

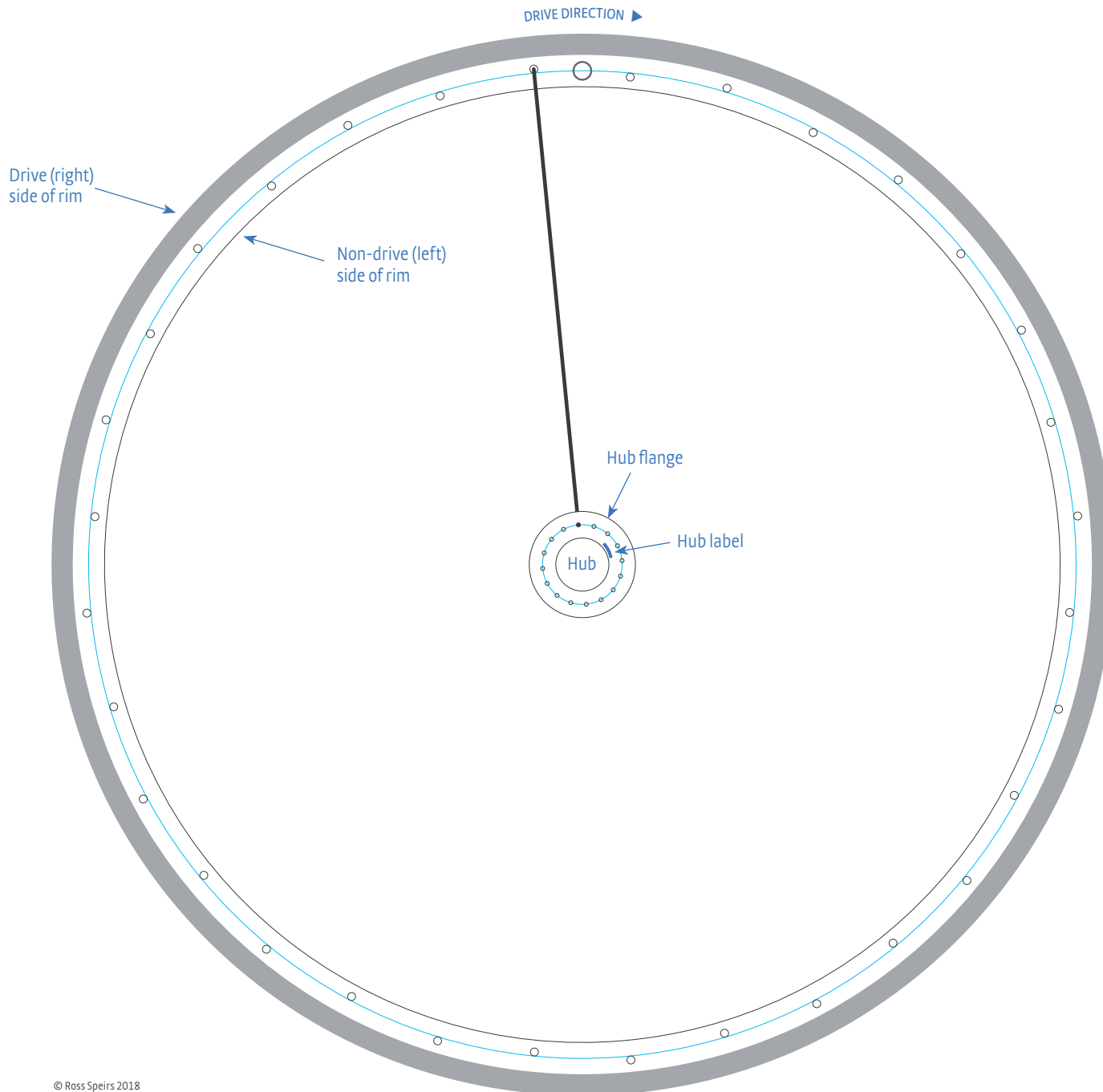
WHEEL BUILD A1

32 hole, type 1 rim
x3 symmetrical, outside pull

LACING SEQUENCE

ROSS SPEIRS

Cycle wheel builder



WHEEL BUILD A1

32 hole, type 1 rim
x3, symmetrical, outside pull

LACING SEQUENCE

Stage 1: first leading (inside) spoke, drive side

Hub label should read from left to right of bike, and rim label should face non-drive side

From the flange hole nearest the centre of the hub label, count *three* holes to the left* (this will centre the hub label beneath the valve, and leave parallel spokes below the valve hole for easier pump access)

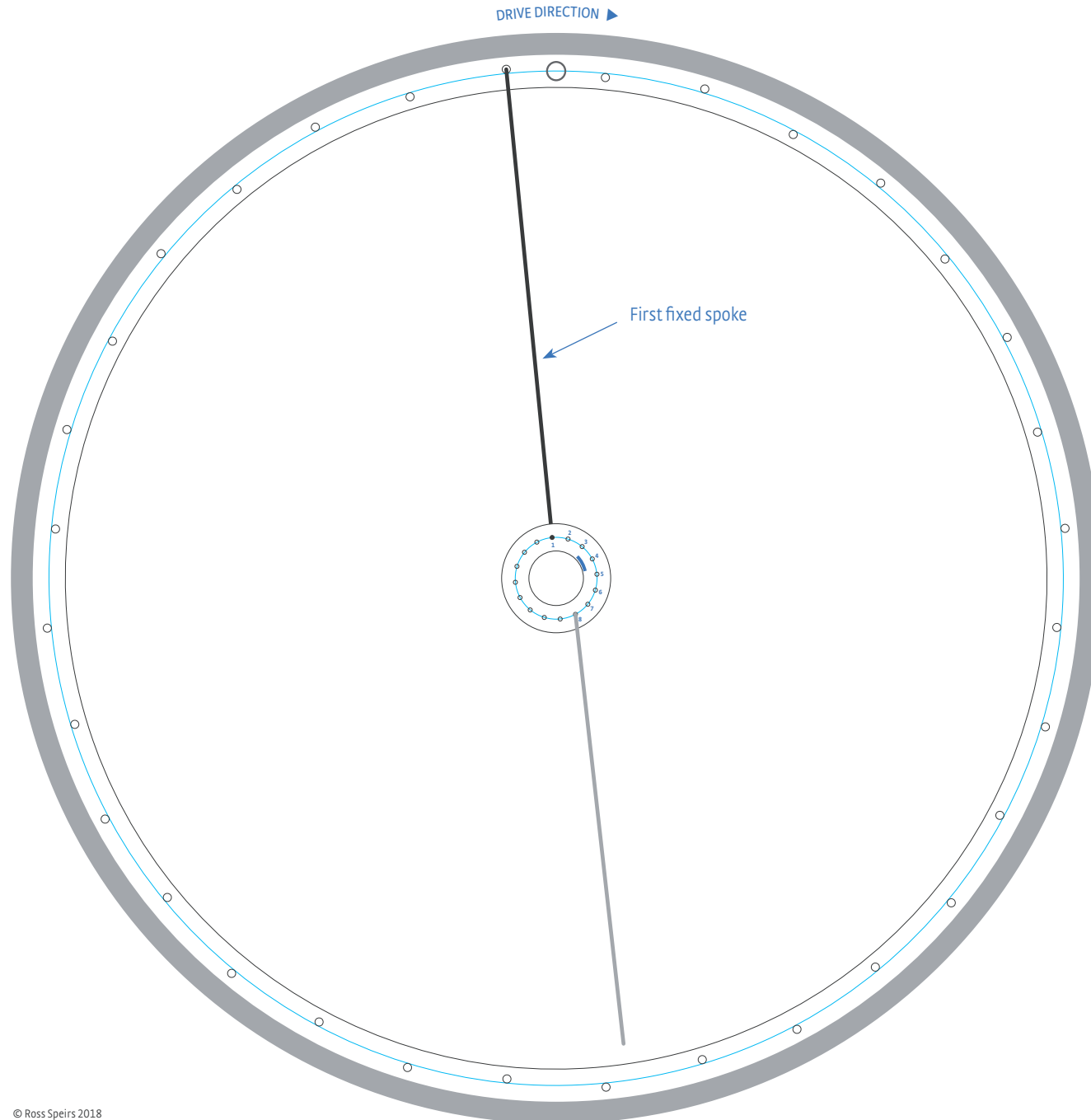
Insert spoke from outside hub through this hole, and fix to the rim one hole to the left of the valve hole

*On a type 2 rim, count **four** holes to the left



WHEEL VIEWED FROM DRIVE SIDE

- Drive, leading, inside
- Drive, pulling, outside
- Non-drive, leading, inside
- Non-drive, pulling, outside



WHEEL BUILD A1

32 hole, type 1 rim
x3, symmetrical, outside pull

LACING SEQUENCE

Stage 2: first pulling (outside) spoke, drive side

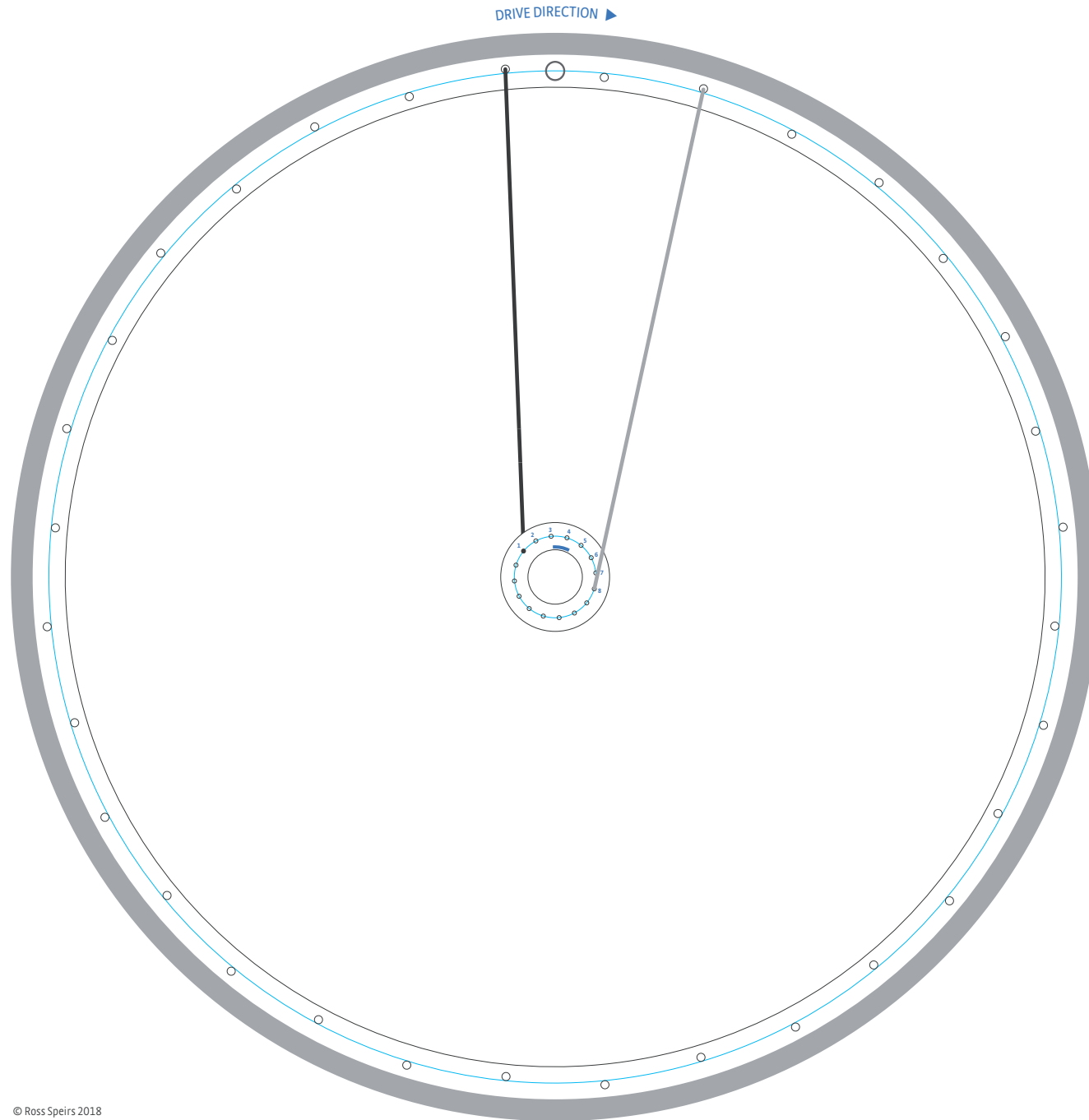
Taking the first fixed spoke hole as 1, count clockwise to hole 8 on the hub, and insert a spoke from inside the hub

Note: this would be hole 6 for x2, hole 4 for x1



WHEEL VIEWED FROM DRIVE SIDE

- Drive, leading, inside
- Drive, pulling, outside
- Non-drive, leading, inside
- Non-drive, pulling, outside



WHEEL BUILD A1

32 hole, type 1 rim
x3, symmetrical, outside pull

LACING SEQUENCE

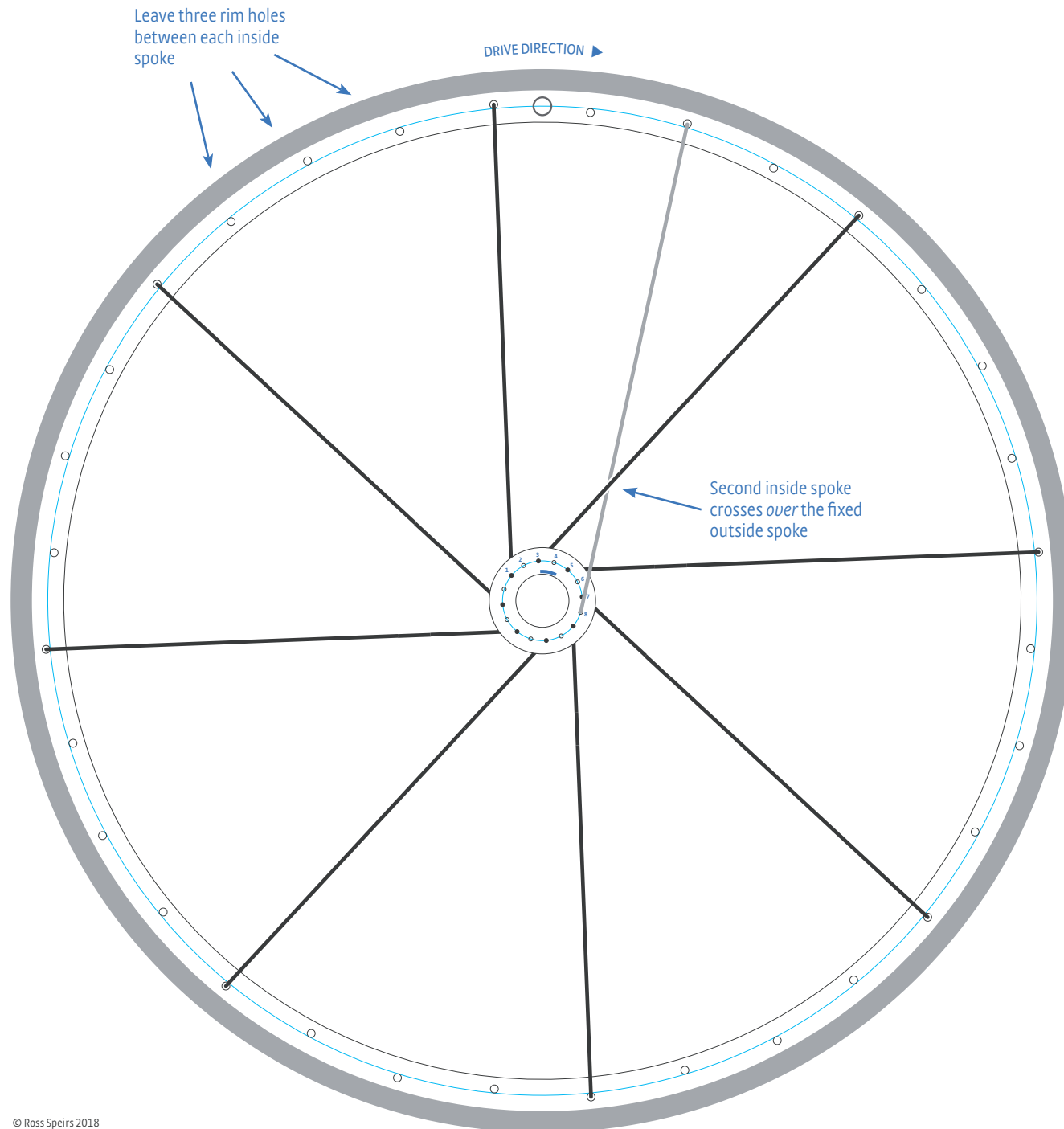
Stage 3: connect first pulling spoke to rim

Fix first outside drive-side spoke to the second rim hole on the right of the valve stem



WHEEL VIEWED FROM DRIVE SIDE

- Drive, leading, inside
- Drive, pulling, outside
- Non-drive, leading, inside
- Non-drive, pulling, outside



WHEEL BUILD A1

32 hole, type 1 rim
x3, symmetrical, outside pull

LACING SEQUENCE

Stage 4: inside (leading) spokes, drive side

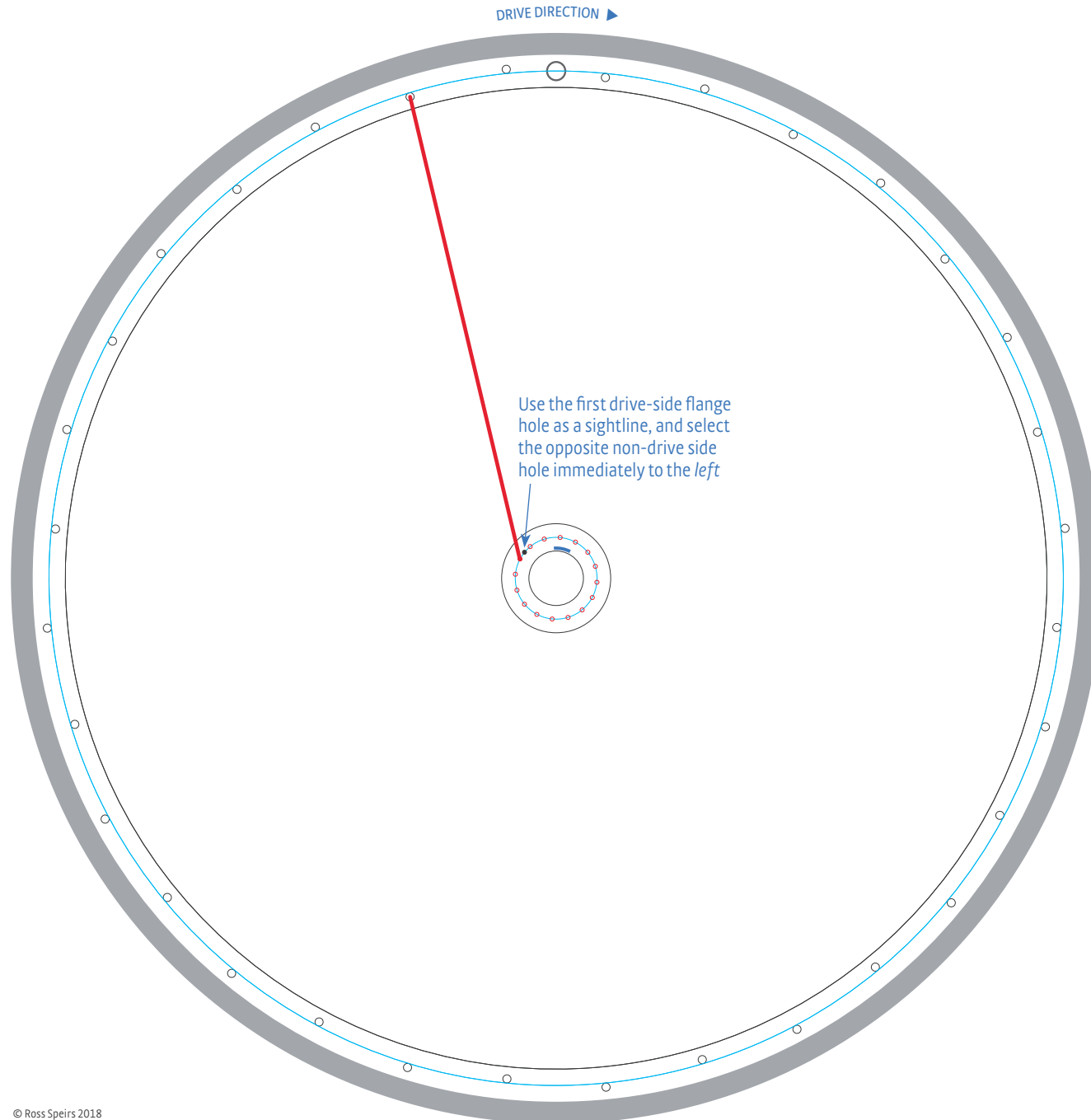
Work to the right, using alternate flange holes, and leave three rim holes between each inside spoke

The second inside spoke (arrowed) must cross over the fixed outside spoke



WHEEL VIEWED FROM DRIVE SIDE

- Drive, leading, inside
- Drive, pulling, outside
- Non-drive, leading, inside
- Non-drive, pulling, outside



WHEEL BUILD A1

32 hole, type 1 rim
x3, symmetrical, outside pull





LACING SEQUENCE

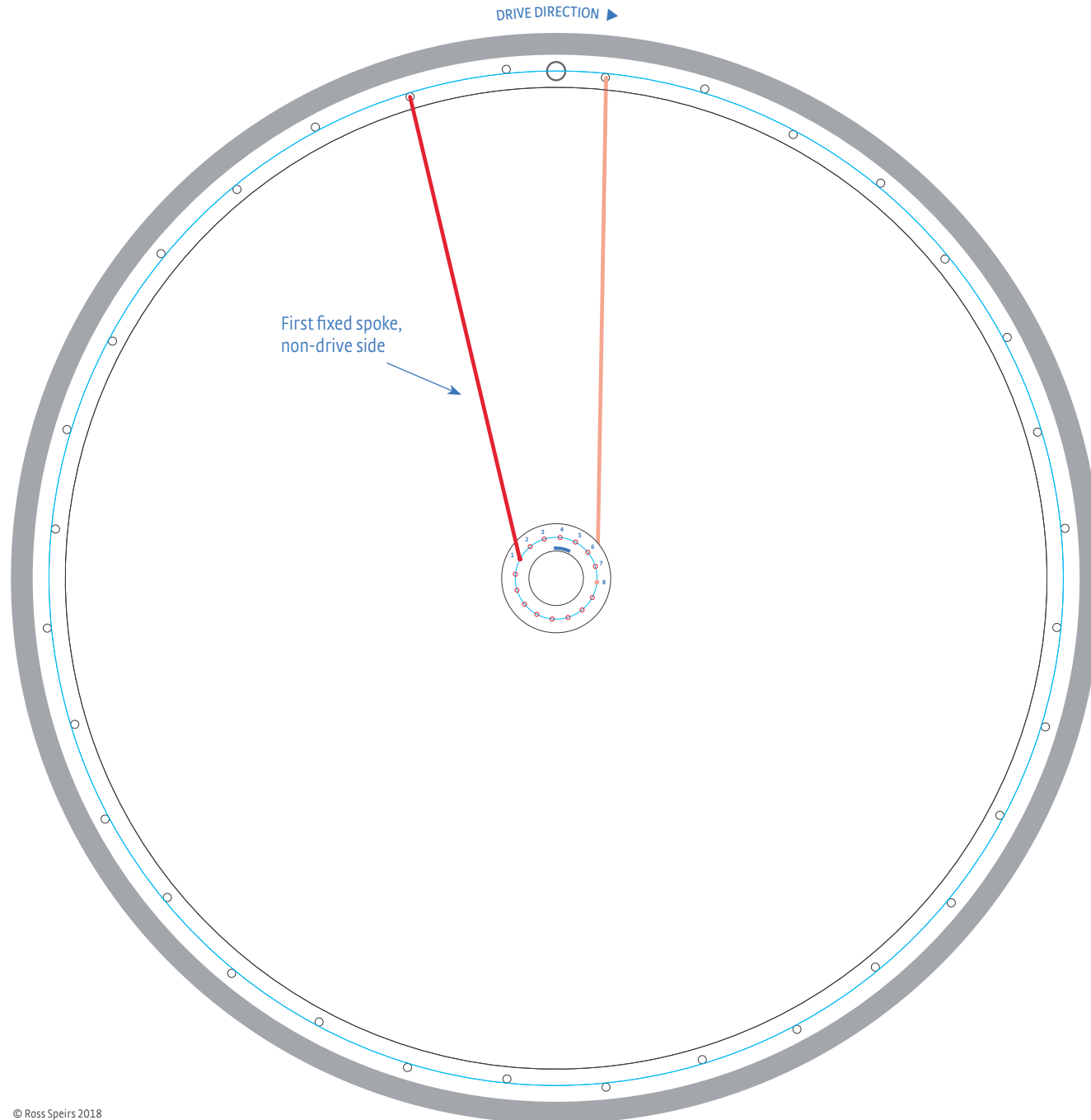
Stage 5: first leading (inside) spoke, non-drive side

From drive-side hole 1, sight the first non-drive side flange hole immediately to the *left* of it
Pass the first inside non-drive spoke through this hole from outside the hub, and fasten it to the second rim hole to the left of the valve stem (*when viewed from the drive side*)



WHEEL VIEWED FROM DRIVE SIDE
DRIVE SIDE SPOKES NOT SHOWN

-  Drive, leading, inside
-  Drive, pulling, outside
-  Non-drive, leading, inside
-  Non-drive, pulling, outside



First fixed spoke,
non-drive side

WHEEL BUILD A1

32 hole, type 1 rim
x3, symmetrical, outside pull

LACING SEQUENCE

**Stage 6: first pulling (outside) spoke,
non-drive side**

Taking the first fixed spoke hole as 1, count clockwise to hole 8* on the hub, and insert a spoke from inside the hub

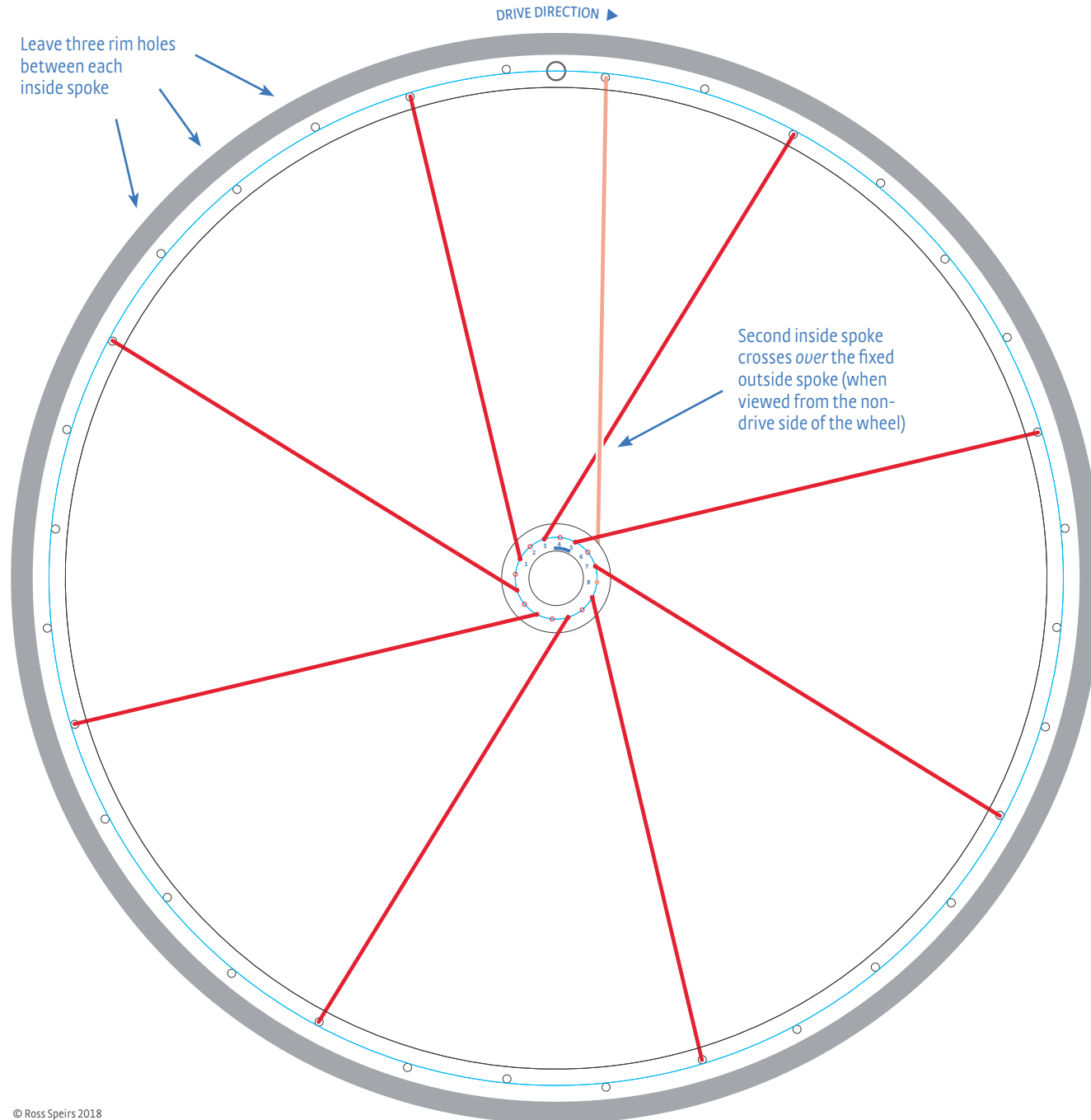
Fasten this spoke to the first hole to the right of the valve hole

**Note: this would be hole 6 for x2, hole 4 for x1*



WHEEL VIEWED FROM DRIVE SIDE
DRIVE SIDE SPOKES NOT SHOWN

- Drive, leading, inside
- Drive, pulling, outside
- Non-drive, leading, inside
- Non-drive, pulling, outside



WHEEL BUILD A1

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LACING SEQUENCE

Stage 7: inside (leading) spokes, non-drive side

Work to the right*, using alternate flange holes, and leave three rim holes between each inside spoke

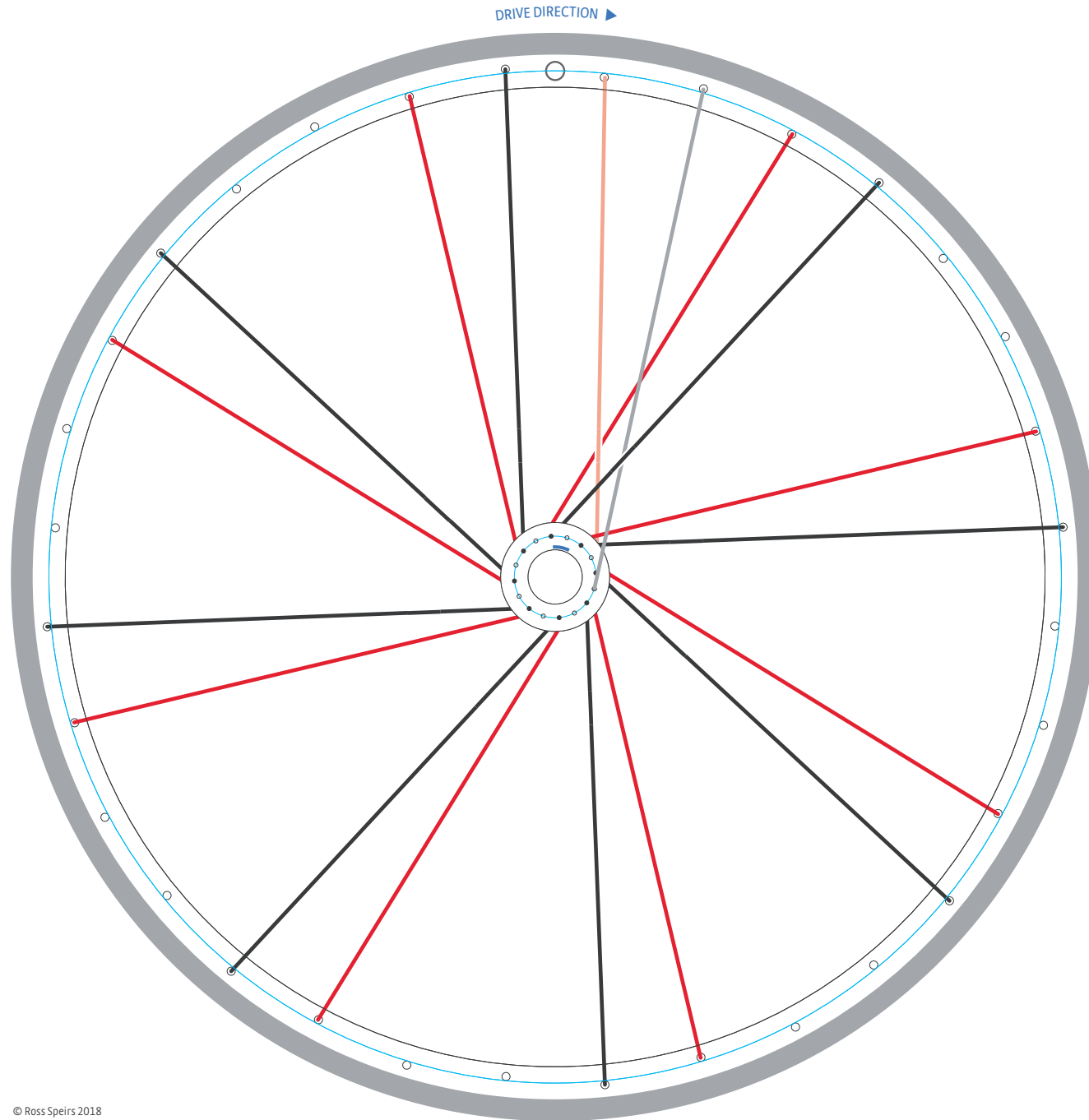
The second inside spoke (arrowed) must cross over the fixed outside spoke

**In the context of this diagram only – in reality, you would turn the wheel over and work to the left*



WHEEL VIEWED FROM DRIVE SIDE
DRIVE SIDE SPOKES NOT SHOWN

- Drive, leading, inside
- Drive, pulling, outside
- Non-drive, leading, inside
- Non-drive, pulling, outside



WHEEL BUILD A1

32 hole, type 1 rim
x3, symmetrical, outside pull

LACING SEQUENCE

Stage 7: inside spoking complete

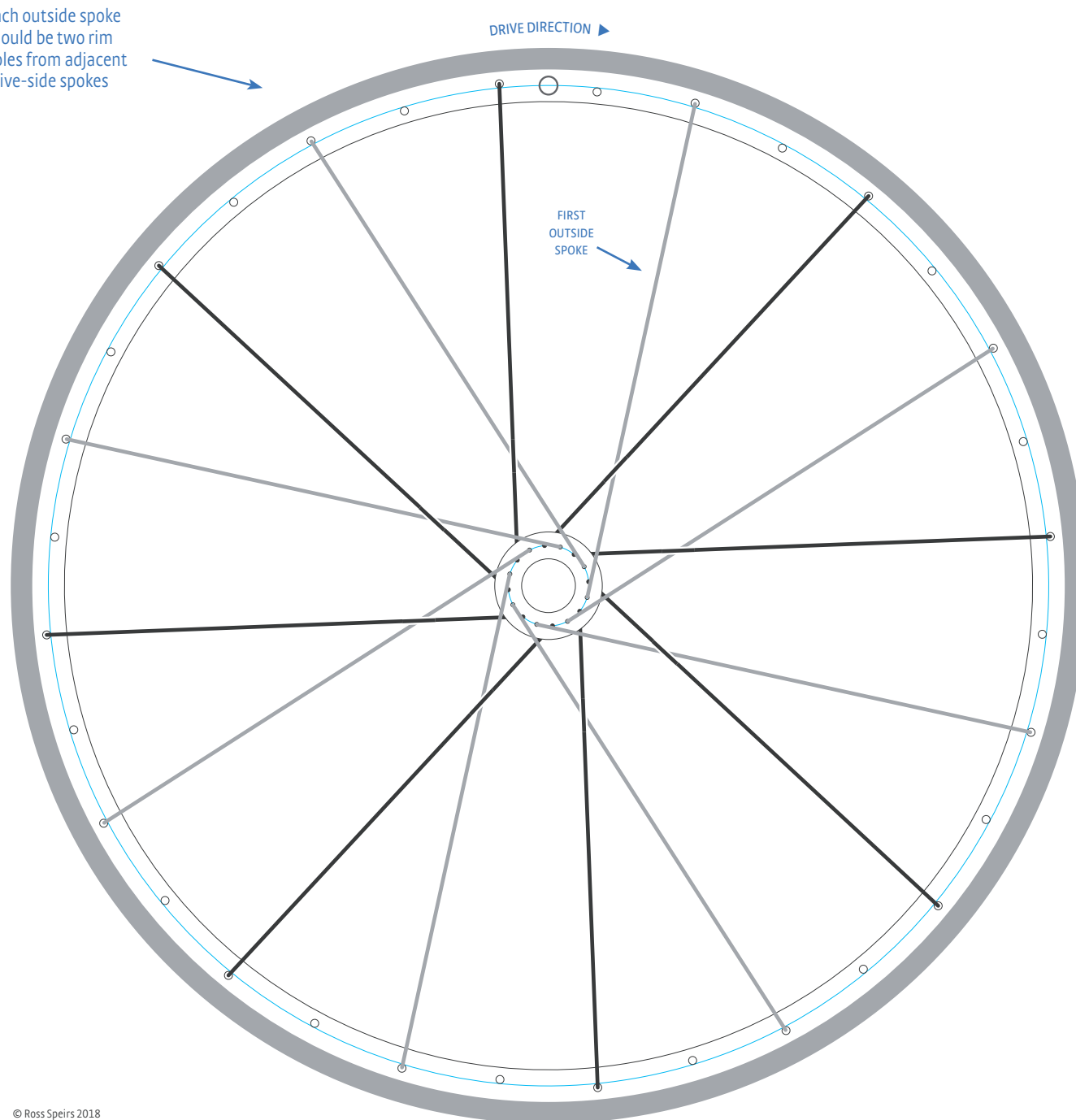
All 16 inside spokes, plus the first outside spoke on each side of the wheel, are now in place



WHEEL VIEWED FROM DRIVE SIDE

- Drive, leading, inside
- Drive, pulling, outside
- Non-drive, leading, inside
- Non-drive, pulling, outside

Each outside spoke should be two rim holes from adjacent drive-side spokes



WHEEL BUILD A1

32 hole, type 1 rim
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LACING SEQUENCE

Stage 8: outside (pulling) spokes, drive side

Place the remaining drive side spokes, from inside the hub, through the empty holes on the drive side flange

Work round the wheel in either direction from the first outside spoke, lacing each spoke to the left across two inside spokes and *under* the third inside spoke

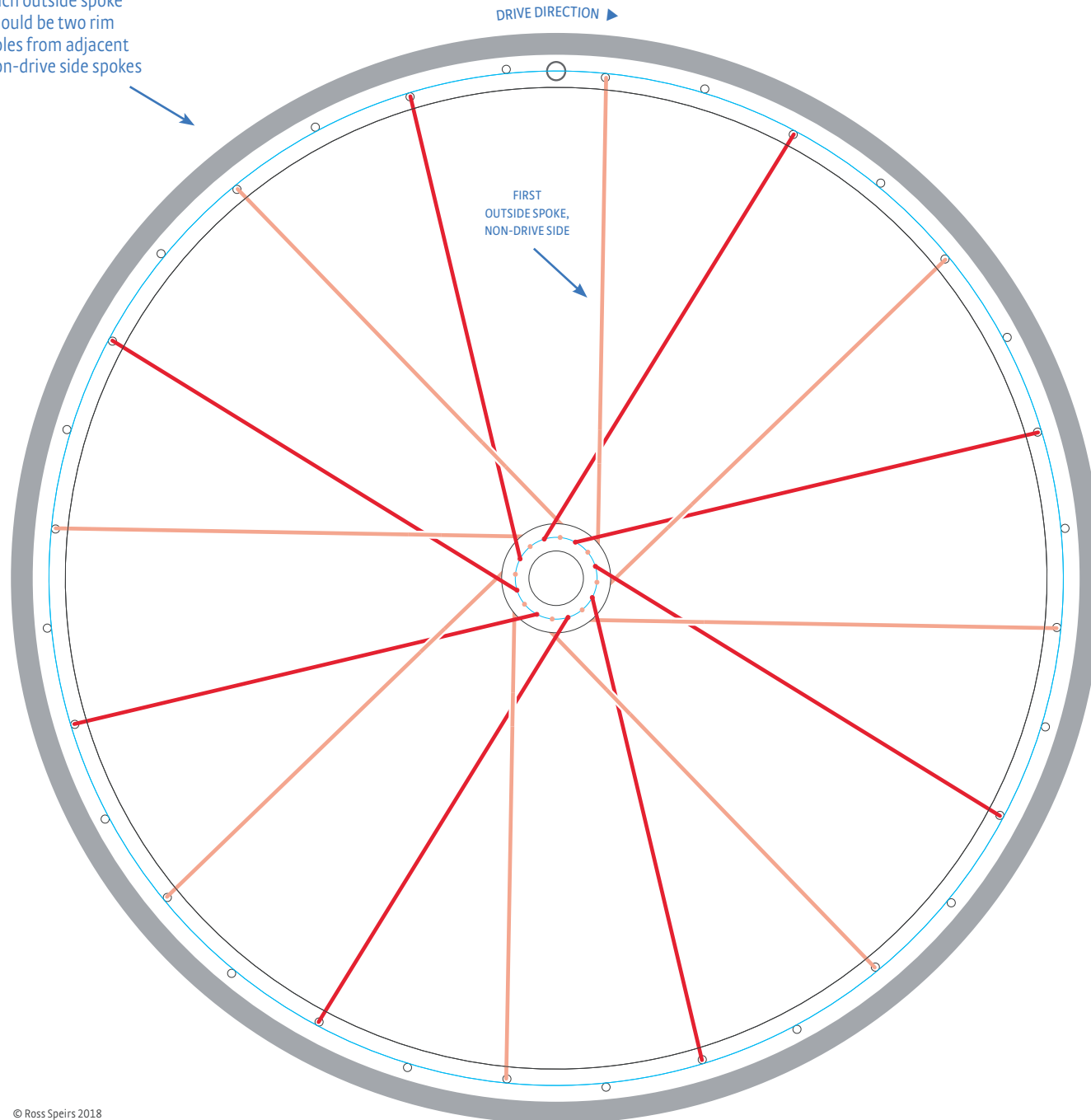
Each outside spoke should be fixed two rim holes away from adjacent drive-side spokes
Leave three rim holes between outside spokes



WHEEL VIEWED FROM DRIVE SIDE
NON-DRIVE SIDE SPOKES NOT SHOWN

- Drive, leading, inside
- Drive, pulling, outside
- Non-drive, leading, inside
- Non-drive, pulling, outside

Each outside spoke should be two rim holes from adjacent non-drive side spokes



WHEEL BUILD A1

32 hole, type 1 rim
x3, symmetrical, outside pull

LACING SEQUENCE

Stage 9: outside (pulling) spokes, non-drive side

Place the remaining non-drive side spokes, from inside the hub, through the last empty holes
Work round the wheel in either direction from the first outside spoke, lacing each spoke to the left* across two inside spokes and *under* the third inside spoke

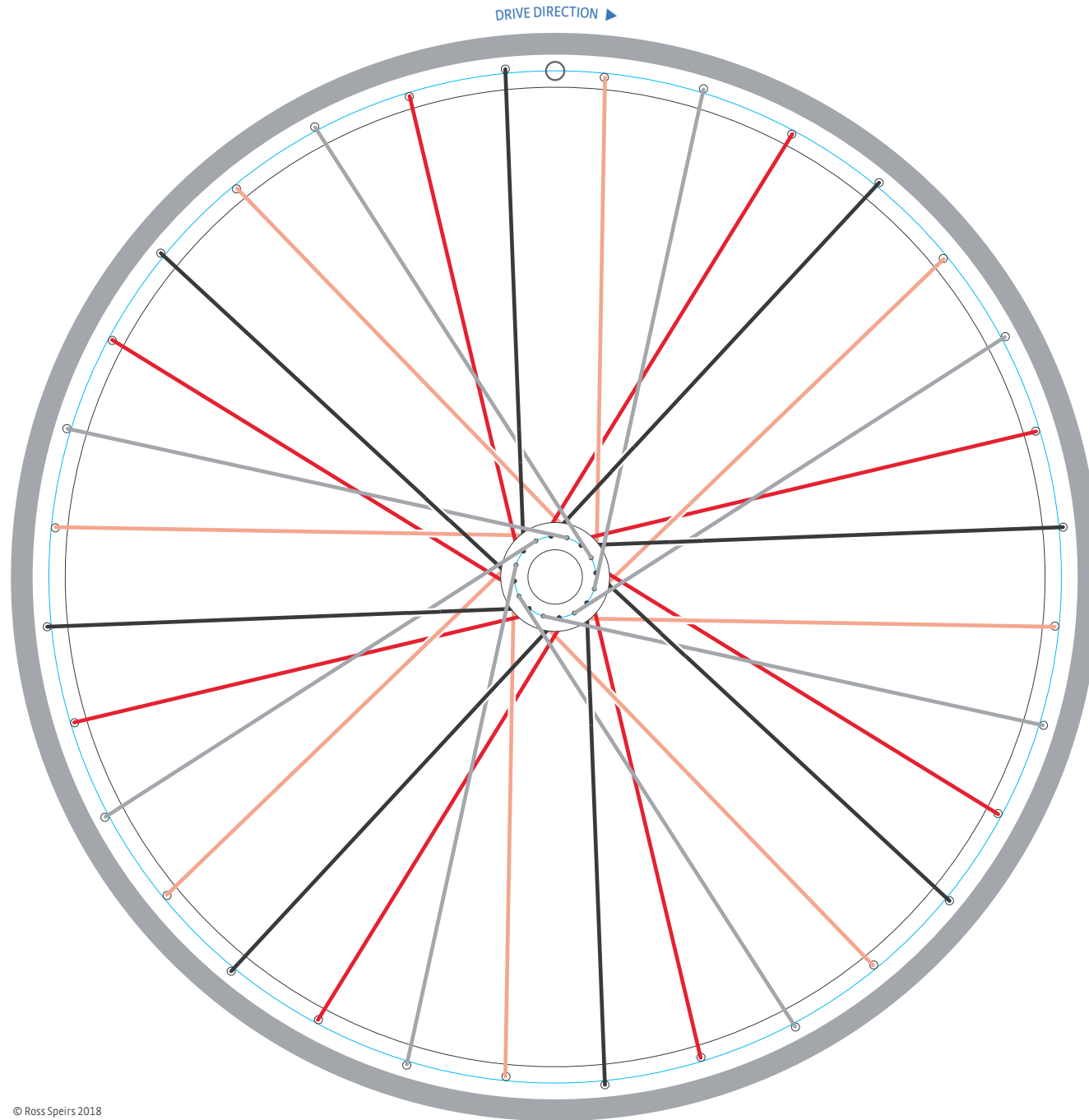
Each outside spoke should be fixed two rim holes away from adjacent non-drive side spokes

**In the context of this diagram only – in reality, you would turn the wheel over and lace the spokes to the right*



WHEEL VIEWED FROM DRIVE SIDE
DRIVE SIDE SPOKES NOT SHOWN

- Drive, leading, inside
- Drive, pulling, outside
- Non-drive, leading, inside
- Non-drive, pulling, outside



WHEEL BUILD A1

32 hole, type 1 rim
x3, symmetrical, outside pull

LACING SEQUENCE

Stage 9: wheel complete



WHEEL VIEWED FROM DRIVE SIDE

- Drive, leading, inside
- Drive, pulling, outside
- Non-drive, leading, inside
- Non-drive, pulling, outside