

Mitsubishi General-Purpose AC Servo Renewal Tool

Support from MR-J2 Super Series to MR-J4 Series Replacemnet

■ Supported models

- MR-J2S-□A(0.1 to 22kW)
- MR-J2S-□B(0.1 to 22kW)



MR-J2S

MR-J4



Features

- Complete transitions in a short time by using existing wiring and mounting holes.
- This renewal tool allows replacements to be made in stages, such as primary replacement of only the amplifier or secondary replacement up to the motor.
- The servo amplifier can be replaced independently, without replacing the host controller or SSCNET cable.
- The MR-J2S servo amplifier motor can be controlled with the standard MR-J4 servo amplifier.
- The encoder conversion cable is available as a single part.

Precautions for Replacement

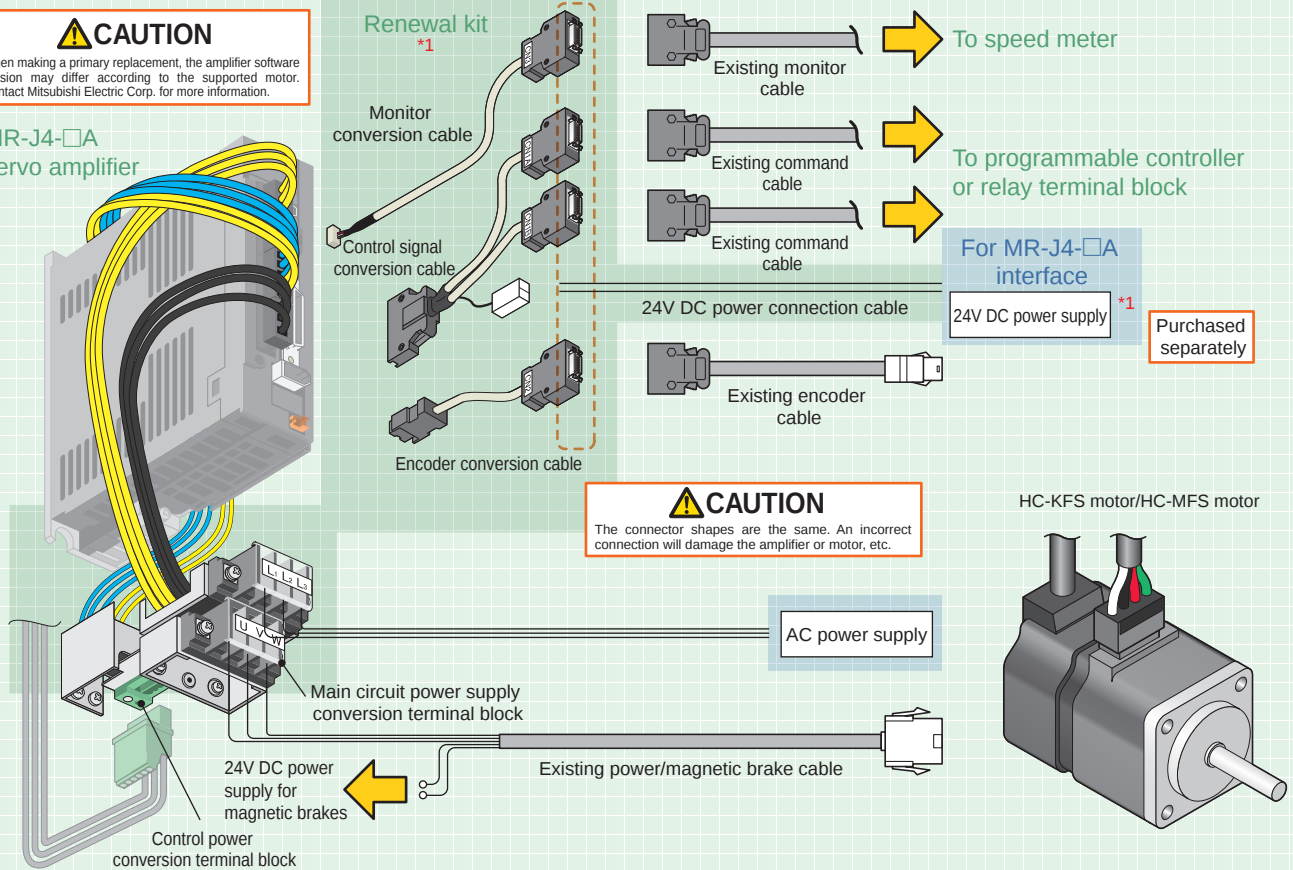
- MR-J2 Series replacements are not supported. (The encoder conversion cable can be used only for amplifier-motor package replacement.)
- The initialization time after power ON differs for the MR-J2S servo amplifier and MR-J4 servo amplifier, so it may be necessary to change the program in existing system.
(* Pay special attention to the magnetic brake release time for the vertical axis. The vertical axis could drop.)
- When making a secondary package replacement, the monitor output value (motor rotation speed) will differ from the existing amplifier because of a difference in the motor's maximum rotation speed.
The program must be changed when using the monitor output with existing system.
- Note that even when this renewal tool is used, some MR-J2S servo functions may not be 100% compatible.
- The outline dimensions will be larger than the existing MR-J2S servo amplifier when using this renewal tool.
Refer to the outline dimensions on the back page for details on the dimensions. Always confirm that there is sufficient space before selecting this tool.
- Depending on the situation, it may be necessary to change the existing wiring or add a noise filter, etc. as a noise countermeasure when using the servo system controller and positioning module (model: A1SD75P, etc.).
- Refer to the Guide for Replacing MR-J2S/J2M Series with J4 Series "L (N) 03092" issued by Mitsubishi Electric, and the "Guide for Replacing MELSERVO-J2S Series using the MR-J2S Renewal Tool (X903120701)" available on the Mitsubishi Electric System & Service web site for replacing the MR-J2S Series with the MR-J4 Series.

Basic configuration A type (for general-purpose interface)

Primary replacement (replacing only the servo amplifier)

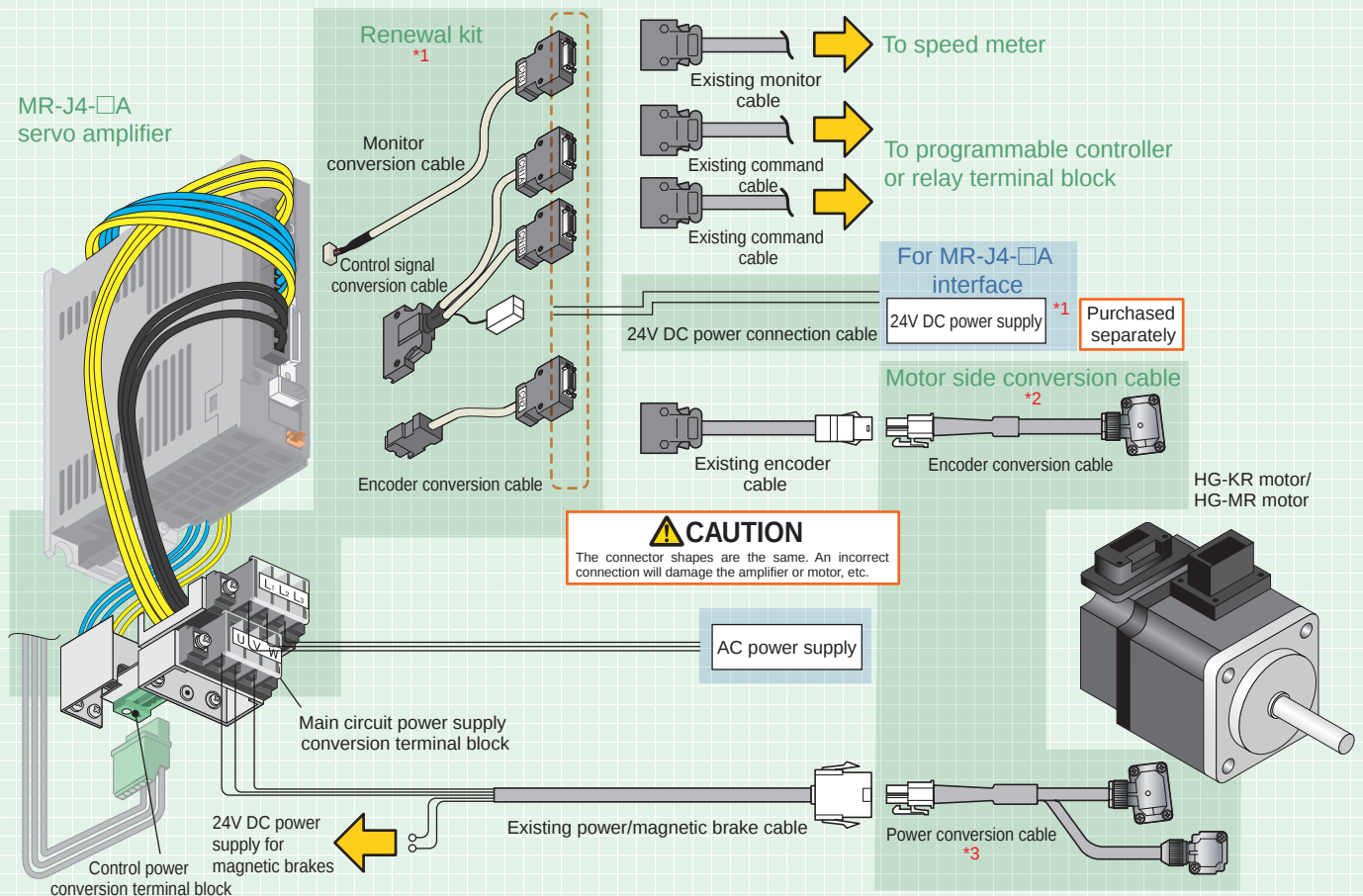
CAUTION
When making a primary replacement, the amplifier software version may differ according to the supported motor. Contact Mitsubishi Electric Corp. for more information.

MR-J4-□A
servo amplifier



Secondary replacement (Replacing servo motor after replacing servo amplifier)

Package replacement (Replacing servo amplifier and servo motor together)



*1. A separate 24V DC (current capacity 80mA or more) is required for the interface when making the replacement. Refer to the back page for recommended parts.
(Required only when a 24V DC power supply for the internal interface is used with the MR-J2S-□A servo amplifier. Not required when 24V DC power supply for interface is supplied from an external source.)

*2. Refer to the table on page 4 for motor side conversion cables.

*3. When replacing the HC-KFS, MFS motor with the HG-KR, MR motor, the magnetic brake cable is built into the power cable.

Basic configuration B type (for SSCNET interface)

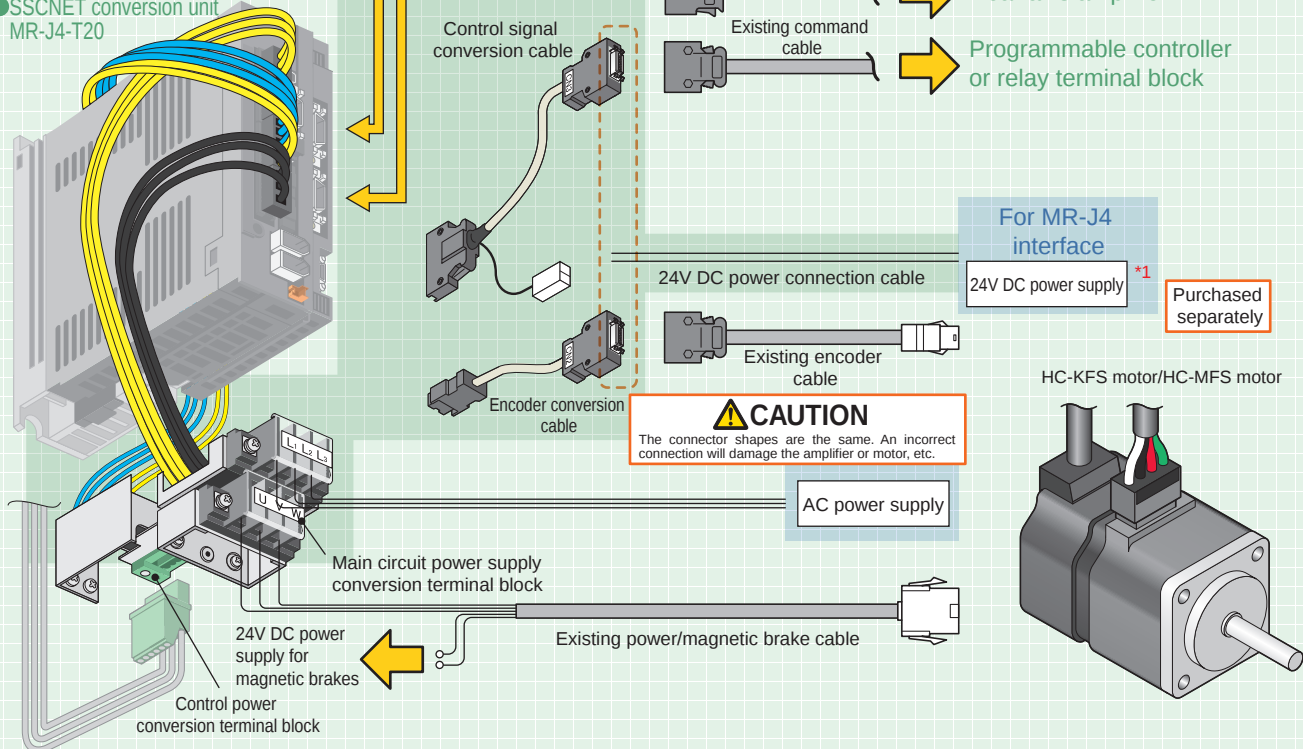
Primary replacement (replacing only the servo amplifier)

- Servo amplifier
MR-J4-□B-RJ020

CAUTION

When making a primary replacement, the amplifier software version may differ according to the supported motor. Contact Mitsubishi Electric Corp. for more information.

- SSCNET conversion unit
MR-J4-T20

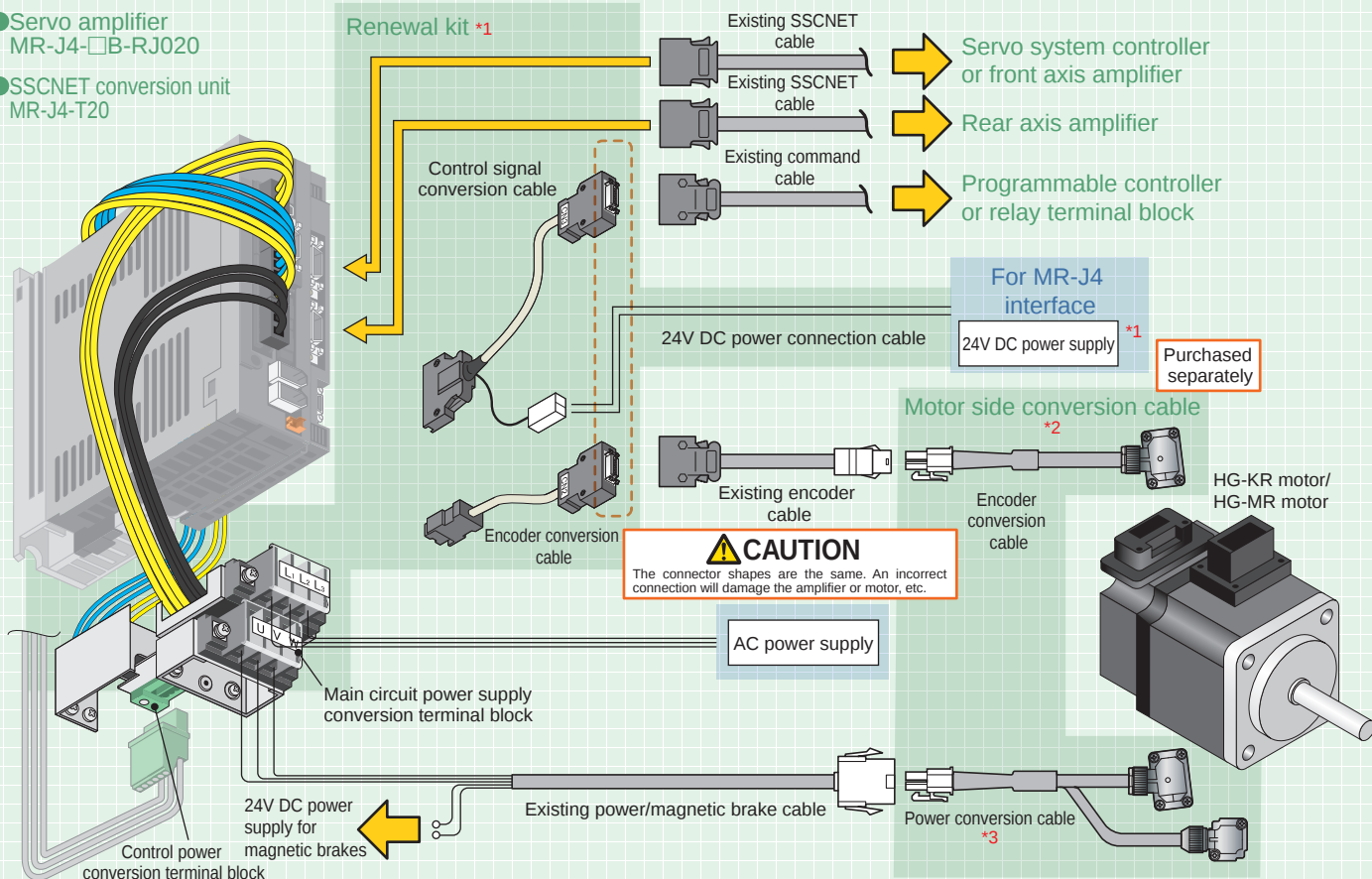


Secondary replacement (Replacing servo motor after replacing servo amplifier)

Package replacement (Replacing servo amplifier and servo motor together)

- Servo amplifier
MR-J4-□B-RJ020

- SSCNET conversion unit
MR-J4-T20



*1. A separate 24V DC (current capacity 80mA or more) is required for the interface when making the replacement. Refer to the back page for recommended parts.

(Required only when a 24V DC power supply for the internal interface is used with the MR-J2S-□B servo amplifier. Not required when 24V DC power supply for interface is supplied from an external source.)

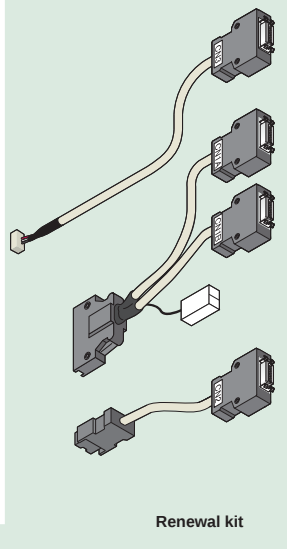
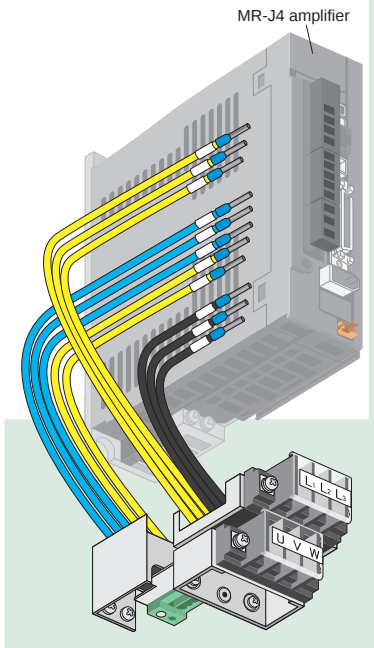
*2. Refer to the table on page 4 for motor side conversion cables.

*3. When replacing the HC-KFS, MFS motor with the HG-KR, MR motor, the magnetic brake cable is built into the power cable.

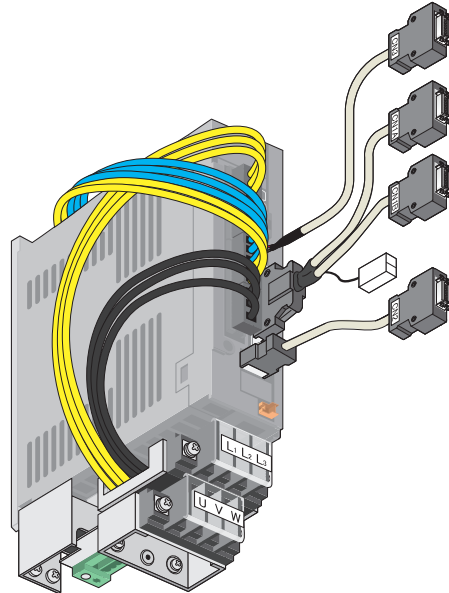
Renewal kit structure

Type A

Shape before assembly

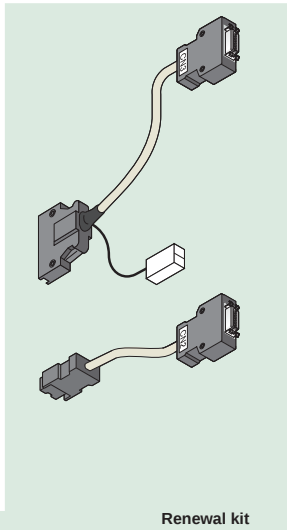
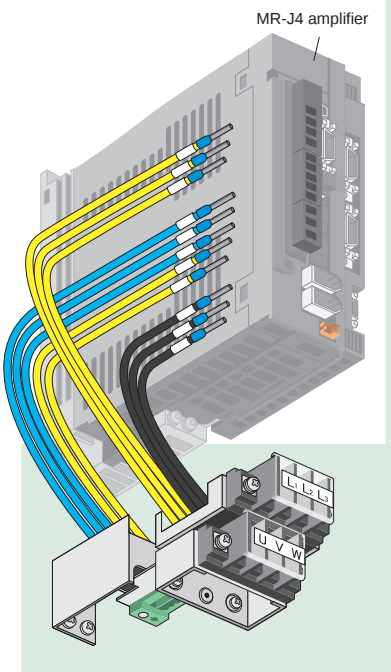


Shape after assembly

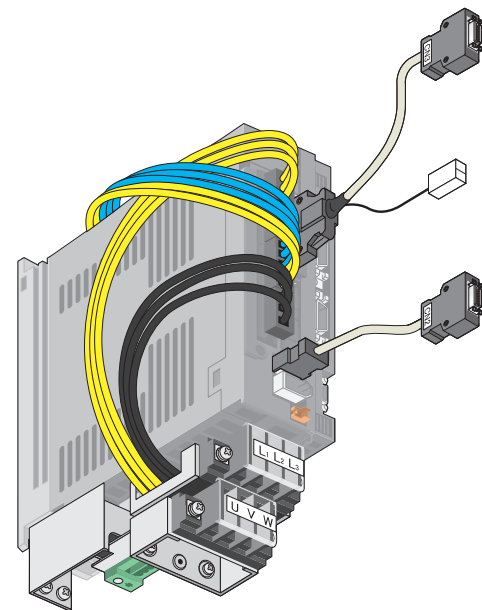


Type B

Shape before assembly



Shape after assembly



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, △: Compatible with limited functions or conditions, ×: Incompatible

Type A ^{(*)1}

Existing model		Primary replacement/secondary replacement/package replacement model (*)3			Secondary replacement / package replacement model			
Servo amplifier model	Servo motor model	Servo amplifier model (*)4,5	Renewal kit model	Servo motor model (*)4	Compatibility	Power conversion cable	Motor side conversion cable model Encoder conversion cable Brake conversion cable / cooling fan conversion cable	
[Small capacity, low inertia HC-KFS Series standard, with brakes] (B) indicates with brakes								
MR-J2S-10A	HC-KFS053(B)	MR-J4-10A	SC-J2SJ4KT02K	HG-KR053(B)	△ (*)6	Without brakes SC-J2SJ4PW1C03M-■ With brakes SC-J2SJ4PWBK1C03M-■	SC-HAJ3ENM1C03M-■ Built-into power conversion cable	
	HC-KFS13(B)			HG-KR13(B)				
MR-J2S-20A	HC-KFS23(B)			HG-KR23(B)				
MR-J2S-40A	HC-KFS43(B)			HG-KR43(B)				
MR-J2S-70A	HC-KFS73(B)	MR-J4-70A	SC-J2SJ4KT1K	HG-KR73(B)				
[Small capacity, super-low inertia HC-MFS Series standard, with brakes] (B) indicates with brakes								
MR-J2S-10A	HC-MFS053(B)	MR-J4-10A	SC-J2SJ4KT02K	HG-MR053(B)	○	Without brakes SC-J2SJ4PW1C03M-■ With brakes SC-J2SJ4PWBK1C03M-■	SC-HAJ3ENM1C03M-■ Built-into power conversion cable	
	HC-MFS13(B)			HG-MR13(B)				
MR-J2S-20A	HC-MFS23(B)			HG-MR23(B)				
MR-J2S-40A	HC-MFS43(B)			HG-MR43(B)				
MR-J2S-70A	HC-MFS73(B)	MR-J4-70A	SC-J2SJ4KT1K	HG-MR73(B)				
[Medium capacity, medium inertia HC-SFS Series standard, with brakes] (B) indicates with brakes								
MR-J2S-60A	HC-SFS52(B)	MR-J4-60A	SC-J2SJ4KT06K	HG-SR52(B)	△ (*)7	SC-SAJ3PW2KC1M-S2	SC-HAJ3ENM3C1M (*)8	
MR-J2S-100A	HC-SFS102(B)			HG-SR102(B)				
MR-J2S-200A	HC-SFS152(B)			SC-J2SJ4KT3K		HG-SR152(B)		SC-HAJ3PW1C1M
MR-J2S-350A	HC-SFS202(B)					HG-SR202(B)		
MR-J2S-350A	HC-SFS352(B)	MR-J4-350A	SC-J2SJ4KT5K	HG-SR352(B)				
MR-J2S-500A	HC-SFS502(B)	MR-J4-500A	SC-J2SJ4KT7K	HG-SR502(B)				
MR-J2S-700A	HC-SFS702(B)	MR-J4-700A	SC-J2SJ4KT7K	HG-SR702(B)		Existing cable can be used		
[Medium capacity, super-low inertia HC-RFS Series standard, with brakes] (B) indicates with brakes								
MR-J2S-200A	HC-RFS103(B)	MR-J4-200A	SC-J2SJ4KT3K	HG-RR103(B)	○	Existing cable can be used	SC-HAJ3ENM3C1M Existing cable can be used	
	HC-RFS153(B)			HG-RR153(B)				
MR-J2S-350A	HC-RFS203(B)			HG-RR203(B)				
MR-J2S-500A	HC-RFS353(B)			HG-RR353(B)				
MR-J2S-500A	HC-RFS503(B)	MR-J4-500A	SC-J2SJ4KT5K	HG-RR503(B)				
[Medium capacity, flat type HC-UFS Series standard, with brakes] (B) indicates with brakes								
MR-J2S-70A	HC-UFS72(B)	MR-J4-70A	SC-J2SJ4KT1K	HG-UR72(B)	○	Existing cable can be used	SC-HAJ3ENM3C1M Existing cable can be used	
MR-J2S-200A	HC-UFS152(B)	MR-J4-200A	SC-J2SJ4KT3K	HG-UR152(B)				
MR-J2S-350A	HC-UFS202(B)	MR-J4-350A		HG-UR202(B)				
MR-J2S-500A	HC-UFS352(B)	MR-J4-500A	SC-J2SJ4KT5K	HG-UR352(B)				
MR-J2S-500A	HC-UFS502(B)			HG-UR502(B)				
[Large capacity, low inertia HA-LFS Series standard, with brakes] (B) indicates with brakes								
MR-J2S-500A	HA-LFS502	MR-J4-500A	SC-J2SJ4KT5K	HG-SR502	× (*)9	SC-HAJ3PW1C1M	SC-HAJ3ENM3C1M Existing cable can be used	
MR-J2S-700A	HA-LFS702	MR-J4-700A	SC-J2SJ4KT7K	HG-SR702		Existing cable can be used		
MR-J2S-11KA	HA-LFS11K1M(B)	MR-J4-11KA	SC-J2SJ4KT15K	HG-JR11K1M(B)		SC-J2SJ4PW3C1M-■		
MR-J2S-15KA	HA-LFS15K1M(B)	MR-J4-15KA		HG-JR15K1M(B)				
MR-J2S-22KA	HA-LFS22K1M	MR-J4-22KA	SC-J2SJ4KT22K	HG-JR22K1M (*)6		(*)10	Existing cable can be used -Brake cable: Existing cable can be used -Cooling fan cable (*)11 -Cooling fan conversion cable SC-J2SJ4FAN1C1M	

Type B ^{(*)1}

Existing model		Primary replacement/secondary replacement/package replacement model ^{(*)2,3}		Secondary replacement / package replacement model			
Servo amplifier model	Servo motor model	Servo amplifier model ^{(*)4,5}	SSCNET conversion module model ^{(*)6}	Renewal kit model	Servo motor model ^{(*)4}	Compatibility	Power conversion cable Motor side conversion cable model Encoder conversion cable Brake conversion cable / cooling fan conversion cable
[Small capacity, low inertia HC-KFS Series standard, with brakes] (B) indicates with brakes							
MR-J2S-10B	HC-KFS053(B)	MR-J4-10B-RJ020	MR-J4-T20	SC-J2SBJ4KT02K	HG-KR053(B)	△ ^{(*)6}	Without brakes SC-J2SJ4PW1C03M-■ With brakes SC-J2SJ4PWBK1C03M-■
MR-J2S-20B	HC-KFS13(B)				HG-KR13(B)		
MR-J2S-40B	HC-KFS23(B)			SC-J2SBJ4KT06K	HG-KR23(B)		
MR-J2S-70B	HC-KFS43(B)			SC-J2SBJ4KT1K	HG-KR43(B)		
MR-J2S-10B	HC-KFS73(B)	MR-J4-70B-RJ020			HG-KR73(B)		
[Small capacity, super-low inertia HC-MFS Series standard, with brakes] (B) indicates with brakes							
MR-J2S-10B	HC-MFS053(B)	MR-J4-10B-RJ020	MR-J4-T20	SC-J2SBJ4KT02K	HG-MR053(B)	○	Without brakes SC-J2SJ4PW1C03M-■ With brakes SC-J2SJ4PWBK1C03M-■
MR-J2S-20B	HC-MFS13(B)				HG-MR13(B)		
MR-J2S-40B	HC-MFS23(B)			SC-J2SBJ4KT06K	HG-MR23(B)		
MR-J2S-70B	HC-MFS43(B)			SC-J2SBJ4KT1K	HG-MR43(B)		
MR-J2S-10B	HC-MFS73(B)	MR-J4-70B-RJ020			HG-MR73(B)		
[Medium capacity, medium inertia HC-SFS Series standard, with brakes] (B) indicates with brakes							
MR-J2S-60B	HC-SFS52(B)	MR-J4-60B-RJ020	MR-J4-T20	SC-J2SBJ4KT06K	HG-SR52(B)	△ ^{(*)7}	SC-SAJ3PW2KC1M-S2
MR-J2S-100B	HC-SFS102(B)			SC-J2SBJ4KT1K	HG-SR102(B)		
MR-J2S-200B	HC-SFS152(B)				HG-SR152(B)		SC-HAJ3ENM3C1M ^{(*)8}
MR-J2S-350B	HC-SFS202(B)			SC-J2SBJ4KT3K	HG-SR202(B)		
MR-J2S-350B	HC-SFS352(B)	MR-J4-350B-RJ020			HG-SR352(B)		
MR-J2S-500B	HC-SFS502(B)	MR-J4-500B-RJ020			HG-SR502(B)		
MR-J2S-700B	HC-SFS702(B)	MR-J4-700B-RJ020			HG-SR702(B)		
[Medium capacity, super-low inertia HC-RFS Series standard, with brakes] (B) indicates with brakes							
MR-J2S-200B	HC-RFS103(B)	MR-J4-200B-RJ020	MR-J4-T20	SC-J2SBJ4KT3K	HG-RR103(B)	○	Existing cable can be used
MR-J2S-350B	HC-RFS153(B)				HG-RR153(B)		
MR-J2S-350B	HC-RFS203(B)				HG-RR203(B)		
MR-J2S-500B	HC-RFS353(B)			SC-J2SBJ4KT5K	HG-RR353(B)		
MR-J2S-500B	HC-RFS503(B)	MR-J4-500B-RJ020			HG-RR503(B)		
[Medium capacity, flat type HC-UFS Series standard, with brakes] (B) indicates with brakes							
MR-J2S-70B	HC-UFS72(B)	MR-J4-70B-RJ020	MR-J4-T20	SC-J2SBJ4KT1K	HG-UR72(B)	○	Existing cable can be used
MR-J2S-200B	HC-UFS152(B)	MR-J4-200B-RJ020		SC-J2SBJ4KT3K	HG-UR152(B)		
MR-J2S-350B	HC-UFS202(B)	MR-J4-350B-RJ020			HG-UR202(B)		
MR-J2S-500B	HC-UFS352(B)	MR-J4-500B-RJ020		SC-J2SBJ4KT5K	HG-UR352(B)		
MR-J2S-500B	HC-UFS502(B)				HG-UR502(B)		
[Large capacity, low inertia HA-LFS Series standard, with brakes] (B) indicates with brakes							
MR-J2S-500B	HA-LFS502	MR-J4-500B-RJ020	MR-J4-T20	SC-J2SBJ4KT5K	HG-SR502	× ^{(*)9}	SC-HAJ3PW1C1M
MR-J2S-700B	HA-LFS702	MR-J4-700B-RJ020		SC-J2SBJ4KT7K	HG-SR702		Existing cable can be used
MR-J2S-11KB	HA-LFS11K1M(B)	MR-J4-11KB-RJ020		SC-J2SBJ4KT15K	HG-JR11K1M(B)		SC-J2SJ4PW3C1M-■
MR-J2S-15KB	HA-LFS15K1M(B)	MR-J4-15KB-RJ020		SC-J2SBJ4KT22K	HG-JR15K1M(B)		Existing cable can be used
MR-J2S-22KB	HA-LFS22K1M	MR-J4-22KB-RJ020			HG-JR22K1M ^{(*)6}		^{(*)10}
							Existing cable can be used -Brake cable: Existing cable can be used -Cooling fan cable ^{(*)11} -Cooling fan conversion cable SC-J2SJ4FAN1C1M

- *1. Refer to the Mitsubishi Electric System & Service web site for motors with reduction gears and models not listed above.
- *2. When the gain of the existing servo amplifier is extremely high, the characteristics may differ slightly if a primary replacement is made. Always set the gain again.
- *3. The replacement servo amplifiers, SSCNET conversion modules and renewal kits listed above are common for primary, secondary and package replacement.
- *4. Purchase from Mitsubishi Electric Corp.
- *5. When making a primary replacement, the amplifier software version may differ according to the supported motor. Consult with Mitsubishi Electric Corp. when placing an order.
- *6. When replacing the motor, the motor's moment of inertia will differ from the original motor. Pay attention to the load moment of inertia rate. The operation pattern may need to be reviewed depending on the existing system.
- *7. Refer to the "Guide for Replacing MELSERVO-J2S/J2M Series with J4 Series L (N) 03092" issued by Mitsubishi Electric for details on the motor specifications.
- *8. Note that the entire length of the motor will be shorter, so the motor connector may interfere with the system side.
- *9. When replacing the motor with brakes with secondary or package replacement, a magnetic brake cable must be newly connected. Use the Mitsubishi Electric System & Service motor magnetic brake cable (SC-BKC1CBL1M-L or SC-BKC1CBL1M-H).
- *10. When replacing the motor, the flange dimensions and shaft dimensions will not be interchangeable. The mounting section and the coupling section with the servo motor shaft, such as the coupling pulley must be changed.
- *11. When replacing the motor, the existing power cable's crimp terminal must be changed. (Screw size UVW terminal: M8 to M10, grounding terminal: M6 to M10, thermistor terminal: M4 to M3.5)
- *12. When replacing the motor, the new motor will not have a cooling fan. The existing wiring will no longer be required, so always insulate it.

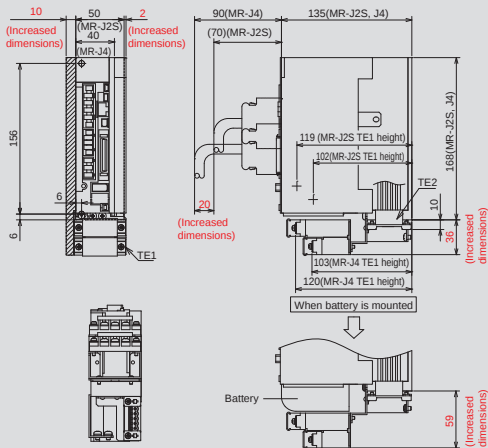
Refer to the Mitsubishi Electric System & Service web site for details on replacing motors that are not listed above.

Outline dimensions

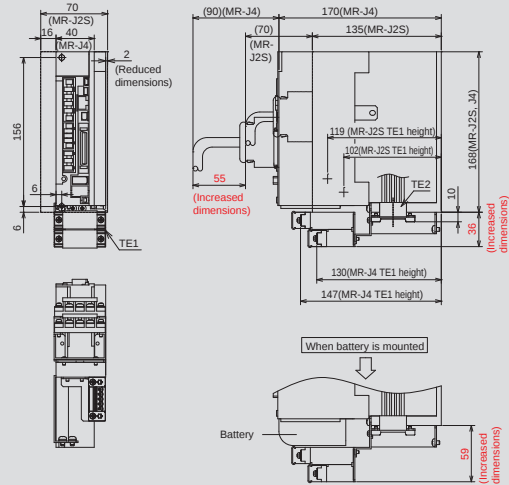
Renewal kit

[unit: mm]

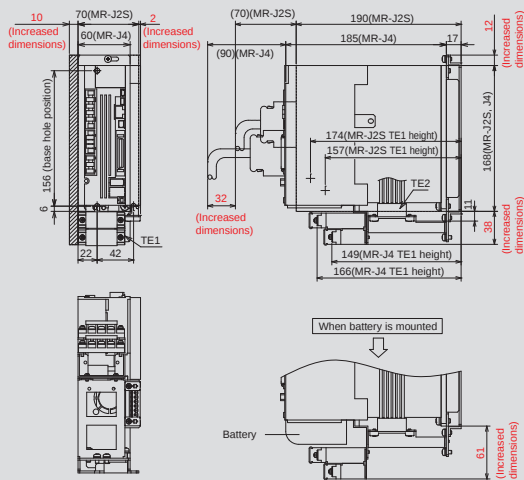
■SC-J2S(B)J4KT02K



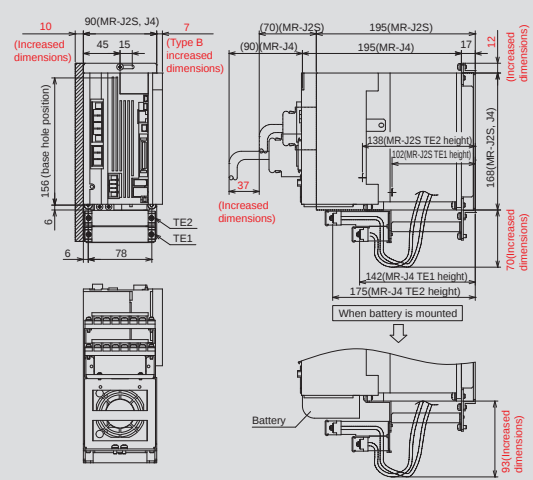
■SC-J2S(B)J4KT06K



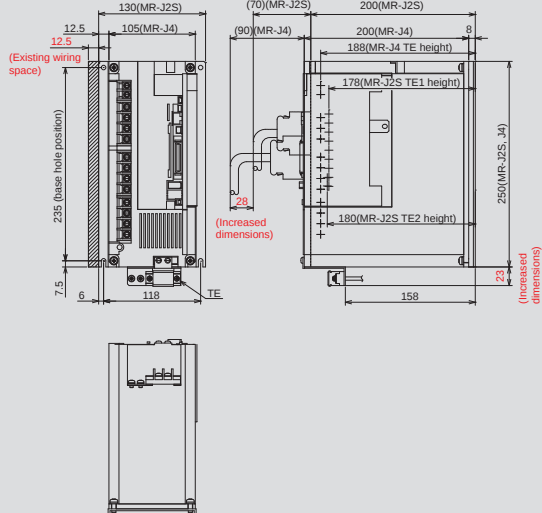
■SC-J2S(B)J4KT1K



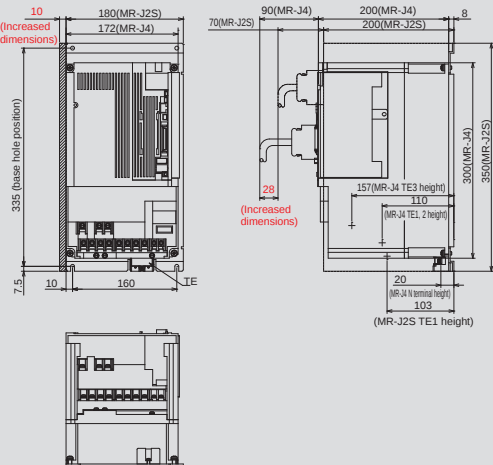
■SC-J2S(B)J4KT3K



■SC-J2S(B)J4KT5K



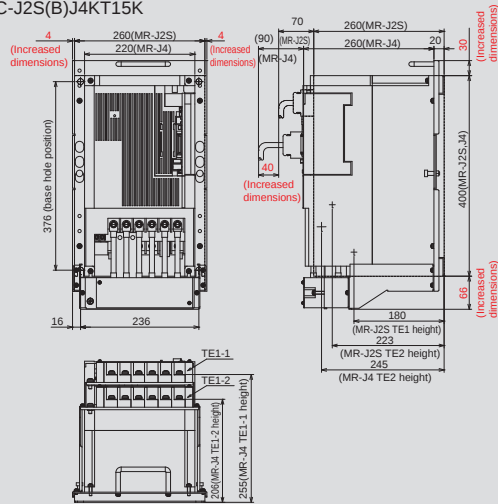
■SC-J2S(B)J4KT7K



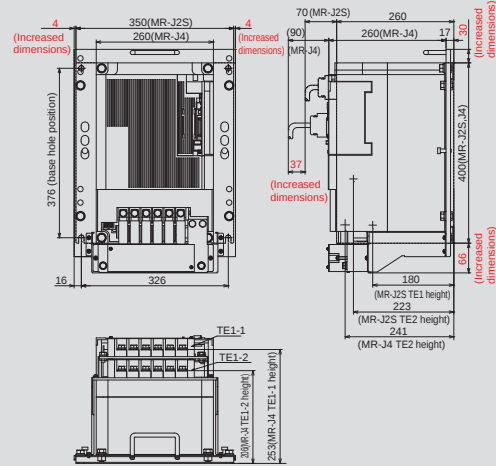
Renewal kit

[unit: mm]

■ SC-J2S(B)J4KT15K



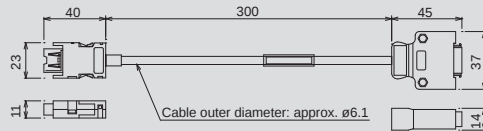
■ SC-J2S(B)J4KT22K



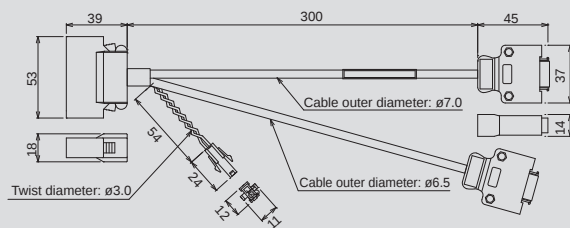
Amplifier conversion cable set

[unit: mm]

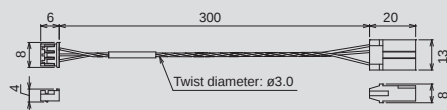
■ Encoder conversion cable (common for all models)



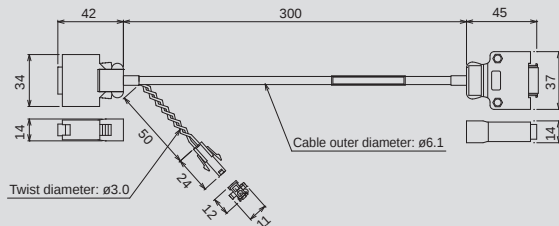
■ Control signal conversion cable (for type A)



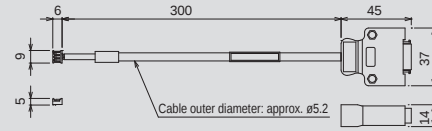
■ Amplifier monitor conversion cable (for type A, 11kW or more)



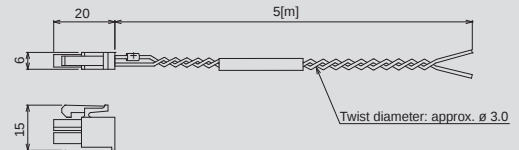
■ Control signal conversion cable (for type B, 7kW or less)



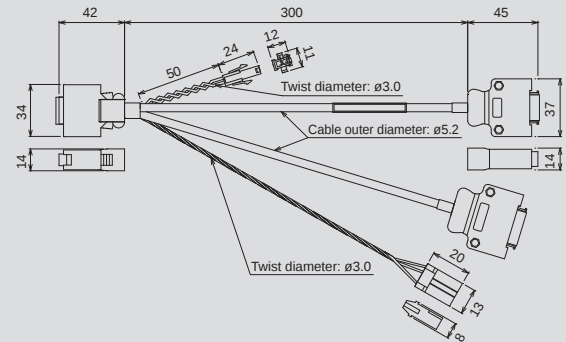
■ Monitor conversion cable (for type A, 7kW or less)



■ 24V DC power connection cable (common for all models)



■ Control signal conversion cable (for type B, 11kW or more)



Mitsubishi General-Purpose AC Servo Renewal Tool

Recommended Power Specifications

Part name	Specifications
24V DC power for interface	Output: 24V DC±10%, current capacity 80mA or more

Mitsubishi Electric Corp. catalog



Renewal catalog explaining replacement of MR-J2S System with MR-J4

■MR-J2S Renewal Catalog
L (NA) 03091A

Mitsubishi Electric Corp. Replacement Guide



Guide explaining replacement of MR-J2S System with MR-J4. Refer to this guide for details on the parameter settings and option settings, etc.

■Guide for Replacing MR-J2S/J2M Series with J4 Series
L (NA) 03093

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