



MAZDA MX5 CHASSIS

GEN2 FORMULA LINE RACING STEERING WHEEL SYSTEM

INFORMATION PACKET

SYSTEM ARCHITECTURE / PROGRAMMING / FUNCTION LIBRARY / FITMENT

DOCUMENT SCOPE

This packet documents the Mazda MX5 Chassis Formula Line platform, vehicle integration, MadtraceLAB profile structure, and 26-command function library. Actual behavior depends on the exact Mazda MX5 or MX5 RF model, model year, ND generation, transmission, factory steering-wheel, audio, phone, cruise and ESP equipment, coding, installed options, and software configuration.



FORMULA LINE WITH STANDARD OLED DID + REVLEDS

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WHERE THE FORMULA LINE FITS

PRODUCT LINE POSITIONING

- Clubsport Line is the streamlined GEN2 entry platform, retaining programmable factory steering-wheel functions, RGB lighting, MadtraceLAB, and multi-profile storage.
- PODIUM Line adds RevLED, center-console commands, advanced race controls, rear profile quick switching, and optional multi-paddle configurations while preserving round-wheel adapter flexibility.
- Formula Line combines the high-level GEN2 electronics with a purpose-designed 290 mm Formula wheel. RevLED, the OLED Driver Information Display, and two programmable magnetic paddles are integrated as standard equipment.
- GEN1 is the legacy fixed-layout platform and does not include MadtraceLAB programming, RGB customization, RevLED, or multi-profile operation.

LINE	PRIMARY POSITION	KEY DIFFERENCE
Clubsport	GEN2 entry platform	Core factory functions and programmable controls; no RevLED or advanced race controls.
PODIUM	Expanded GEN2 platform	RevLED, center-console and race controls, profile switching, and optional paddle expansion.
FORMULA	Dedicated 290 mm Formula wheel	RevLED, OLED DID, and two programmable magnetic paddles are standard.
GEN1	Legacy platform	Fixed layout; no MadtraceLAB, RGB customization, multi-profile operation, or RevLED.

FORMULA LINE TAKEAWAY

FORMULA combines Podium-level electronic control with a dedicated 290 mm Formula wheel, standard OLED DID, RevLEDs, and integrated magnetic paddles.

PRODUCT LINE COMPARISON: CORE PLATFORM

FEATURE	CLUBSPORT	PODIUM	FORMULA	GEN1
Factory steering-wheel functions	Standard	Standard	Standard	Standard
Completely plug and play	Standard	Standard	Standard	Standard
Programmable button layout	Standard	Standard	Standard	Fixed layout
RGB customizable button colors	Standard	Standard	Standard	Not equipped
MadtraceLAB	Standard	Standard	Standard	Not equipped
OLED Driver Information Display (DID)	Optional	Optional	Standard	Not equipped
Two programmable magnetic paddles	Optional for AT	Optional for AT	Standard	Optional for AT

HOW TO READ THE TABLE

Standard = included in the line architecture. Optional items depend on vehicle, transmission, and ordered configuration. AT = automatic transmission.

PRODUCT LINE COMPARISON: RACE CONTROLS + ADAPTERS

FEATURE	CLUBSPORT	PODIUM	FORMULA	GEN1
Two programmable magnetic paddles	Not equipped	Optional	Standard	Not equipped
RevLED CAN bus shift lights	Not equipped	Standard	Standard	Not equipped
Center-console functions	Not equipped	Standard	Standard	Not equipped
Advanced race controls	Not equipped	Standard	Standard	Not equipped
Multi-profile settings	Standard	Standard	Standard	Not equipped
Rear button profile quick switch	Not equipped	Standard	Standard	Not equipped
6×70 mm MOMO original horn-cap adapter	Optional	Optional	Not equipped	Optional
6×74 mm NARDI-type steering-wheel adapter	Optional	Optional	Not equipped	Optional

WHY FORMULA STANDS APART

FORMULA matches PODIUM's advanced control capability in a purpose-built Formula wheel, with the OLED DID, RevLEDs, and magnetic paddles included as standard equipment.

EXECUTIVE SUMMARY

- The JQ Werks Madtrace GEN2 FORMULA Line is a purpose-designed 290 mm racing steering wheel system inspired by GT3 and GT4 endurance-racing ergonomics.
- For supported Mazda MX5 applications, the control hub integrates compatible vehicle-network communication so factory steering-wheel, audio, phone, cruise, ESP, lighting, and wiper functions can be operated from the wheel.
- A dedicated harness, integration module, adapter hub, and quick-release base with integrated chassis PCB create a plug-and-play, vehicle-specific installation without wire splicing.
- Front-facing buttons, joystick-style rotary controls, dedicated rotary controls, and two programmable magnetic paddles can be assigned through MadtraceLAB across a 26-command Mazda MX5 library: 19 Steering Wheel, 1 Car Control, and 6 General functions.
- Three complete profiles can be stored in the hub, each with an independent button map and lighting configuration, and recalled through an assigned profile quick-switch input.
- The OLED DID, RevLED shift lights, 290 mm Formula wheel, and two programmable magnetic paddle inputs are integrated; MOMO and NARDI adapters are not offered.
- The system removes the factory steering wheel and airbag and is intended exclusively for off-road, track, racing, and competition use.

FUNCTION AVAILABILITY

Slides 15–18 document the complete 26-command Mazda MX5 function library. Availability depends on the exact Mazda MX5 or MX5 RF model, model year, ND generation, transmission, factory steering-wheel, audio, phone, cruise and ESP equipment, coding, software configuration, and selected vehicle profile.

MECHANICAL CONSTRUCTION

FORMULA LINE HARDWARE

- The purpose-designed 290 mm Formula wheel housing is precision machined from 6061-T6 billet aluminum for accurate geometry, consistent alignment, and a premium finished surface.
- Smooth, high-grip rubber is applied to the handgrip areas to support secure control and endurance-racing ergonomics.
- Black and red anodized finishes define the Formula Line visual treatment and coordinate with the matching adapter hub and quick-release assembly.
- The quick release is manufactured from 7075-T6 billet aluminum for strength, durability, and a precise mechanical fit.
- Front-facing buttons, joystick-style and dedicated rotary controls, RevLED shift lights, the OLED DID, and two programmable paddle inputs keep critical functions within reach.
- The integrated design eliminates the need for a separate round steering-wheel rim, horn-cap adapter, or NARDI/MOMO steering-wheel adapter.



CONFIGURATION SHOWN

Official Formula configuration shown with the integrated OLED DID, RevLED shift lights, and two programmable magnetic paddle inputs.

VEHICLE INTEGRATION: CAN + LIN

- Mazda MX5 steering-wheel, audio, phone, cruise, ESP, lighting, and wiper commands are distributed across the vehicle's electronic networks. The FORMULA Line interfaces with supported data through vehicle-specific integration hardware.
- Compatible factory data and commands can support RevLED RPM input, transmission shifts, steering-wheel controls, media, phone, cruise, ESP, lighting, and wiper functions exposed by the selected Mazda MX5 profile.
- A dedicated Mazda MX5 harness and integration module connect the system without cutting or splicing factory wiring.
- The supplied library includes 26 commands. Transmission, audio, phone, media, voice-command, cruise, ND3-specific, ESP, lighting, and wiper commands require the corresponding vehicle equipment, coding, software configuration, and selected profile.
- Configure and test every mapped command with the vehicle stationary before driving or track use.
- See pages 14–18 for the Formula paddle architecture and complete Mazda MX5 function tables.

MADTRACELAB 2.0

MadtraceLAB is the configuration and update platform for the GEN2 Formula control hub.

The Function workspace displays the steering wheel graphic, available input locations, selected vehicle vendor, function categories, and active profile.

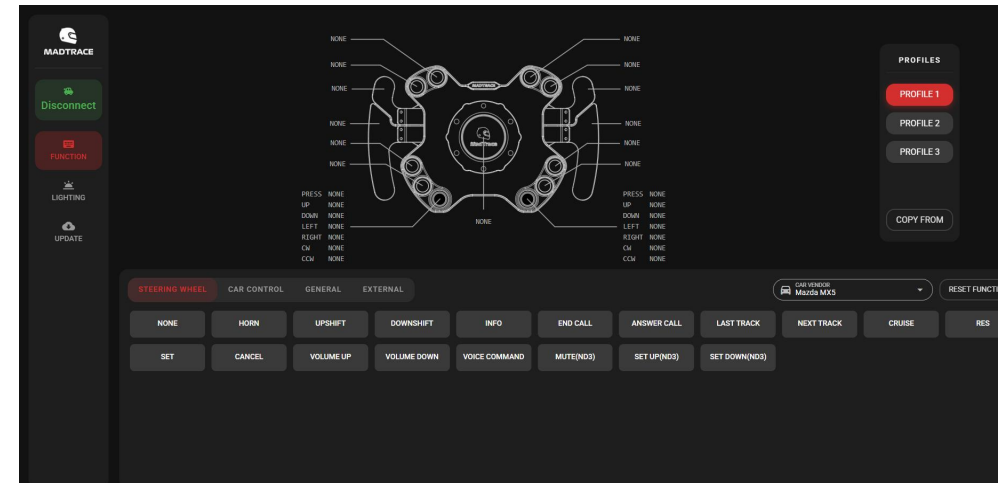
A user can select an input and assign a supported command from the Steering Wheel, Car Control, General, or available External category.

Lighting settings control button illumination and RevLED behavior for visibility, recognition, and driver preference.

The Update section manages compatible software and feature updates through the hub's discreet USB-C service connection.

“Copy From” can transfer an existing layout into another profile before profile-specific changes are made.

MADTRACELAB FUNCTION WORKSPACE



PROFILE SETUP

For the Mazda MX5 vendor profile, confirm the exact Mazda MX5 or MX5 RF model, model year, ND generation, transmission, steering-wheel, audio, phone, cruise and ESP equipment, coding, installed options, and software profile before mapping or copying a layout.

MULTI-PROFILE SETTINGS + QUICK SWITCH

- Up to three complete profiles can be stored directly in the Formula hub's internal memory.
- Each profile can contain independent button assignments, paddle assignments, and illumination settings.
- A race profile can prioritize the verified shift, ESP, signals, wiper, and frequently used audio or cruise controls.
- A road profile can group phone, volume, source, voice command, menu controls, and cruise functions.
- A third profile can support endurance use, a secondary driver, or a reduced command set without altering the primary layouts.
- Assign a profile quick-switch input for rapid access, and use the standard OLED DID or MadtraceLAB to review and manage the active mapping.

STORED PROFILE	SUGGESTED USE	WHAT IS RETAINED
Profile 1	Race baseline	Verified essential commands + lighting
Profile 2	Road / media	Independent functions + lighting
Profile 3	Endurance / secondary driver	Independent functions + lighting

CONTROL INPUT ARCHITECTURE

FRONT-FACING CONTROLS

- Front-facing push buttons provide direct access to frequently used mapped functions.
- Two joystick-style rotary controls expand the input count with Press, Up, Down, Left, Right, Clockwise, and Counterclockwise actions when enabled.
- Dedicated rotary controls can support Clockwise and Counterclockwise assignments where enabled.
- Two magnetic paddle inputs are integrated and can be assigned to supported shifts, signals, flash, wiper, ESP, media, audio, cruise, or other verified commands.
- A profile-selection input can switch among the three saved maps and their independent lighting configurations.
- Shift, cruise, phone, audio, media, ND3-specific, ESP, lighting, and wiper assignments must match the actual Mazda MX5 equipment, coding, software configuration, and selected profile.

INPUT GROUP	AVAILABLE ACTIONS	TYPICAL MAZDA MX5 ASSIGNMENT
Front buttons	Push inputs	Horn, phone, audio, media, cruise, or ESP
Left joystick	Press / U / D / L / R / CW / CCW	Menu navigation or driver preference
Right joystick	Press / U / D / L / R / CW / CCW	Audio, media, cruise, or driver preference
Dedicated rotary controls	CW / CCW	Audio, mode, or driver preference
Magnetic paddles	2 programmable inputs	Shift, signals, flash, wiper, audio, cruise, or ESP
Profile selection	Assigned quick-switch input	Profile 1 / 2 / 3

HUMAN-FACTORS NOTE

Place functions where they can be identified and operated without the driver looking away from the track. Keep critical commands consistent across profiles.

REVLED SHIFT LIGHT + ILLUMINATION

RevLED CAN bus shift lights are standard equipment on the FORMULA Line control hub.

In MadtraceLAB 2.0, the user can set the RPM threshold at which the shift-light sequence begins and the redline alert flashes.

Engine-speed data is received through the vehicle communication system so the sequence can respond to the supported RPM signal.

The LEDs progress through the configured sequence, and all lights flash at the programmed redline condition.

Button illumination colors can be customized so groups of controls are easier to recognize during a driving session.

Different profiles may use different lighting schemes, providing visual confirmation of the active button map.

The standard OLED DID provides direct adjustment of display brightness, RGB button colors and mapping functions of the hub, while complete programming remains available through MadtraceLAB.

Review redline and illumination settings whenever the hub is moved to another compatible vehicle or the engine calibration changes.

CONFIGURATION RESPONSIBILITY

Shift lights are a driver aid, not a substitute for the vehicle's engine-protection strategy. Match the visual redline to the verified engine setup.

OLED DRIVER INFORMATION DISPLAY

Every FORMULA Line racing steering wheel includes an OLED Driver Information Display positioned directly beneath the RevLED shift lights.

Through the integrated CAN bus connection, the DID can display supported real-time telemetry such as vehicle speed.

The display provides direct access to button-layout mapping and profile selection without reconnecting the hub to a computer.

Display brightness and RGB button illumination can be adjusted from the DID interface.

Available telemetry channels depend on the selected vehicle and software configuration.

Test the vehicle after any on-wheel mapping change, even when the DID confirms that the assignment was saved.

DID CAPABILITIES

CAPABILITY	STATUS
Real-time speed	Supported telemetry
Button mapping	Direct control
Profile switching	Direct control
Display brightness	Adjustable
RGB button colors	Adjustable
Computer connection	Not required for DID changes

STANDARD EQUIPMENT

The OLED DID is integrated into every Formula Line wheel and is included as standard equipment.

MAGNETIC PADDLE SHIFTERS

- The FORMULA Line includes two motorsport-grade magnetic paddles made from 6061-T6 billet aluminum.
- Both paddle inputs are integrated into the purpose-built wheel architecture and included as standard equipment.
- Each paddle is programmable, allowing either input to control any supported function in the selected Mazda MX5 profile.
- A verified Mazda MX5 layout can use the paddles for supported upshift / downshift, turn signals, flash, wiper, ESP, media, audio, cruise, or other supported commands.
- Assignments can be adapted for road, track, endurance, or secondary-driver profiles without changing hardware.
- Paddle assignments can be stored independently in each of the three profiles.
- Verify every assignment with the vehicle stationary before track use.

MAPPING SAFETY

Program only functions that can be safely operated from a paddle. Avoid assignments that could cause an unintended vehicle-state change during steering input.

STEERING WHEEL FUNCTIONS: CORE + CRUISE

MADTRACELAB FUNCTION	COMMAND PURPOSE	CONFIGURATION NOTE
NONE	Leaves the selected input unassigned.	Use for unused or reserve inputs.
HORN	Activates the supported horn command.	Verify stationary before use.
UPSHIFT	Requests the supported transmission upshift.	Compatible transmission required.
DOWNSHIFT	Requests the supported transmission downshift.	Compatible transmission required.
INFO	Cycles supported driver information.	Vehicle display dependent.
END CALL	Ends a supported active phone call.	Factory phone equipment required.
ANSWER CALL	Answers a supported incoming phone call.	Factory phone equipment required.
LAST TRACK	Selects the previous supported media track.	Active media source required.
NEXT TRACK	Selects the next supported media track.	Active media source required.
CRUISE	Activates the supported cruise-control command.	Factory cruise equipment required.
RES	Resumes the supported stored cruise setting.	Factory cruise equipment required.
SET	Sets the supported cruise-control target.	Factory cruise equipment required.

VERIFICATION

Transmission, information-display, media, phone, and cruise functions require the corresponding factory equipment, coding, software configuration, and selected Mazda MX5 profile. Test every assignment with the vehicle stationary.

STEERING WHEEL FUNCTIONS: MEDIA + ND3

MADTRACELAB FUNCTION	COMMAND PURPOSE
CANCEL	Cancels the active supported cruise-control command.
VOLUME UP	Raises supported factory audio volume.
VOLUME DOWN	Lowers supported factory audio volume.
VOICE COMMAND	Activates the supported voice-command input.
MUTE(ND3)	Mutes supported factory audio on compatible ND3 vehicles.
SET UP(ND3)	Moves the supported ND3 setting upward.
SET DOWN(ND3)	Moves the supported ND3 setting downward.

EQUIPMENT DEPENDENCY

Cruise, audio, voice-command, and ND3-specific functions require the corresponding factory equipment, coding, software configuration, and selected Mazda MX5 profile. Test every assignment with the vehicle stationary.

CAR CONTROL FUNCTIONS

MADTRACELAB FUNCTION	COMMAND PURPOSE
ESP	Activates the supported electronic stability-control command.

CONTROL PLACEMENT

ESP availability depends on the exact Mazda MX5 model year, ND generation, selected profile, installed stability-control system, coding, and software configuration. Confirm operation with the vehicle stationary.

GENERAL VEHICLE FUNCTIONS

MADTRACELAB FUNCTION	COMMAND PURPOSE
NONE	Leaves the selected input unassigned.
FLASH	Activates the supported high-beam flash command.
LEFT TURN SIGNAL	Activates the supported left turn signal.
RIGHT TURN SIGNAL	Activates the supported right turn signal.
SINGLE WIPE	Requests one supported windshield-wiper cycle.
WINDSHIELD WASHER	Activates the supported windshield-washer command.

- Turn-signal, lighting, and windshield commands are vehicle-configuration dependent and must be verified on the actual car.
- Do not assume the same input map behaves identically across model years, ND generations, coding, or software revisions.

VEHICLE FITMENT + INCLUDED EQUIPMENT

APPLICABLE MAZDA MX5 MODELS

CHASSIS VERSION	MODELS	MODEL YEARS
MAZDA MX5 Roadster/RF	ND1/2	2016–2023
MAZDA MX5 Roadster/RF	ND3	2024+

EACH FORMULA LINE HUB KIT INCLUDES

- 1x FORMULA Line control hub unit
- 1x Quick-release base with integrated chassis PCB
- 1x CAN bus integration module
- 1x Vehicle harness kit
- 1x Resistor
- 1x Adapter hub (Boss Kit)

- 1x Adapter hub locking wrench
- 1x Trim-removal tool
- 1x Hardware kit
- 1x Allen key
- 1x Button-sticker set
- 1x JQ Werks / Madtrace sticker set
- 1x USB cable

FORMULA STANDARD EQUIPMENT

The OLED DID, RevLED shift lights, 290 mm Formula wheel, and two programmable magnetic paddle inputs are integrated; MOMO and NARDI adapters are not offered.

CONFIGURATION WORKFLOW

- 1 Confirm the exact Mazda MX5 or MX5 RF model, model year, ND generation, transmission, steering-wheel, audio, phone, cruise and ESP equipment, coding, installed options, and software configuration.
- 2 Install the vehicle-specific adapter hub, harness, CAN integration module, and quick-release base according to the applicable guide. Do not splice factory wiring.
- 3 Connect the control hub through USB-C and confirm compatible MadtraceLAB software and system updates.
- 4 Select the Mazda MX5 profile. Assign only commands supported by the actual vehicle, factory equipment, coding, and software configuration.
- 5 Create Profile 1 as the verified baseline. Copy that layout to Profiles 2 and 3 before condition- or driver-specific changes.
- 6 With the vehicle stationary, test every button, joystick direction, rotary action, both paddles, profile selection, RevLED sequence, OLED DID command, and mapped shift, information, phone, media, audio, cruise, ESP, lighting, and wiper function.
- 7 Repeat verification after any software update, vehicle change, transmission change, coding change, equipment change, calibration update, hardware change, or profile revision, then record the final map.

IMPORTANT

This is a high-level configuration workflow, not an installation manual. Follow application-specific instructions and use a qualified professional where required.

SAFETY, USE RESTRICTIONS + SUMMARY

IMPORTANT SAFETY INFORMATION

The JQ Werks Madtrace Racing Steering Wheel System is designed only for off-road, track, racing, and competition purposes. It is not intended for street use.

Installation removes the factory steering wheel and airbag. A solid racing steering wheel can increase the risk of bodily injury in a collision.

Do not use the system with the factory three-point seat belt. JQ Werks requires a six-point racing harness with a racing roll bar for off-road use.

Do not install the system on a vehicle subject to state safety inspection.

Laws and required safety equipment vary by country, state, and region. Consult qualified legal and motorsport-safety professionals.

Professional installation, complete stationary function testing, and driver familiarization are recommended before track use.

CONTROL WITH PURPOSE.

JQ WERKS x MADTRACE

SUMMARY

For supported Mazda MX5 applications, the GEN2 FORMULA Line combines a purpose-designed 290 mm Formula wheel, vehicle-network integration, 26 configurable commands, three stored profiles, RevLEDs, OLED telemetry, and two programmable magnetic paddles in one removable driver-control platform.