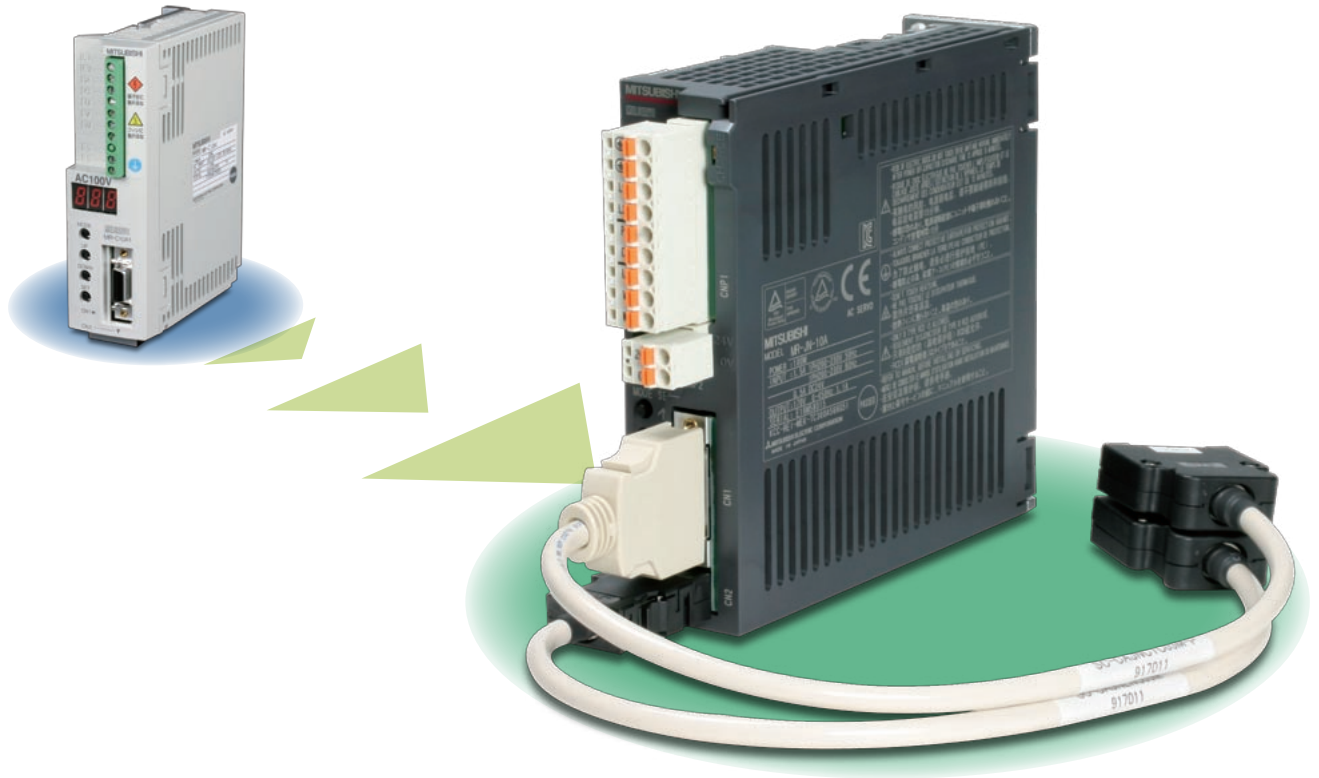


Mitsubishi General-purpose AC Servo Renewal Tool

Helping transitions from MR-C□A Series to MR-JN-□A Series.



Features

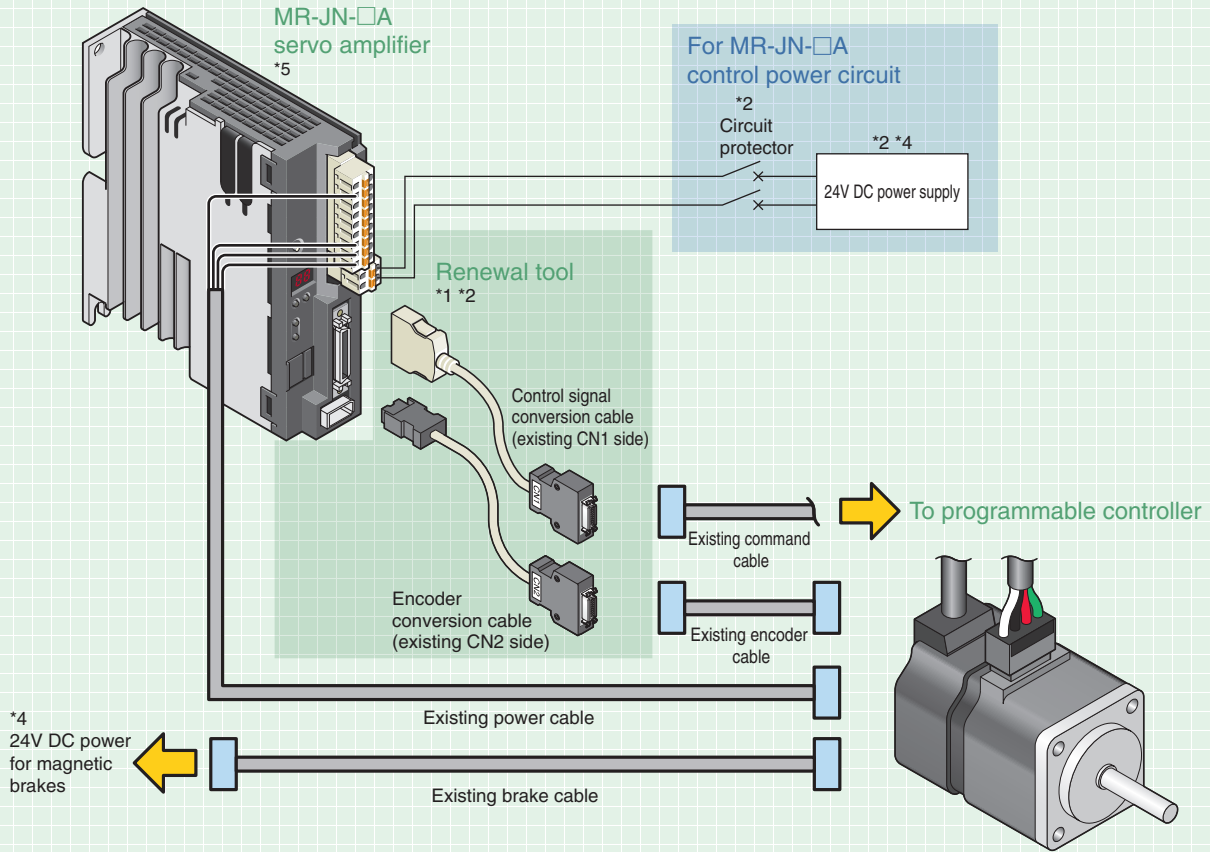
- Complete transitions in a short time by using existing wiring and mounting holes.
- The renewal tool allows upgrades to be carried out in stages, such as primary to secondary upgrade.
- Standard parts are used for the replacement amplifier and motor.
- The MR-C□A servo amplifier motor can be controlled with the standard MR-JN-□A servo amplifier.

Precautions for Replacement

- Note that even when this renewal tool is used, some MR-C□A servo functions may not be 100% compatible.
- An open space of 205mm or more in depth is required to upgrade from the existing MR-C□A servo amplifier to the MR-JN-□A servo amplifier.
- A separate 24V DC (current capacity 500mA or more) is required for the control circuit when making the replacement. Use a circuit protector when connecting the control circuit power. Refer to the back page for recommended parts.
- Refer to the “Guide for Replacing MELSERVO-C□A(N) Series with MR-C□A(N) Renewal Tool (X90311320)” available on the Mitsubishi Electric System & Service web site for details on upgrading from the MR-C□A Series to the MR-JN-□A Series.
- Depending on the situation, it may be necessary to change the existing wiring as a noise countermeasure when using the positioning unit (mode: FX-1GM, FX-20GM, etc.).
- The initialization time after power ON differs for the MR-C□A servo amplifier and MR-JN-□A servo amplifier, so it may be necessary to change the program in existing systems.
- The renewal tool model may differ according to the existing servo amplifier’s control method.
(For position control: SC-CAJNKT-P, for speed control: SC-CAJNKT-S)

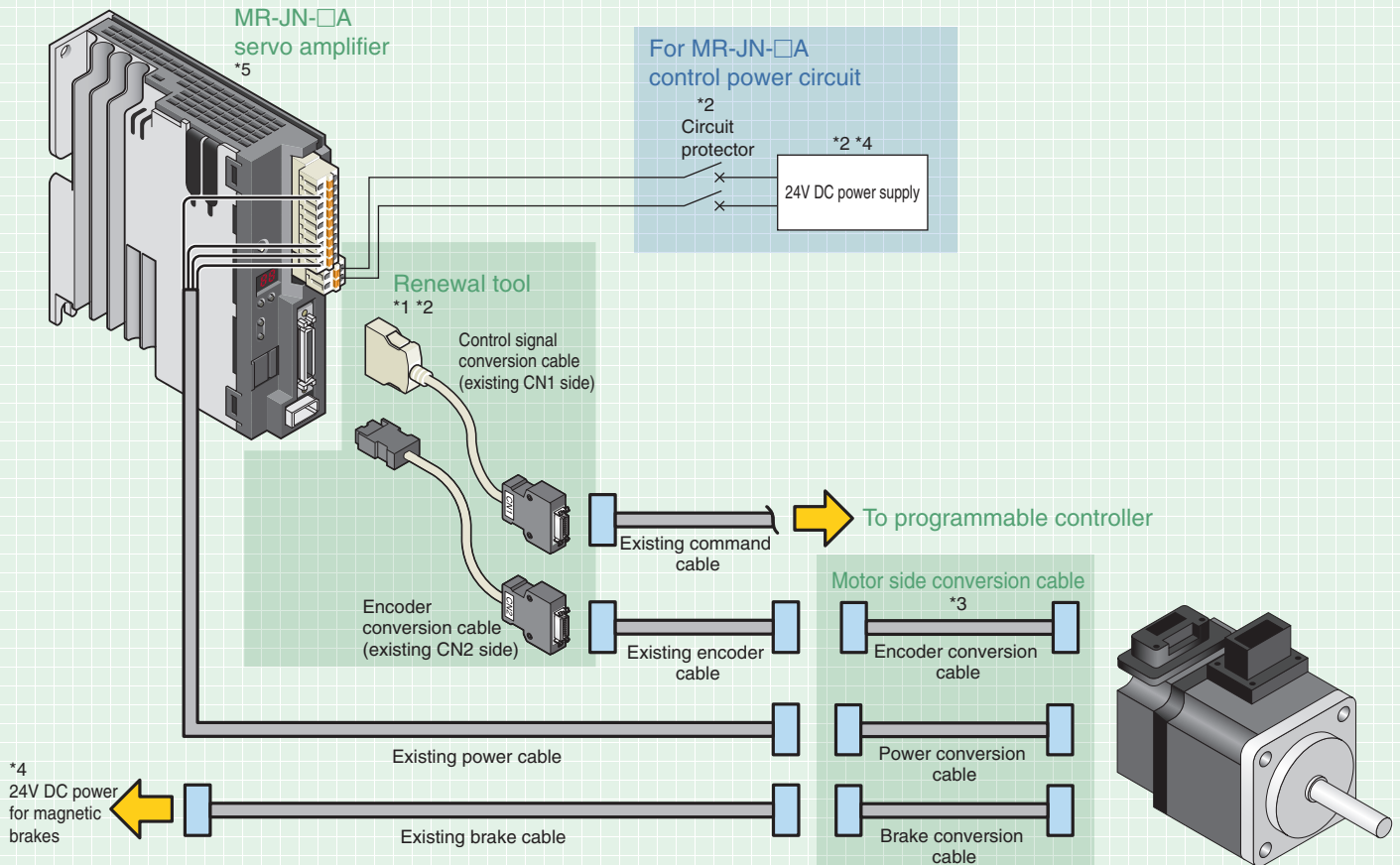
Basic Configuration

Primary replacement (replacing only the servo amplifier)



Secondary replacement (Replacing servo motor after replacing servo amplifier)

Package replacement (Replacing servo amplifier and servo motor together)



*1. The renewal tool model may differ according to the existing servo amplifier's control method. (For position control: SC-CAJNKT-P, for speed control: SC-CAJNKT-S)

*2. A separate 24V DC (current capacity 500mA or more) is required for the control circuit when making the replacement. Use a reinforced insulated power supply for the 24V DC control circuit power. Do not use a power source that takes more than one second for the output voltage to start. A circuit protector must be used when connecting the control circuit power. Refer to the back page for recommended parts.

*3. Refer to the table on page 2 for motor side conversion cables.

*4. Do not share the 24V DC control power and magnetic brake power.

*5. The servo amplifier is supported from software version A1 (manufactured after November 2009). Contact Mitsubishi Electric Corp. for orders.

MR-C Renewal Replacement Combination Table

Primary replacement	Replacing only servo amplifier
Secondary replacement	Replacing servo motor after replacing servo amplifier
Package replacement	Replacing servo amplifier and servo motor together

○: Compatible, ×: Incompatible

Existing model *9		Primary replacement model	Renewal tool model *1 *2 *8	Secondary replacement and package replacement model		Motor side conversion cable model		
Servo amplifier model	Servo motor model	Servo amplifier model *5 *7		Servo amplifier model *5 *7	Servo amplifier model *3 *7	Power conversion cable	Encoder conversion cable	Brake conversion cable
[HC-PQ motor]								
MR-C10A(1)	HC-PQ033(B)▲	MR-JN-10A(1)	SC-CAJNKT●	MR-JN-10A(1)	HF-KN053(B)▲	○		
	HC-PQ053(B)▲				HF-KN053(B)▲			
	HC-PQ13(B)▲				HF-KN13(B)▲			
MR-C20A(1)	HC-PQ23(B)▲	MR-JN-20A(1)		MR-JN-20A(1)	HF-KN23(B)▲			
MR-C40A	HC-PQ43(B)▲	MR-JN-40A		MR-JN-40A	HF-KN43(B)▲			
[HC-PQ motor Servo motor with reduction gears for general industrial machines]								
MR-C10A(1)	HC-PQ053(B)G1 1/5	MR-JN-10A(1)	SC-CAJNKT●	MR-JN-10A(1)	HF-KP053(B)G1 1/5	○	SC-PWS1CBL1M-■-L	SC-BKS1CBL1M-■-L
	HC-PQ053(B)G1 1/12				HF-KP053(B)G1 1/12			
	HC-PQ053(B)G1 1/20				HF-KP053(B)G1 1/20			
	HC-PQ13(B)G1 1/5				HF-KP13(B)G1 1/5			
	HC-PQ13(B)G1 1/12				HF-KP13(B)G1 1/12			
HC-PQ13(B)G1 1/20	HF-KP13(B)G1 1/20							
MR-C20A(1)	HC-PQ23(B)G1 1/5	MR-JN-20A(1)		MR-JN-20A(1)	HF-KP23(B)G1 1/5			
	HC-PQ23(B)G1 1/12				HF-KP23(B)G1 1/12			
	HC-PQ23(B)G1 1/20				HF-KP23(B)G1 1/20			
MR-C40A	HC-PQ43(B)G1 1/5	MR-JN-40A		MR-JN-40A	HF-KP43(B)G1 1/5			
	HC-PQ43(B)G1 1/12		HF-KP43(B)G1 1/12					
	HC-PQ43(B)G1 1/20		HF-KP43(B)G1 1/20					
[HC-PQ motor Servo motor with flange-output type reduction gears for high precision applications]								
MR-C10A(1)	HC-PQ053(B)G2 1/5	MR-JN-10A(1)	SC-CAJNKT●	MR-JN-10A(1)	HF-KP053(B)G7 1/5	× ^{*6}	MR-PWS2CBL03M-■-L *7	SC-HAJ3ENM1C03M4-■
	HC-PQ053(B)G2 1/9				HF-KP053(B)G7 1/11			
	HC-PQ053(B)G2 1/20				HF-KP053(B)G7 1/21			
	HC-PQ053(B)G2 1/29				HF-KP053(B)G7 1/33			
	HC-PQ13(B)G2 1/5				HF-KP13(B)G7 1/5			
	HC-PQ13(B)G2 1/9				HF-KP13(B)G7 1/11			
	HC-PQ13(B)G2 1/20				HF-KP13(B)G7 1/21			
MR-C20A(1)	HC-PQ23(B)G2 1/5	MR-JN-20A(1)		MR-JN-20A(1)	HF-KP23(B)G7 1/5			
	HC-PQ23(B)G2 1/9				HF-KP23(B)G7 1/11			
	HC-PQ23(B)G2 1/20				HF-KP23(B)G7 1/21			
	HC-PQ23(B)G2 1/29				HF-KP23(B)G7 1/33			
MR-C40A	HC-PQ43(B)G2 1/5	MR-JN-40A		MR-JN-40A	HF-KP43(B)G7 1/5			
	HC-PQ43(B)G2 1/9				HF-KP43(B)G7 1/11			
	HC-PQ43(B)G2 1/20				HF-KP43(B)G7 1/21			
[Maximum torque 400% supported] *10								
MR-C10A(1)	HC-PQ033(B)▲	Incompatible with primary replacement	SC-CAJNKT●	MR-JN-10A(1)	HF-KN053(B)▲	○		
	HC-PQ053(B)▲				HF-KN13(B)▲			
	HC-PQ13(B)▲				MR-JN-20A(1)			

[Explanation of product model]

Refer to the following explanation for details on symbols used in the model.

Servo motor model

Symbol	Details	
▲ (special shaft supported)	None	Straight shaft
	K	with key
	D	D-cut
	L	L-cut

Renewal tool model

Symbol	Details	
● (control method)	P	For position control
	S	For speed control

Motor side conversion cable model

Symbol	Details	
■ (lead-out direction)	A1	Load side lead
	A2	Opposite to load-side lead

[Comparison of servo motor special shaft support] *3

Motor capacity	With key		D-cut		L-cut	
	HC-PQ	HF-KN/KP	HC-PQ	HF-KN/KP	HC-PQ	HF-KN/KP
033	/	/	○	/	/	/
053	/	/	○	○	/	/
13	/	/	○	○	/	/
23	○	○	○	△	○	△
43	○	○	○	△	○	△

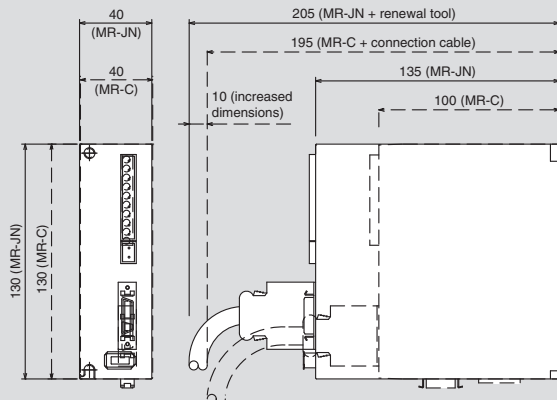
○: Supported, △: Special support

- An open space of 205mm or more in depth is required to upgrade from the existing MR-C servo amplifier to the MR-JN servo amplifier.
- A separate 24V DC (current capacity 500mA or more) is required for the control circuit when making the replacement. Use a reinforced insulated power supply for the 24V DC control circuit power. Do not use a power source that takes more than one second for the output voltage to start. A circuit protector must be used when connecting the control circuit power. Refer to the back page for recommended parts.
- The compatible range of the special shaft differs for the HC-PQ motor and HF-KN/KP motor. Refer to the [Comparison of servo motor special shaft support] above for details. Contact Mitsubishi Electric Corp. for details on the items indicated with "△".
- The mounting flange and shaft dimensions are not interchangeable during secondary replacement or package replacement. The mounting section and the coupling section with the servo motor shaft, such as the coupling pulley must be changed.
- The existing regeneration option cannot be used when replacing. Calculate the regeneration capacity and select the capacity again. If necessary, use a regeneration option. Refer to the MR-JN-□A Servo Amplifier Technical Materials for details on selecting the capacity.
- The mounting flange side and deceleration rate differ for secondary replacement and package replacement. Note that the mounting section must be changed, and the system must be adjusted.
- Purchase from Mitsubishi Electric Corp.
- The following items are not supported.
 - 5V pulse train specification servo amplifier (model: MR-C□A-L).
 - Input signal 5V voltage function.
- When using with the position control method, confirm that the detector Z-phase pulse signal (OP) is assigned to the CN1-4 pin. The existing wiring must be changed if the signal is not assigned.
- When using the existing servo motor with a torque exceeding 300%, the capacity must be increased for the replacement servo amplifier and servo motor.

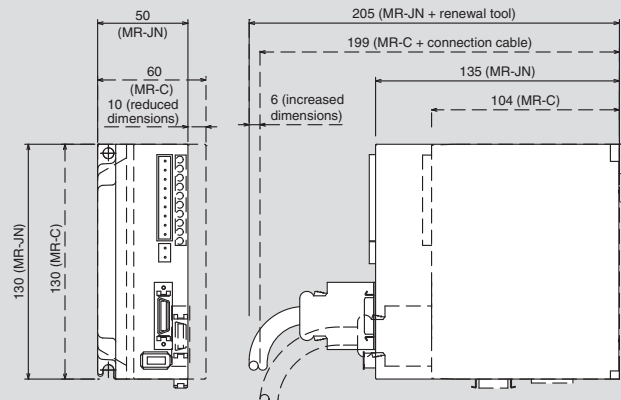
Outline dimensions

Servo amplifier (with renewal tool connected)

[unit: mm]



MR-JN-10A(1)/20A (1) outline dimensions
MR-C10A(1)/20A (1) outline dimensions

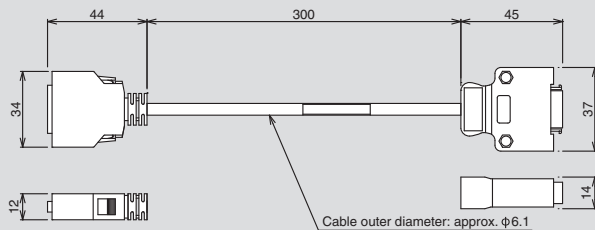


MR-JN-40A outline dimensions
MR-C40A outline dimensions

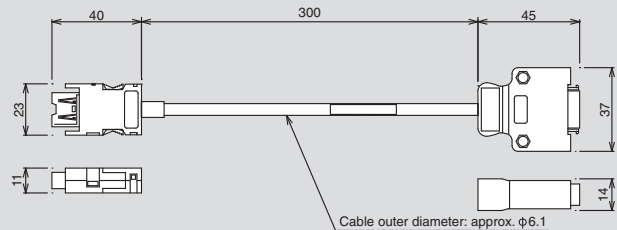
Renewal Tool

[unit: mm]

Control signal conversion cable



Encoder conversion cable



Recommended Parts

Part name	Model	Maker	Specifications	Remarks
Circuit protector	CP30-BA2P1M3A	Mitsubishi Electric Corp.	2-pole part 3A	For MR-JN-□A control circuit power protection
24V DC power for MR-JN-□A control circuit	—	—	24V DC ± 10% Current capacity 500mA or more	For MR-JN-□A control circuit

* A separate 24V DC (current capacity 500mA or more) is required for the control circuit when making the replacement. Use a reinforced insulated power supply for the 24V DC control circuit power. Do not use a power source that takes more than one second for the output voltage to start. A circuit protector must be used when connecting the control circuit power.

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