

ABB DSQC406 3HAC035301-001

01 Scope and system boundary

Installed function

ABB DSQC406 3HAC035301-001 is the MDU-430A main drive unit for selected IRC5 Drive System 09 configurations. It forms the principal motor-drive assembly in the small-robot arrangement. The small-robot Drive System 09 layout reserves a distinct set of cabinet positions for the main drive. Additional axes use separate ADU-790A units and the ARU-430A rectifier arrangement. Position labels identify the installation architecture; they must not be interpreted as an interchangeable list of drive types.

Functional sequence

01	IRC5 axis configuration
02	MDU-430A main drive
03	Motor connections
04	Robot axes

Before work starts

Check	Technical purpose
Identify the drive architecture	Locate the main-drive label and confirm Drive System 09 before disconnecting hardware. The MDU-430A uses four main positions in the small-robot arrangement, while an MDU-790A uses a different layout. Work from the actual robot and cabinet combination.
Isolate stored energy	The drive section can retain electrical energy after mains removal. Apply the controller isolation procedure and verify the required discharge state before touching drive power connections. Prevent automatic robot motion throughout the work.

Isolation and handling

Preserve the motor-to-axis assignments and the external-axis rectifier arrangement. Replacing the main unit does not remove the need to check the configured drive-system layout.



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02 Connections and readiness

Interface preparation

Interface	Function	Check
Main-drive positions	MDU-430A occupies the selected small-robot arrangement.	Do not substitute the larger-robot MDU-790A layout.
Motor harness	Carries the assigned robot-axis connections.	Retain connector identity and axis assignment.
Additional drives	ADU-790A units occupy X3, Y3 and Z3 as fitted.	External axes are separate from the principal main-drive assembly.
Additional rectifier	ARU-430A is needed when additional drive units are present.	Preserve the rectifier arrangement during service.

Engineering considerations

Before removal, preserve the cabinet configuration and motor-harness allocation. Main supply isolation and the controller discharge procedure are prerequisites for work in the drive section. Use ESD precautions on signal connections and restore protective connections before testing.

Relevant setup data

Item	Value or condition
Main assembly	DSQC406 / MDU-430A
Occupied main positions	Y1, Y2, Z1, Z2
First additional-axis position	X3; ADU-790A
Second additional-axis position	Y3; ADU-790A



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03 Installation and replacement

Work sequence

01	Identify the drive architecture
02	Isolate stored energy
03	Map the axis connections
04	Retain the external-axis arrangement
05	Refit the drive assembly
06	Commission with controlled motion

Execution details

Stage	Action and reason
Map the axis connections	Label each motor and signal connector in its installed position. Keep the assigned axis path distinguishable from any external-axis cables. Restoring a mechanically compatible connector to the wrong drive output can create an incorrect axis connection.
Retain the external-axis arrangement	Where ADU-790A units are fitted in X3, Y3 or Z3, retain their additional ARU-430A rectifier and associated DC-bus connections. Check this subsystem independently of the main drive unit.
Refit the drive assembly	Protect electronic assemblies against ESD. Secure the replacement and reconnect the motor, signal and protective-earth paths in the retained arrangement. Keep the original cable routing clear of cooling and mechanical interference points.
Commission with controlled motion	Load the correct robot and drive-system configuration, review drive status and verify axis response under controlled conditions. Test external axes separately when fitted. Do not treat successful controller startup as proof of correct motor-to-axis assignment.

Before energization

Disconnect controller mains before working in the drive cabinet. Allow stored drive-system energy to discharge under the cabinet service procedure. Use ESD precautions while handling the drive assembly and signal connections. Match the cabinet to the Drive System 09 MDU-430A arrangement.



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04 Commissioning and fault isolation

Functional acceptance

Test	Action	Expected result
Cabinet configuration	Check the main drive and fitted auxiliary units.	The intended MDU/ADU/rectifier arrangement is retained.
Harness restoration	Compare each connector with its retained assignment.	No axis connector is exchanged or left unsecured.
Controller diagnostics	Read events after controlled energization.	No unresolved fault in the affected drive path.
Controlled motion	Test the intended robot and external axes under the approved procedure.	Correct axis response before automatic operation.

Interpret the symptom

Observation	Investigation	Decision boundary
Cabinet uses a different drive generation	Resolve the installed drive-system architecture first.	This document covers the applicable Drive System 09 arrangement.
External axis fitted	Identify its ADU position and associated rectifier.	Do not remove companion hardware because the main unit has been exchanged.
Wrong axis responds after service	Stop motion and check retained motor-harness assignments.	Connector fit alone cannot establish correct axis mapping.
Drive alarm remains after exchange	Read the controller event and inspect the affected path.	A replacement main unit does not prove the surrounding supply and harness are sound.

Controlled return to service

Retain the robot/controller configuration, main-drive identity, motor connector map and the fitted additional-axis positions. Include the controlled motion-test result and any event codes resolved during commissioning. A software or harness change must be tracked separately from the physical drive exchange.



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05 Technical checks and handover

Questions that affect the work

Which drive-system generation uses ABB DSQC406 3HAC035301-001?

This MDU-430A assembly is used in the applicable IRC5 Drive System 09 small-robot configuration.

Why must external-axis hardware be checked when replacing ABB DSQC406 3HAC035301-001?

Additional axes use separate ADU-790A drive units and require the ARU-430A additional rectifier in this arrangement.

Where does ABB DSQC406 3HAC035301-001 sit in the small-robot drive layout?

The main drive unit occupies the Y1, Y2, Z1 and Z2 positions of the applicable Drive System 09 layout.

Is the larger-robot MDU-790A layout interchangeable with ABB DSQC406 3HAC035301-001?

The two layouts use different main drive units and position assignments; the MDU-790A layout should not be substituted for an MDU-430A configuration.

Final checks

Check	Requirement
1	Identify every motor connector before separating the unit from the harness.
2	Retain the additional rectifier when additional drive units are installed.
3	Restore cable routes and retain all protective-earth connections.
4	Run controlled axis checks with the correct robot configuration before production motion.

Related catalogue pages

ABB DSQC236T

ABB 3HAC061275-001

ABB 3HAC033388-001

Technical basis

ABB 3HAC021313-001 Rev. P, Drive System 09 layout and controller parts

