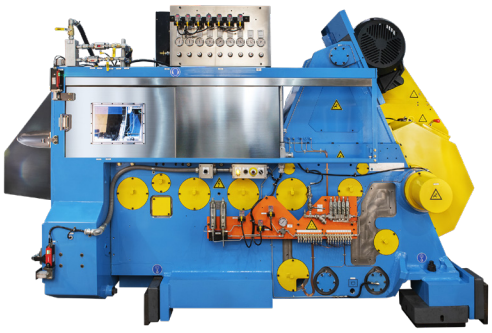
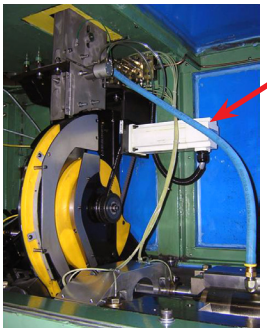
Cupfeed Servo Motor Replacement

for Stolle Ragsdale Bodymakers that use Stolle part number 703211 Parker servo motor cupfeed system

Stolle Ragsdale Bodymakers
Technical Update 2311-1





Obsolete Parker cupfeed servo motor (Stolle part number 703211)

Due to the obsolescence of the Parker servo motor (Stolle part number 703211) for the Stolle Ragsdale Bodymaker cupfeed system, it has become necessary to change to a different Parker servo motor. The Parker servo motor MPM892RM-1419 (Stolle part number 703211) has been replaced by Parker servo motor MPP0923D41-KPSV (Stolle part number 222258284). The new Parker servo motor is not a direct drop-in replacement for the old servo motor.

The new Parker servo motor has two cables with quick disconnect connectors (one for power and one for feedback). The function ports are the same between the two servo motors but the wire colors are different between the connection cables for the motors. It is necessary to connect the correct connector pin to the correct function port of the servo drive. Below is the table that cross-references the old wire colors with the new wire colors.

Electrical connection table for servo motor to servo drive hook up

Connect the new servo motor wires to their corresponding function port on the servo drive

Old Servo Motor

MPM Servo Motor Feedback Pinout	
Function	Wire Color
Reference –	Orange or Yellow/White
Reference +	White or Red/White
SIN	Yellow
COS	Red
COS-	Black
SIN-	Blue
Thermal1	Brown or Black/White
Thermal2	Green or Blue/White

New Servo Motor

MPM Servo Motor Feedback Pinout		
Pin #	Function	Wire Color
1	SIN-	White/Yellow
2	SIN+	Yellow/Brown
9	Thermal1	Gray
11	COS+	Brown
12	COS-	White
13	Thermal2	Pink
14	Reference +	Red/Blue
17	Reference -	Gray/Pink

* all additional wires have no connection

Old Servo Motor

MPM Servo Motor Feedback Pinout	
Function	Wire Color
Phase 1	Black
Phase 2	Red
Phase 3	Blue
Ground	Green

New Servo Motor

MPM Servo Motor Feedback Pinout		
Pin #	Function	Wire Color
1	Phase 1	Black 1
2	Phase 2	Black 2
3	Ground	Green/Yellow
6	Phase 3	Black 3

* all additional wires have no connection

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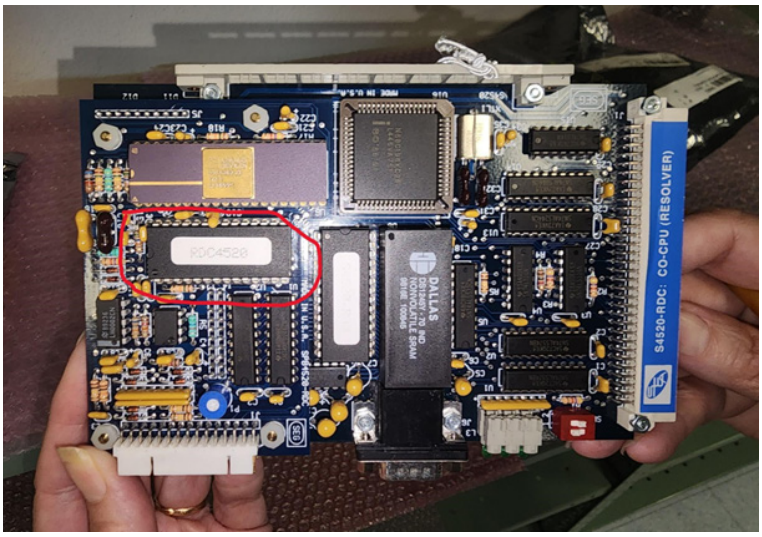
The difference between the old and new servo motors requires a program change in the M4510 Motion Control module. This change require the replacement of a EPROM chip on the SEA S4520 board. This change can be accomplished in one of two ways. If the chip in the M4520 board is installed via a chip socket, it is only necessary to remove and replace the chip with the new chip (Stolle part number 222320521). If the chip on the current board is soldered in place, it is necessary to replace the entire board (Stolle part number 704172). The new board will come with the old and the new chip. When replacing the new board, confirm that the chip R4P452 is installed. Below is a picture of the S4520 board showing the chip that needs to be replaced.



Depending on whether a chip or a new board is required, there are two Parker Servo Conversion Kits available.

1. 222322290 - Conversion kit with new EPROM chip consists of:
   a. 222258284 – Servo Motor
   b. 222258772 – Power Cable
   c. 222258773 – Feedback Cable
   d. 222224905 – 1008 16mm Bushing
   e. 222154141 – 1108 16mm Bushing
   f. 222320521 – EPROM Chip

2. 222322289 – Conversion kit with new S4520 board consists of:
   a. 222258284 – Servo Motor
   b. 222258772 – Power Cable
   c. 222258773 – Feedback Cable
   d. 222224905 – 1008 16mm Bushing
   e. 222154141 – 1108 16mm Bushing
   f. 704172 – New S4520 Board

Once the new servo motor is installed, it might be required to tune the servo. If it is necessary to tune the servo motor, reset the set-up variables to the default which are listed below:

Cupfeed Stop Position at Short Can: 1950
Synchronization Error Limits:
- Max error for "Out of Sync" Disable: 100
- Max error for Enable Cupfeed Synchronization: 500
- Max error for "Following Error" Alarm: 500
  (normal default is 50 but increase this to 500 for new motor)

Cupfeed Servo PID Gains:
- Proportional Gains (P): 15
- Integral Gains (I): 100
- Derivative Gains (D): 25

The best place to start the tuning of the servo motor (if necessary) is with the default PID gains. From these values you should focus on a balance between the motor current and error. Using the acquired data signature and graphing tool, the user can view the current and position of the motor for 1 stroke. The P and the D gains will have the most effect. The I term really has very little effect. Lowering the gains should lower the current but will also produce a greater following error. Balancing the current with the acceptable error is a key factor in the longevity of the servo motor.

Note: For help with tuning the servo or trouble-shooting, reference the SEA manual for the M4510 Motion Control System:
- HSL-WISVCUP
- Ragsdale Bodymaker
- Servo Cupfeed Control
- User's Manual

For more information about or to order Parker Servo Motor Replacement Kits for your Ragsdale Bodymaker cupfeeds, please contact Mark Leaf at +1 303-708-5103 or mark.leaf@stollemachinery.com.

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