

Finding Lift Solutions



DSW
SOLUTIONS

This Book Is for Clarity.

In the world of lift diagnostics, patterns often hide in plain sight. This book was created to help you see them.

It doesn't aim to be exhaustive or overly technical. Instead, it's designed to be visual, practical, and most of all—useful in the field.

Whether you're an experienced technician or a rising engineer, you'll find in these pages.

- Clear illustrations that connect error codes to causes,
- Real-world troubleshooting logi from live support cases.

Tips that help you link one fault to another.

We don't just want to help you fix faults. We want to help you understand *why* they happen together.

Because a good technician solves the error—
A great one understands the pattern.



to Use This Guide

This isn't a manual you read cover to cover.
It's a diagnostic companion.

Open it when an error appears.
Flip to the visual pattern.
Find the connection. Solve it smarter.



Error Blocks

Grouped by relation, not number.
If multiple faults appear together,
there's likely a root cause beneath.
We help you trace it.



Visual Diagnostics

Each page uses real AREM logs,
Arcode screen layouts, and
true hardware visuals to show
not just the fault—but



Progressive Learning

If you follow the pattern logic across
pages, you'll learn not only to fix—
but to predict.



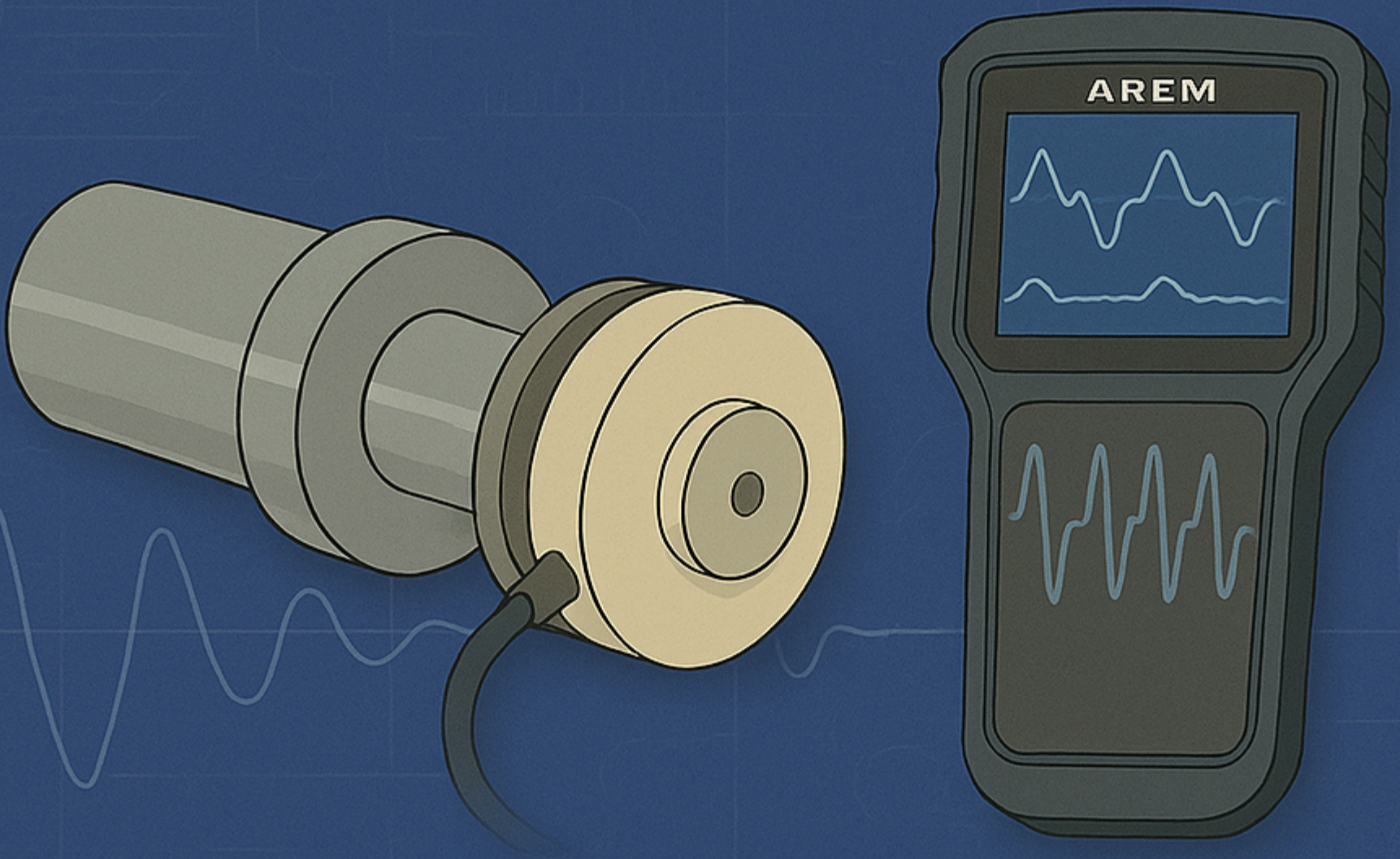
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SECTION 1

Encoder Feedback & Motion Stability

Signal Quality · Overspeed · Speed Control

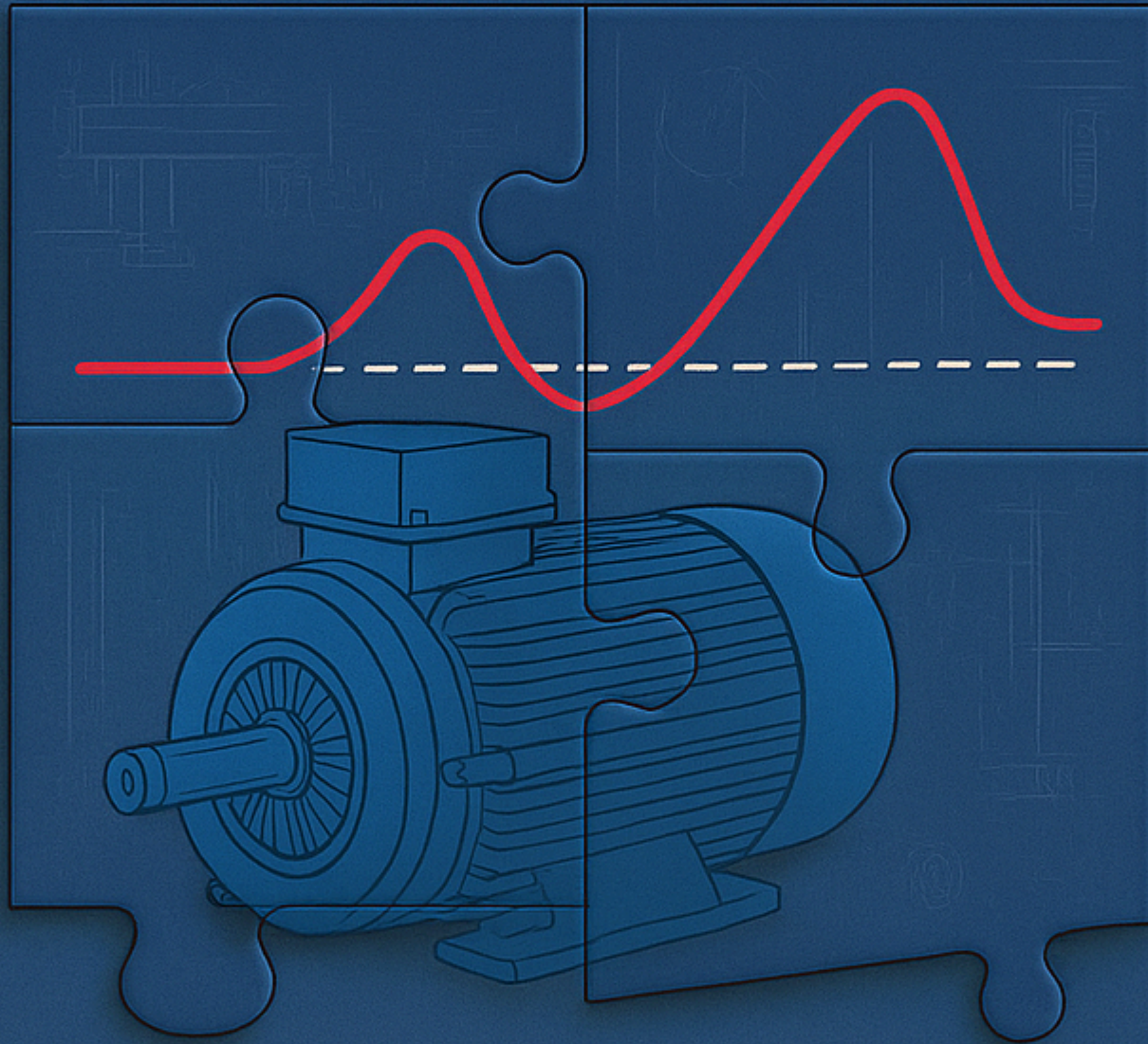


Precision starts with trust
in your feedback system.

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ERROR 18 – CAR OVERSPEEDED

Triggered when encoder feedback shows speed higher than expected. Usually appears at travel or travel or during deceleration.



Common causes:

- EMI (electromagnetic interference)
- Encoder wiring or shielding issues
- PID gain too aggressive
- Wrong motor settings (especially encoder pulse count)

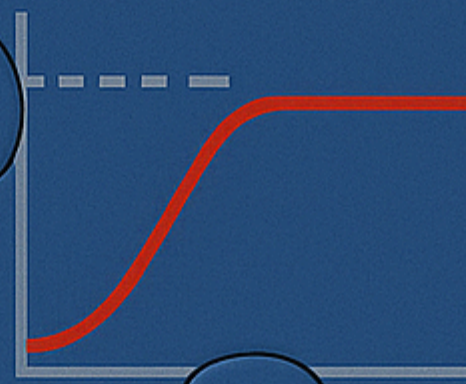
DSW TIP: Always check for shielding and PID tuning stability on overspeed faults.

Error 19 – Could Not Reach Required Speed

Motor cannot reach the reference speed within time.
Often seen right after brake release or in heavy load scenarios.



Reference speed



Common causes:

- Brake not fully releasing
- Encoder feedback incorrect
- Low PID gains
- Motor sizing or settings incorrect

DSW TIP:

Compare speed ramp with brake release timing. Check PID and inertia settings.

ERROR 20 ENCODER CONNECTION FAULT

Communication loss or interruption between the controller and the encoder.

Common causes:



Poor grounding



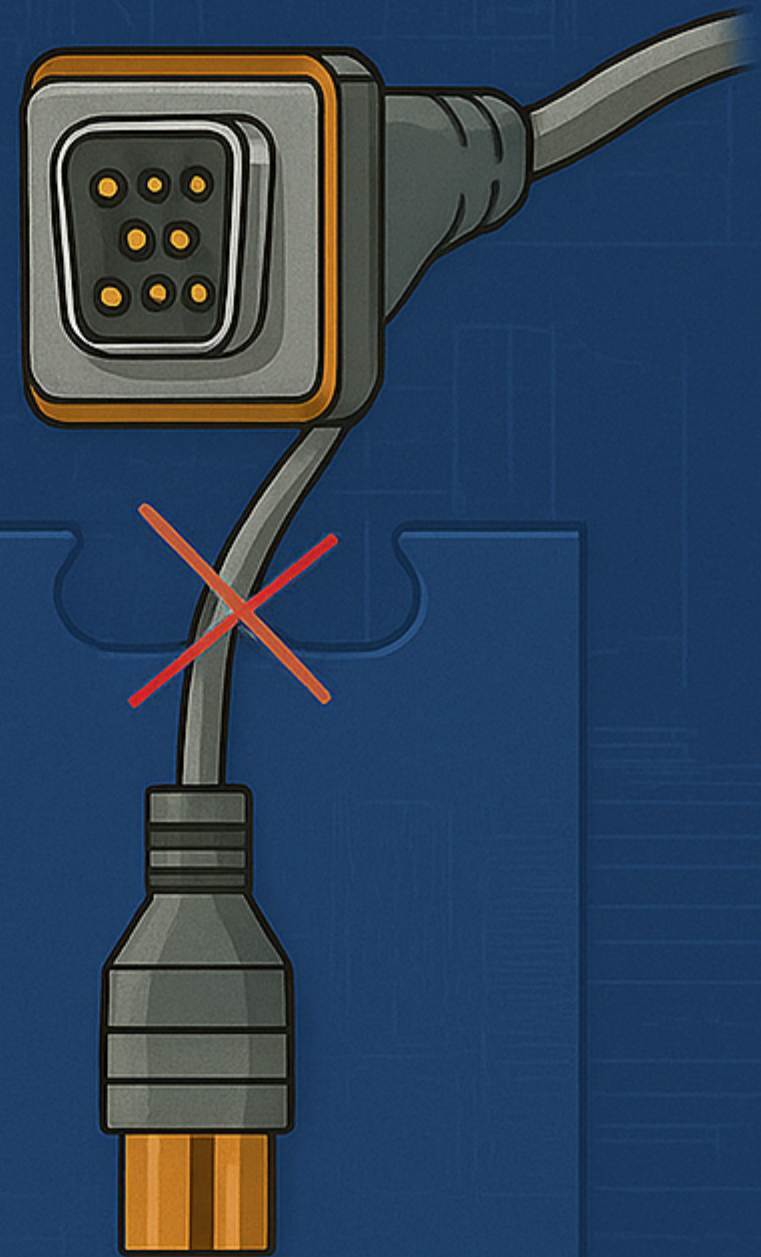
Extended or poor-quality encoder cables



Shield grounded or both sides



Proximity to power or safety lines



DSW TIP: Keep encoder cables isolated and grounded only at the motor side.

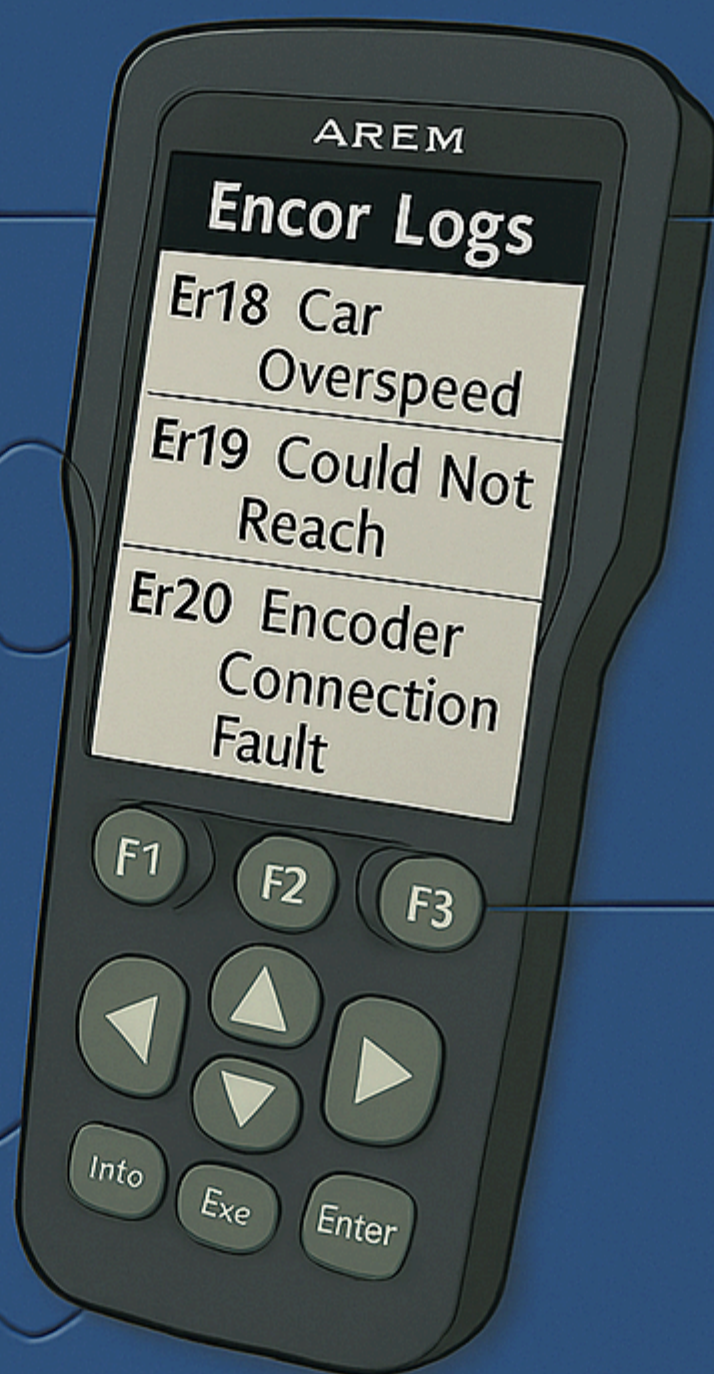
Grouped Encncoder Feedback Errors

If Errors 18, 19, and 20 appear together in AREM logs, the most likely root cause is poor encoder signal quality.

These errors often appear together when encoder signal is noisy or unstable.

DSW TIP:

Check encoder mounting, grounding, shielding, and cable layout when multiple encoder-related errors occur together.



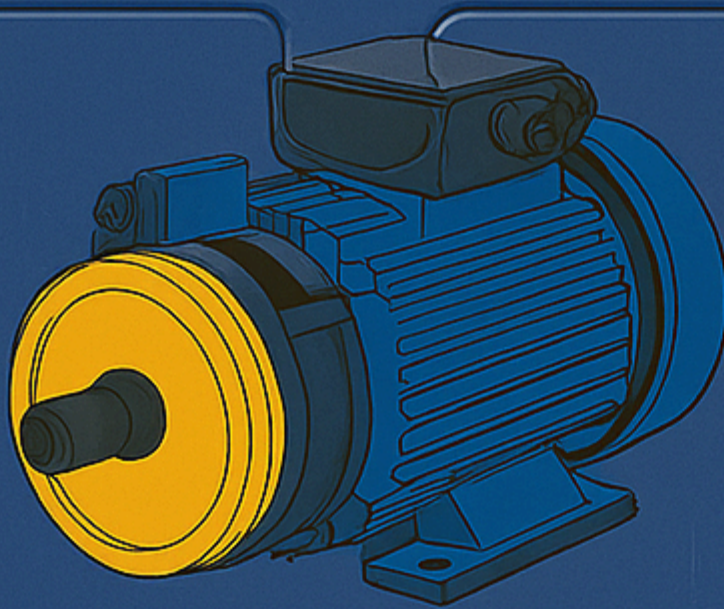
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TIP FOR ENCODER FEEDBACK-RELATED ERRORS

Always check if the errors are related:

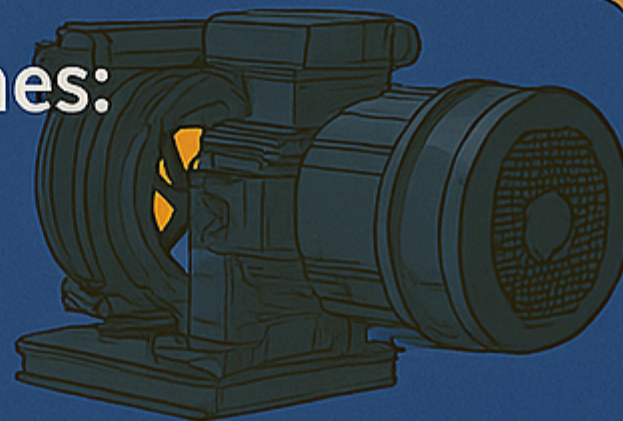
For synchronous machines:

Compare the encoder
feedback offset angle
variation between autotunes

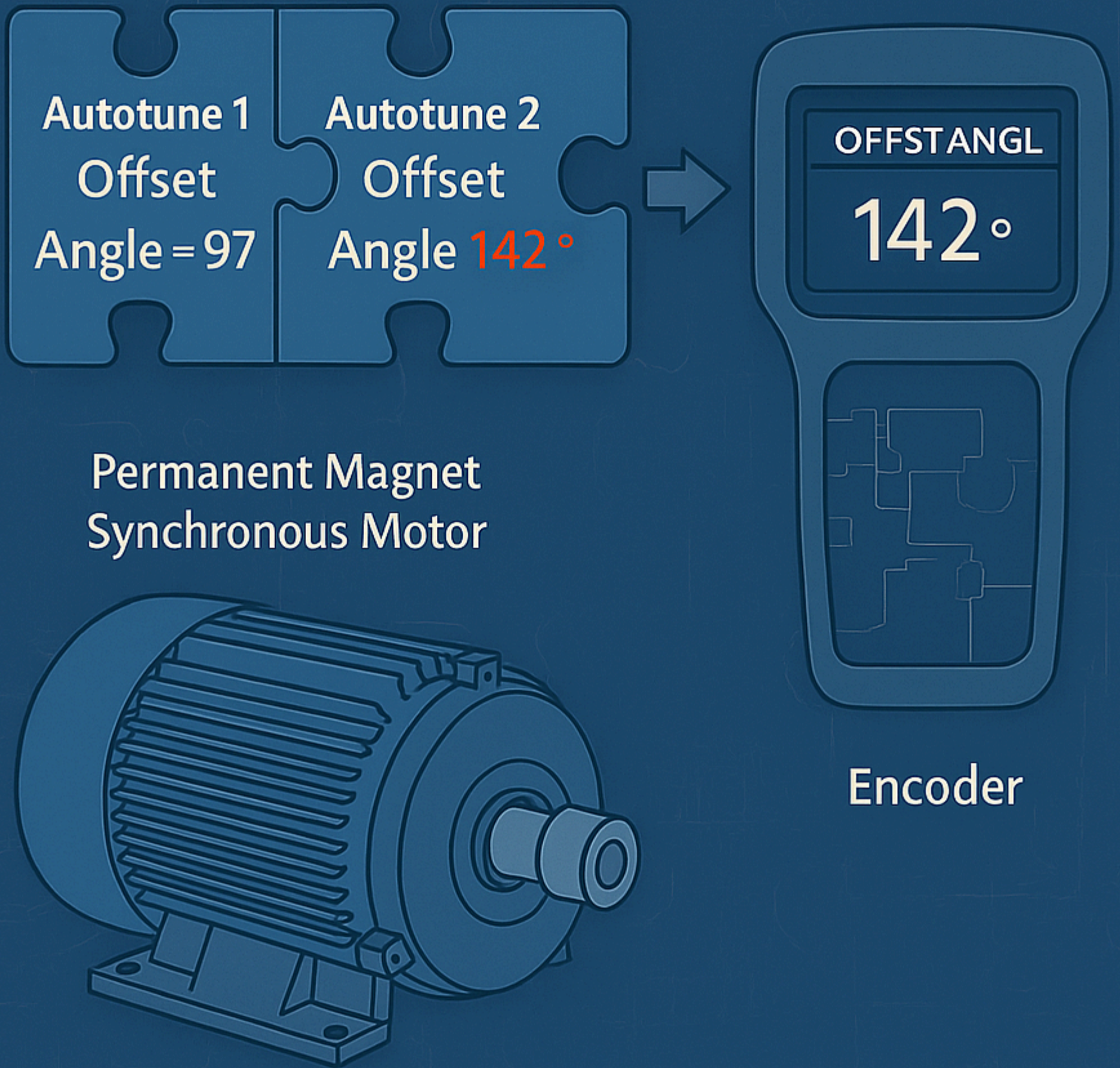


For induction machines:

Try driving in open
loop control mode
to observe feedback



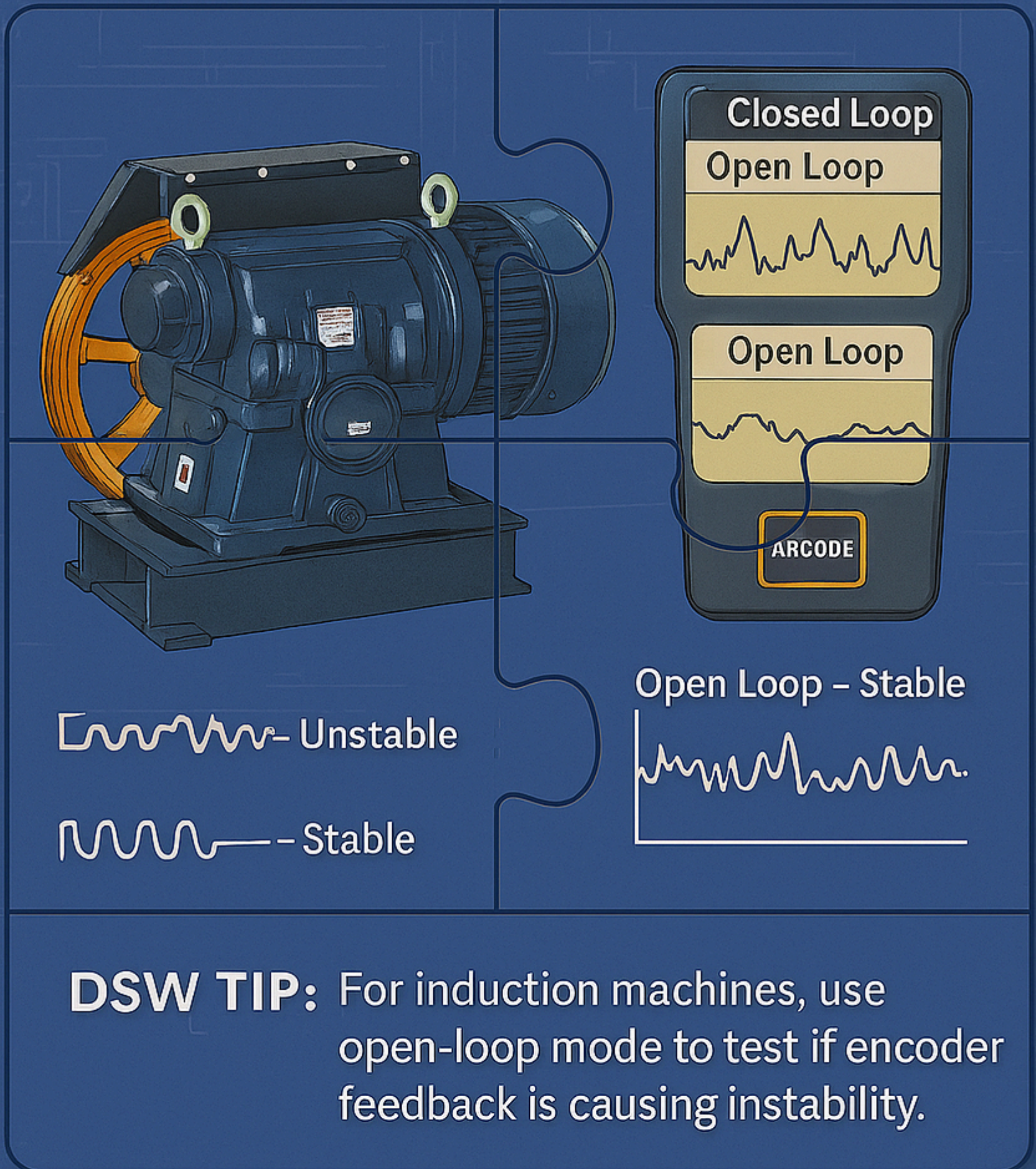
TROUBLESHOOTING TIP – SYNCHRONOUS MOTOR OFFSET ANGLE CHECK



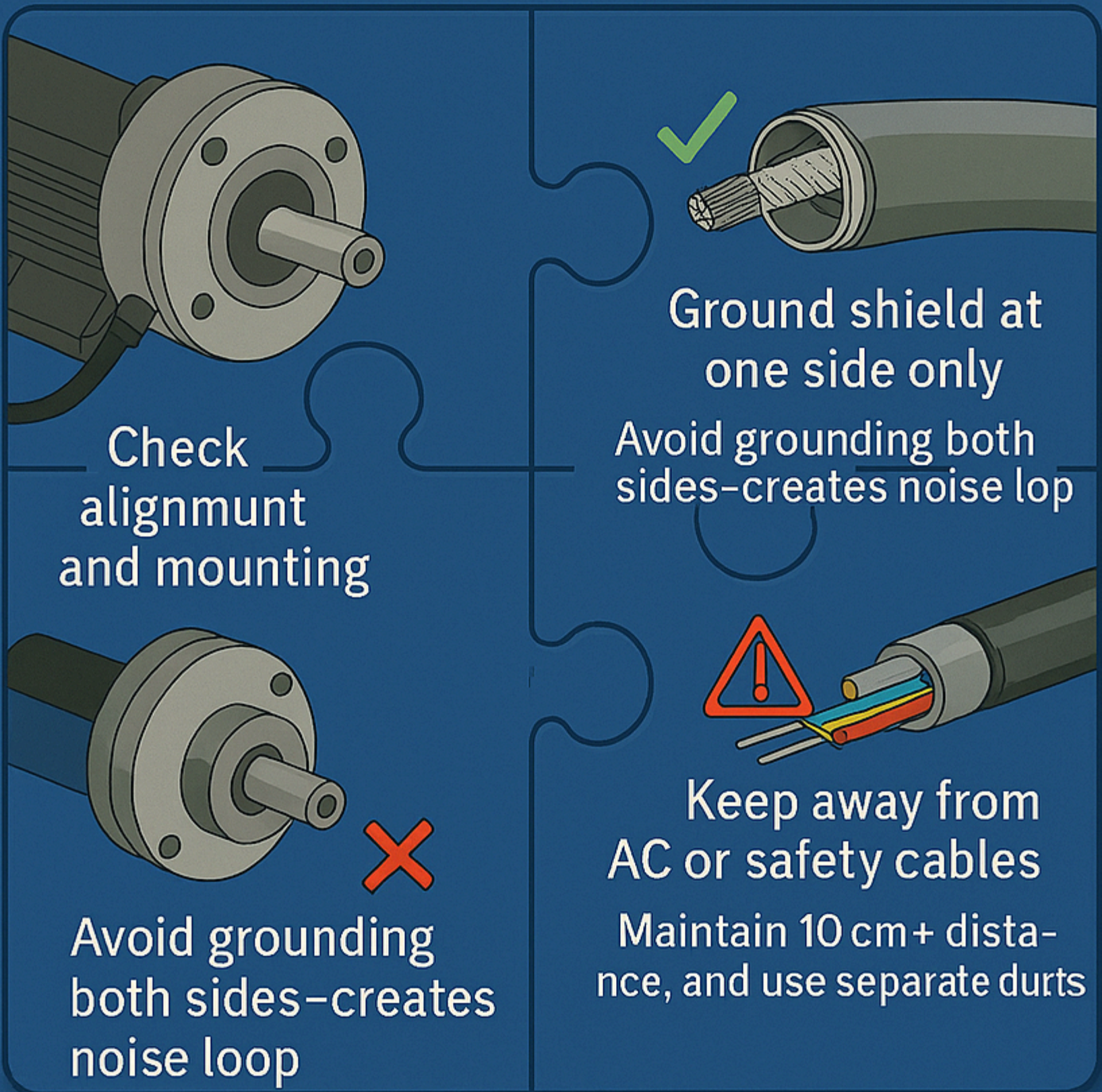
DSW TIP: Compare offset values from multiple autotunes. If variation exceeds 10–15°, the encoder signal is likely unstable.

ASYNCHRONOUS MOTOR TIP

Diagnose Feedback by Switching Control Modes



TROUBLESHOOTING TIP- ENCODER SIGNAL QUALITY CHECK



DSW TIP: Signal problems often start with physical installation. Always check encoder mounting, shielding, cable routing, and vibration points first.

SECTION 2

Safety Circuit & Travel Stability

Safety Chain



Door
Contacts

Door
Contacts

Travel
Interruption



IPM
Fault

Slack
Rope



“Safety isn’t just in the chain – it’s in the timing.”

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Understanding Safety Circuit-Related Errors

Error 55 Contactor Dropped

MEANING: Contactor signal was lost during travel.

LIKELY CASE: Faulty contactor, call issue, bad wiring, or safety cut

Error 111 IPM Error

MEANING: Power module reported an internal transistor or overcurrent fault.

LIKELY CASE: Caused by sudden loss of contactor or safety signal, often under

Error 16 Power Module Fault

MEANING: Similar to IPM fault, reported from the module itself.

LIKELY CASE: Safety interruption during travel or braking – often tied to feedback loop break

Safety Chain Interrupted

MEANING: The lift safety chain (120V/24V loop) was broken while the car was moving.

LIKELY CASE: Door contacts, slack rope switch, or other safety elements triggered mid-travel.

DSW TIP: When these errors appear, don't treat them as isolated faults. They're often symptoms of the same safety signal interruption – especially during travel.

Safety Circuit-Related Errors

Error 55 Contactor Dropped

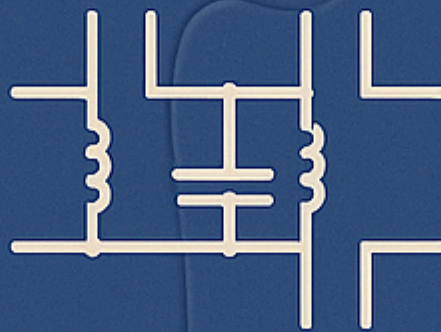
Error 111 IPM Error

Error 16 Power Module Fault

Error 35 Safety Chain Interrupted

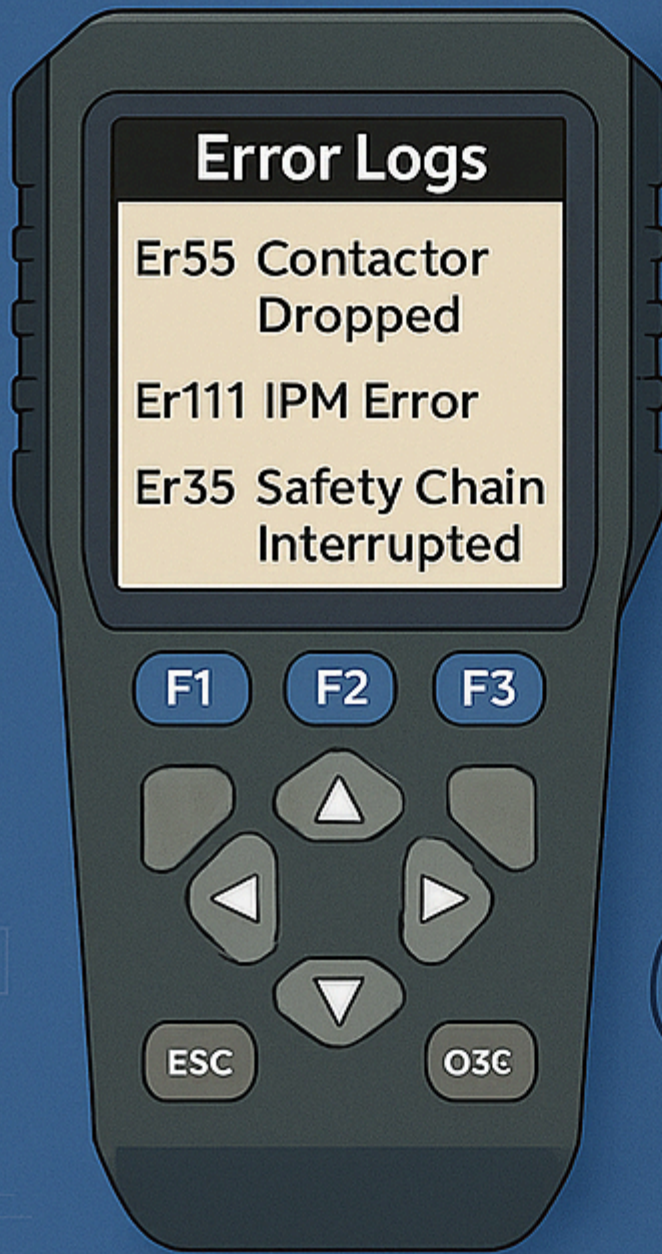
Although they go by different names, these errors all relate to interruptions in the safety circuit.

These faults were linked together after occurring on the same logs.



DSW TIP: Check safety contact chains during travel--door contacts, slack rope, and contactor feedback can all trigger this group.

Grouped SAFETY CIRCUIT ERRORS



2

Landing
door contac

DSW TIP:

If safety-related errors occur consistently on the same floor, inspect the landing door contacts.

If errors occur at all floors, check the car door contacts or safety wiring.



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Uplifting elevator businesses globally...