Novar

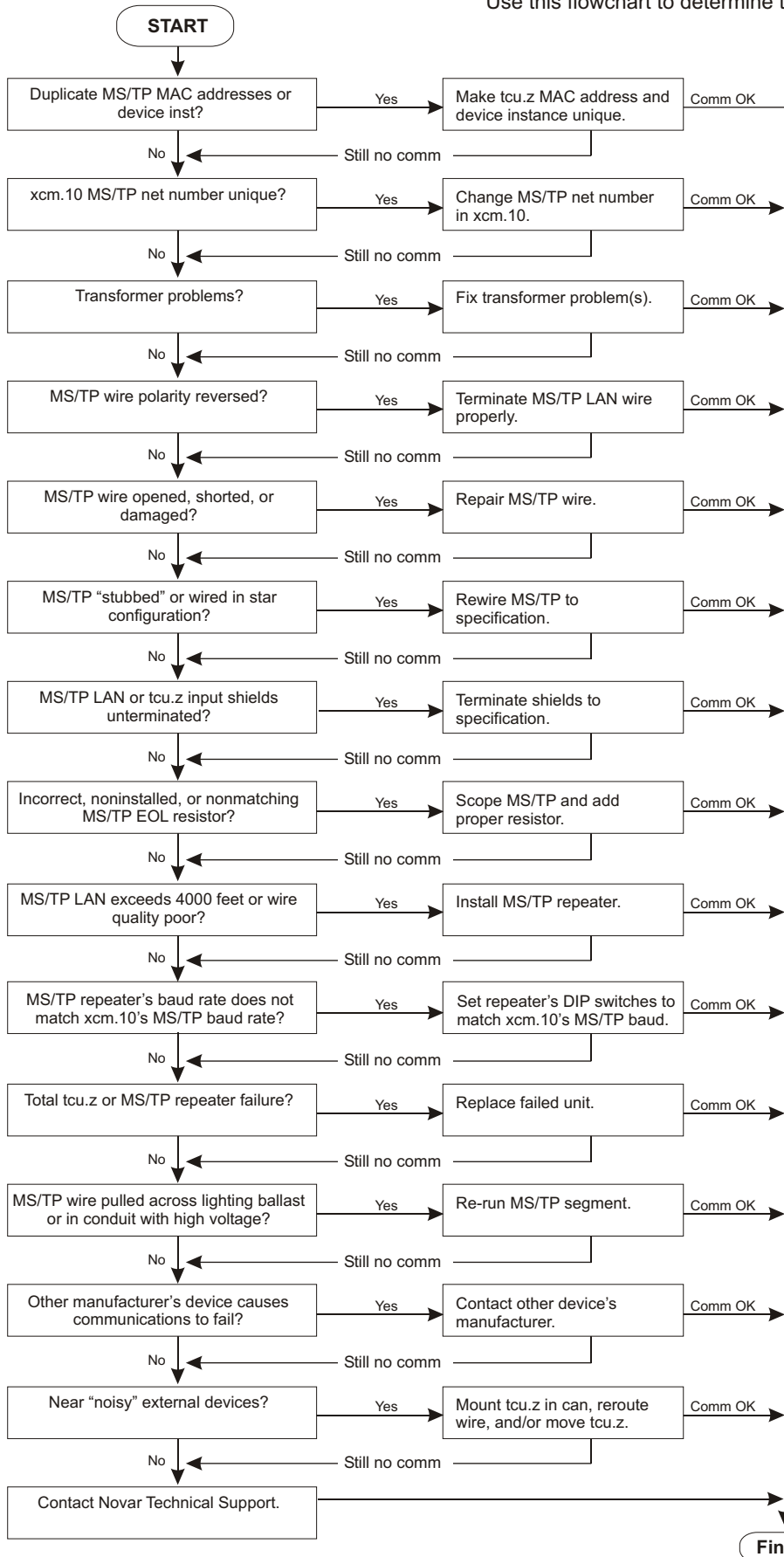# tcu.z Communications Troubleshooting Flowchart

Use this flowchart to determine the source of a system's communication issues.

START

Decision	Yes → Action	Result	Notes
Duplicate MS/TP MAC addresses or device inst?	Make tcu.z MAC address and device instance unique.	Comm OK	tcu.z modules must have unique MAC addresses and device instances. The most common conflict is with the xcm.10's MS/TP MAC address.
xcm.10 MS/TP net number unique?	Change MS/TP net number in xcm.10.	Comm OK	Every MS/TP network number must be unique. Compare the "current" net number with all others in the system and make sure it is unique.
Transformer problems?	Fix transformer problem(s).	Comm OK	Typical transformer problems: 1) Trying to share one transformer between half- and full-wave devices, 2) Transformer sized too small, 3) Transformer secondary not grounded, 4) Transformer failing, 5) Multiple tcu.z modules share transformer and polarity is not maintained.
MS/TP wire polarity reversed?	Terminate MS/TP LAN wire properly.	Comm OK	MS/TP wire polarity often gets reversed at individual tcu.z modules, causing communication failures for subsequent controllers.
MS/TP wire opened, shorted, or damaged?	Repair MS/TP wire.	Comm OK	Use a voltmeter to check for continuity and repair opened/shorted MS/TP segments as needed.
MS/TP "stubbed" or wired in star configuration?	Rewire MS/TP to specification.	Comm OK	MS/TP stubs and star configurations are not allowed.
MS/TP LAN or tcu.z input shields unterminated?	Terminate shields to specification.	Comm OK	Shield must be grounded properly.
Incorrect, noninstalled, or nonmatching MS/TP EOL resistor?	Scope MS/TP and add proper resistor.	Comm OK	All MS/TP LANs require terminating resistors.
MS/TP LAN exceeds 4000 feet or wire quality poor?	Install MS/TP repeater.	Comm OK	MS/TP LAN segments are limited to 4000 feet. Longer runs require installation of an MS/TP repeater.
MS/TP repeater's baud rate does not match xcm.10's MS/TP baud rate?	Set repeater's DIP switches to match xcm.10's MS/TP baud.	Comm OK	MS/TP repeater baud rates are set via DIP switches. Be sure their baud rates match the baud rate set in the xcm.10's MS/TP configuration.
Total tcu.z or MS/TP repeater failure?	Replace failed unit.	Comm OK	If there is no LED activity on a tcu.z/repeater after power is applied, try replacing the unit with a new one.
MS/TP wire pulled across lighting ballast or in conduit with high voltage?	Re-run MS/TP segment.	Comm OK	**This can cause noise to be induced on the MS/TP** LAN.
Other manufacturer's device causes communications to fail?	Contact other device's manufacturer.	Comm OK	The problem might be caused by problems in non-Novar MS/TP devices. Try removing all non-Novar devices from the MS/TP LAN; if that works, contact the manufacturers of the non-Novar devices to determine if they know of any MS/TP issues related to their devices.
Near "noisy" external devices?	Mount tcu.z in can, reroute wire, and/or move tcu.z.	Comm OK	Some electrical gear (VFDs, etc.) can cause MS/TP communication problems. Be sure to isolate Novar hardware/wiring from these devices.

(Each "No" / "Still no comm" path leads to the next decision below.)

Contact Novar Technical Support.

Finish

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