

Firing Order & Plug Wires

Firing Order and Plug Wire Routing — Nissan A15

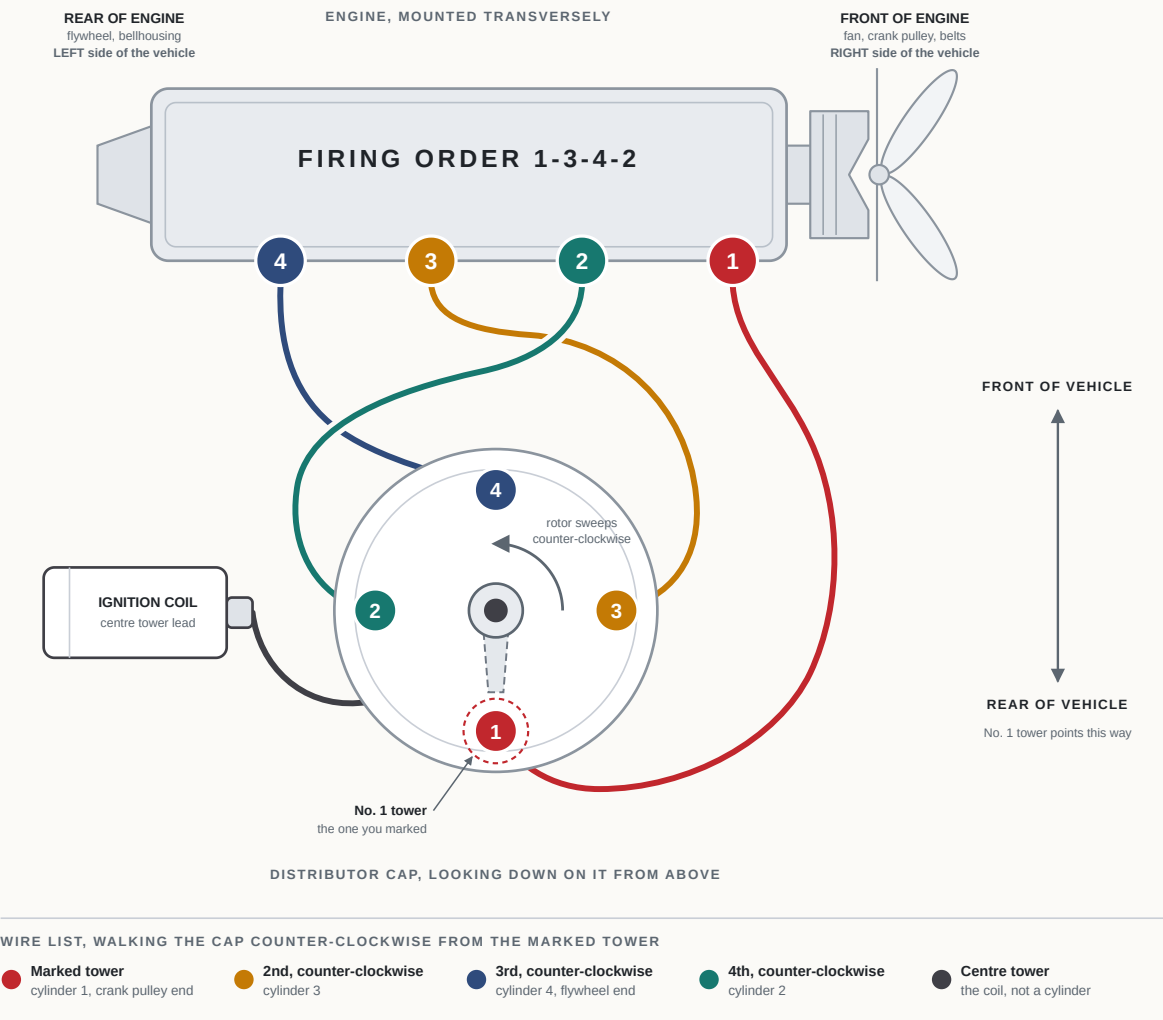
Standalone answer to “all the plug wires are off, what goes where.” Everything below is from the Nissan factory [engine service manual](#) unless flagged otherwise. See [Specs](#) for the rest of the ignition data.

This was not previously documented anywhere in this project — [Specs](#) and [Research](#) carried the bare sequence `1-3-4-2` and nothing about which tower is which. That gap is what this page closes.

The map at a glance

Distributor to Cylinder Plug Wire Map

Grove MZ66B, Nissan A15. Firing order 1-3-4-2, rotor turning counter-clockwise.
Drawn looking down on the machine, front of the vehicle at the top of the page.



The leads cross in the middle of the loom. That is correct. The cylinders sit 1-2-3-4 in a row but fire 1-3-4-2, so do not tidy them into 1-2-3-4.
Walk the cap the wrong way and you wire it 1-2-4-3, which fires each cylinder's companion. Expect backfiring and kickback, and re-check rotation before chasing fuel.
The No. 1 tower was established at the machine on 09 Sep 2026 by Method A. Thumb over the No. 1 plug hole, crank to TDC compression, cap off, read the rotor.
The engine is mounted transversely, with the front of the engine facing right and the hydraulic pump on the left, attached to the rear of the engine.
The distributor is clearly visible when the engine compartment door is opened, and is located to the rear of the vehicle, with the coil to the left.
If a rebuilt distributor ever puts No. 1 somewhere else, turn the cap in this picture so tower 1 sits on the tower you marked. The sequence around it does not change.

Sources. Firing order and rotation, service manual p.EL-19. Cylinder numbering, p.MA-3 fig. SMA099. No. 1 tower, owner 09 Sep 2026. Engine orientation, owner 13 Sep 2026.

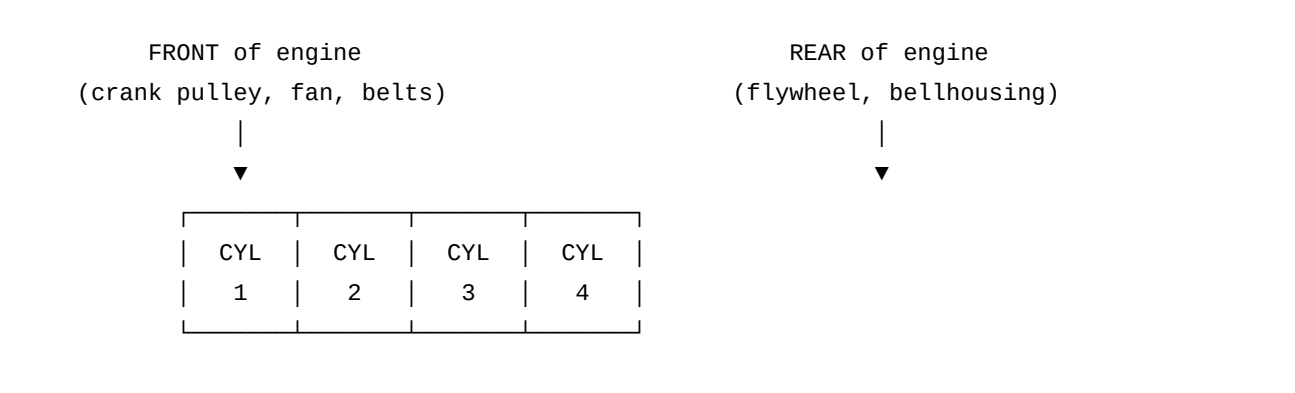
Everything in that drawing is worked through below. The rotor sweeps counter-clockwise and the leads walk 1-3-4-2 around the cap onto cylinders that sit 1-2-3-4 from the front of the engine to the rear. No. 1 is the tower facing the rear of the vehicle.

The three facts you need

Fact	Value	Source
Firing order	1-3-4-2	Service manual p.EL-19 (PDF p.90), Service Data and Specifications → DISTRIBUTOR. The A15 column of the factory table
Rotor rotation	Counter-clockwise (viewed from above, cap off)	Same table — “Rotating direction: Counterclockwise,” spanning both the A12 and A15 columns
Cylinder numbering	No. 1 is at the FRONT — the crank pulley / fan / drive belt end. No. 4 is at the flywheel end.	Service manual p.MA-3 (PDF p.10), Fig. SMA099 — the valve-adjustment figure carries a “Front” arrow, and the No. 1 cylinder step adjusts the two front-most valves

Note the firing order used to be sourced here from a Datsun forum post. It is now confirmed against the actual factory spec table, so treat it as hard fact.

Cylinder layout



“Front” here means the front of the *engine*, not the front of the machine — the end the crank pulley and drive belts are on. Don’t infer it from how the engine sits in the chassis.

Step 1 — find which cap tower is No. 1

The cap towers are evenly spaced and nothing on the cap identifies them, so you have to establish No. 1 from the engine itself. There are two independent ways, and they should agree — do both, because if they disagree you have a mis-installed distributor, not a wiring question.

Method A — rotor at No. 1 TDC compression (the one to trust):

1. Pull all four spark plugs. Cranking is far easier with them out, and you need No. 1's hole open.
2. Put a thumb over the **No. 1** (front-most) plug hole.
3. Turn the crank in its normal running direction — clockwise as you look at the crank pulley from the front of the engine — until you feel compression pushing your thumb off the hole. That tells you No. 1 is on its *compression* stroke, not its exhaust stroke. This distinction is the whole point: the crank turns twice per cycle, so No. 1 comes up to TDC twice, and only one of those is the firing position.
 - The crank pulley bolt is torqued to 108-145 ft-lb, so it will not back off while you lever on it. If you would rather bump the starter, do it in short taps and keep hands clear.
4. Keep going in the same direction until the timing mark on the crank pulley lines up with TDC (0°) on the timing indicator.
5. Pull the distributor cap. **Whichever tower the rotor tip is now pointing at is cylinder No. 1.** Mark it with a paint pen or a scratch before you put the cap back on.

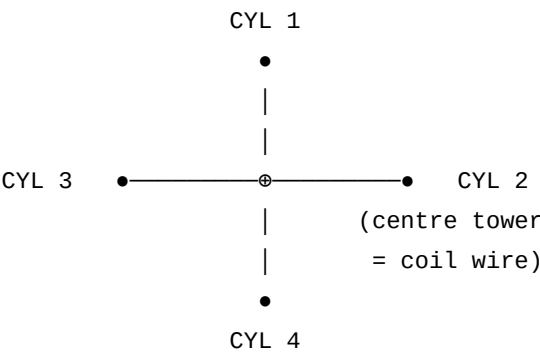
Method B — the cast “No. 1 mark” on the distributor:

The factory manual (**p.EM-16**, PDF p.38, Fig. EM-78 “Correct Position of Rotor”) shows a **“No. 1 mark”** cast into the distributor housing. With No. 1 at TDC compression, the rotor tip should be sitting on that mark. Use this to cross-check Method A. If the rotor is 180° from the mark, you are on the exhaust stroke — turn the crank one more full revolution and check again.

Step 2 — walk the cap counter-clockwise

Once you know the No. 1 tower, everything else falls out of the rotation direction. The rotor turns **counter-clockwise**, so the next cylinder in the firing order is the next tower **counter-clockwise** from the one before it.

DISTRIBUTOR CAP — looking DOWN on it from above, cap removed
Rotate this picture so that "CYL 1" sits on the tower you marked in Step 1. The cap's clocking on the engine varies; the sequence around it does not.



σ rotor sweeps counter-clockwise
1 → 3 → 4 → 2 → back to 1

Written out as a wire list, starting from the tower you marked:

Tower, counter-clockwise from No. 1	Goes to
1st (the marked one)	Cylinder 1 — front-most plug
2nd	Cylinder 3
3rd	Cylinder 4 — rear-most plug, flywheel end
4th	Cylinder 2
Centre tower	Coil high-tension lead — not a cylinder

Because the order is 1-3-4-2 and the cylinders are physically 1-2-3-4 in a row, the wires cross over each other in the middle of the loom. That is correct and expected — don't "tidy" it into 1-2-3-4.

Getting the direction wrong: what it looks like

If you walk the cap **clockwise** instead of counter-clockwise you will wire it 1-2-4-3, which fires each cylinder's companion instead of the cylinder itself. The engine will not run. Expect loud backfiring through the carburettor and/or the exhaust, and possibly a kickback while cranking. If you get that, don't chase fuel or timing — re-check the rotation direction first.

While the plugs are out anyway

Item	Spec
Plug gap	0.8-0.9 mm (0.031-0.035 in). Gap to 0.032-0.035 in. Which plug is still open , the factory NGK B4ES → now BR4ES, stock 1097 is a 19 mm gasket-seat plug while the AC Delco R44T in the engine is a 0.431 in taper. See SPECS.md
Plug torque	15-20 N·m (11-14 ft-lb)
Plug wire resistance	Less than 30,000 Ω per lead. Worth checking all four with a meter before you reinstall — this machine sat, and cracked or high-resistance leads are a classic sitting failure
Ignition timing (after it runs)	10° BTDC at idle. A12 is 12° — this is an A15, use 10° (p.MA-7)

Full ignition spec table is in [Specs](#) → "Ignition."

Also worth doing while the cap is off, as of [09 Sep 2026](#). The ignition coil ohmed out with an **open secondary** and is being replaced. Buy an **external-resistor** coil to

match what came off, and find the circuit's dropping resistor and its cranking bypass while the meter is out. Details on [Specs](#) under "Note on the ignition coil."

Which distributor is it

Read off the distributor body casting on [09 Sep 2026](#). Two numbers are stamped into the aluminium.

Number	Whose
T4T56371	Mitsubishi Electric unit number
22100-G5110	Nissan part number

The second character of the Nissan suffix is stamped on a rough casting. It reads as a G, but take a light to it before ordering anything against it.

Order cap, rotor and leads against these numbers, not against a vehicle application. They are high-signal search terms in a way that "Nissan A15 distributor cap" is not. A cap bought on an application lookup in September 2026 (Import Direct 10-0199, boxed as OE **22162-G5711** (→ now **SMP JH180**)) turned out to be poor enough quality not to fit, though its OE cross-reference was actually correct. The separately bought rotor was the real mismatch, a round shank taking a screw, which this distributor does not use. See [09 Sep 2026](#).

Points or electronic, settled. It is electronic

Three independent sources agree, so treat this as fact rather than an open question.

1. **Physical inspection, [22 Aug 2026](#).** Cap off, no contact set and no condenser inside

2. **Grove's own engine harness drawing** ([parts catalog](#), catalog pp.152-154 / PDF p.169, harness assembly 6512002038) labels a tap point for an **electronic distributor** alongside the anti-diesel solenoid. That label is read off the drawing image and does not appear in the extracted text, so it is not quotable as a text hit
3. **The casting number, 09 Sep 2026.** The [Nissan service manual](#) documents this engine's distributor as Mitsubishi **T3T03581**, a breaker-point unit, and publishes point gap and dwell figures for it on the service data page (**p.EL-19**, PDF p.90). The T3T03671 alongside it is the A12 column of the same table, not a second option for the A15. The unit actually fitted is a **T4T** number, a different and later family

What follows from it. The point gap and dwell specs in the Nissan manual do not apply to this engine and are struck through on [Specs](#). There is no condenser inside, and none is needed. A condenser exists to stop mechanical points burning themselves out, and there are no points here. Some electronic units carry a small external noise-suppression capacitor on the housing, which is a different part and is not required for the engine to run. None of this changes the firing order, rotation direction or cylinder numbering above, which are identical either way.

Which tower is No. 1 on this engine, established [09 Sep 2026](#)

Method A was done on this machine and the answer is recorded. Thumb over the No. 1 plug hole, crank to compression, carry on to TDC, cap off, read the rotor.

No. 1 is the tower facing the rear of the vehicle. The leads then walk counterclockwise 1-3-4-2 from there, per Step 2 above.

How the engine sits in the machine

Established 2026-09-13.

- The engine is mounted transversely
- The front of the engine faces right
- The hydraulic pump is on the left, attached to the rear of the engine

- The distributor is clearly visible when the engine compartment door is opened, and is located to the rear of the vehicle
- The coil is to the left
- The drawing at the top of this page is clocked to match, looking down from above with the front of the vehicle at the top of the page

Method B, the cast “No. 1 mark” on the distributor housing, is still worth a glance as a cross-check whenever the cap is next off.