“rabbit mode”), not idle/basic running. Leave the governor linkage in its normal spring-returned position for first start. Do reinstall it before testing any boom function under load, and definitely before returning to service.
4. **The hydraulic coil/solenoid on the valve body** (My Story, Specs part table): leave it **disconnected** for the initial start — it’s one of the individual solenoid coils on the Grove hydraulic manifold (P/N 7926003166), which is not needed to idle the bare engine. Before powering it, match it against the real factory schematic (see

Electrical & Hydraulic Schematics, hydraulic valve bank on p.10) by connector/wire routing to confirm which function it actually is. Don't guess-connect it based on a part number alone.

5. **Damaged hose near the coil**: inspect before starting. If it's a fuel or hydraulic line and it's compromised, replace it before running the engine — don't run a damaged fuel/hydraulic hose to "just see if it starts."
6. **Damaged limit switch wiring near the engine bay linkage** (My Story): it's for the boom lowered limit switch (P/N 7872001401, harness P/N 6512001903), mounted at the rear of the turntable under the boom base. **Trace the damaged wire back to its connector and replace that harness section rather than splice it** — this is a safety circuit, repair it properly before relying on it.

2. Fluids and basics

- Engine oil: confirm level and smell before first start.
- Coolant: confirm level and smell before first start.
- Check both again per the handbook's PRE-STARTING CHECKS section — check oil either before starting or 5+ minutes after a stop, for an accurate dipstick reading.

3. Battery and ignition

1. Check battery state-of-charge; clean/tighten cable clamps if corroded (per handbook PRE-STARTING CHECKS — this is a named daily check item, worth doing carefully given the machine sat).
2. Confirm the main power disconnect (if equipped) and E-STOP switches are in a known state.
3. With ignition ON but **before** attempting a start, verify there's no continuous fuel pump / ignition-on chatter that would suggest a short from the rodent damage — a quick visual and smell check (melted insulation, burning smell) before applying power is worthwhile given the known damage.

4. First start attempt

Per the handbook's general starting procedure (applies to gasoline; dual-fuel/diesel-specific notes are called out separately in the source and aren't relevant to a gasoline-

only start):

1. Position the PLATFORM CONTROLS/GROUND CONTROLS selector to GROUND CONTROLS (hold it there).
2. Turn the keyed IGNITION switch at ground controls to ON.
3. Push the START switch at ground controls.
4. **Crank no more than 10 seconds per attempt.** If it doesn't start, let the starter cool ~2 minutes before trying again. If it doesn't start after 4 attempts, stop and diagnose — don't keep cranking.
5. Per the shutdown procedure in reverse — once running, let it idle; per the handbook, gasoline engines should idle **30 seconds before shutdown** to avoid a backfire, so don't kill it instantly once it catches.

5. Once it's running

- Watch/listen for anything from the area of the damaged hose and the disconnected coil — with the engine running (and hydraulic pump therefore turning), any hydraulic leak at that damaged hose will show up now.
- Check oil pressure (gauge or light, whichever this unit has) comes up immediately.
- Let it idle and get to operating temperature before doing anything else. Do **not** attempt any boom or drive function yet — the throttle solenoid isn't reinstalled and the mystery coil/limit switch aren't resolved.
- Once satisfied it runs cleanly at idle, shut down per §4 step 5 and move to reinstalling/ diagnosing the remaining items before ever testing a function.

Before this machine goes into service (not just diagnostics)

All of the following must be fully repaired and verified — not bypassed, not left "good enough" — before anyone rides the platform or the machine drives/lifts under normal operation. Restated from My Story:

- [ ] Throttle/choke solenoid (P/N 7750000085) reinstalled and wired correctly, verified to actually raise RPM under load.

- [ ] Mystery coil on the hydraulic line identified, and either properly reconnected (if it’s a needed function) or properly and permanently removed/blanked off (if it’s genuinely not applicable to this unit’s fuel configuration) — not just left dangling.
- [ ] Damaged hose near that coil replaced.
- [ ] The damaged limit-switch wiring near the engine bay fully repaired (harness section replaced, not spliced — see My Story) and the switch’s actual function verified once identified.
- [ ] Boom retracted and boom lowered limit switches (rear of boom base / turntable) verified to correctly cut out high-speed drive when the boom isn’t stowed — this is a safety interlock, confirmed working, not assumed.
- [ ] Control bucket (platform controls) damage assessed and repaired.
- [ ] Tilt alarm tested (per handbook: press down on one corner of the tilt sensor on the platform frame; buzzer should sound).
- [ ] Full function cycle test from ground controls, engine running, before anyone ever rides the platform for the first time.