Service Manual

Vegetable Preparation Machine RG-100

100 – 230 V Single Phase



Date: 2015-08-27
Approved: Henrik Artursson

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General

This service manual gives instructions for removal and replacement of parts including service procedures and adjustments for the vegetable preparation machine RG-100.

This service manual is prepared for the use of trained service technicians and should not be used by those not properly qualified.

Installation, operation and cleaning

Refer to HALLDE User Manual.

Tools

- Standards set of hand tools
- Gear puller
- Standard VOM/Multimeter with AC current tester

Lubrication and thread locking

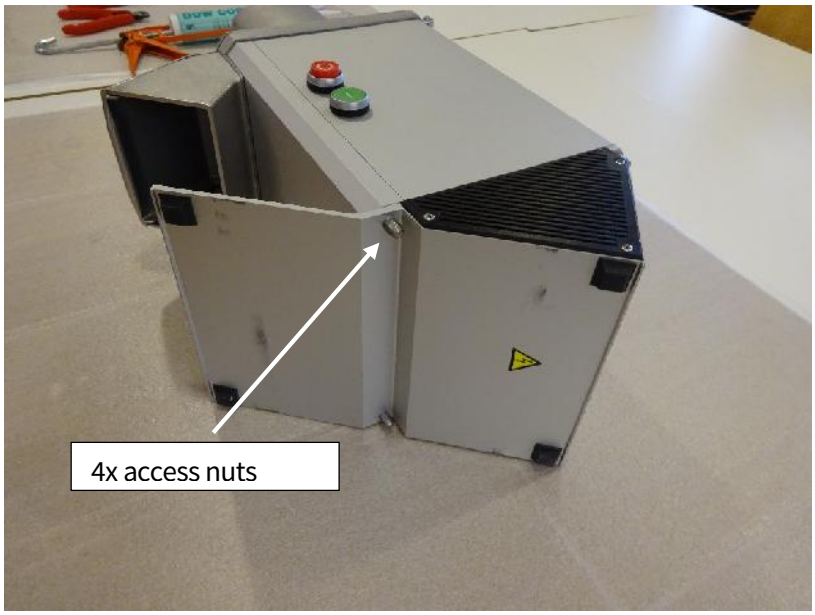
- Loctite 243 or equivalent
- Grease for lubrication of planetary gears
- Food safe lubrication for lubricating seal washer
- Mineral oil for lubrication feed handle shaft and link sleeve

Removal and replacement of parts

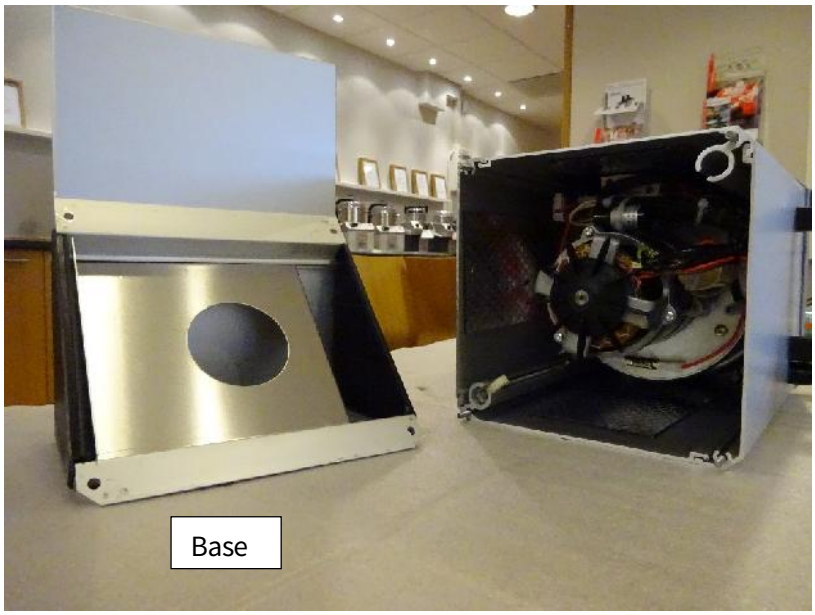
Machine housing panels

Note! Disconnect the electric power to the machine!

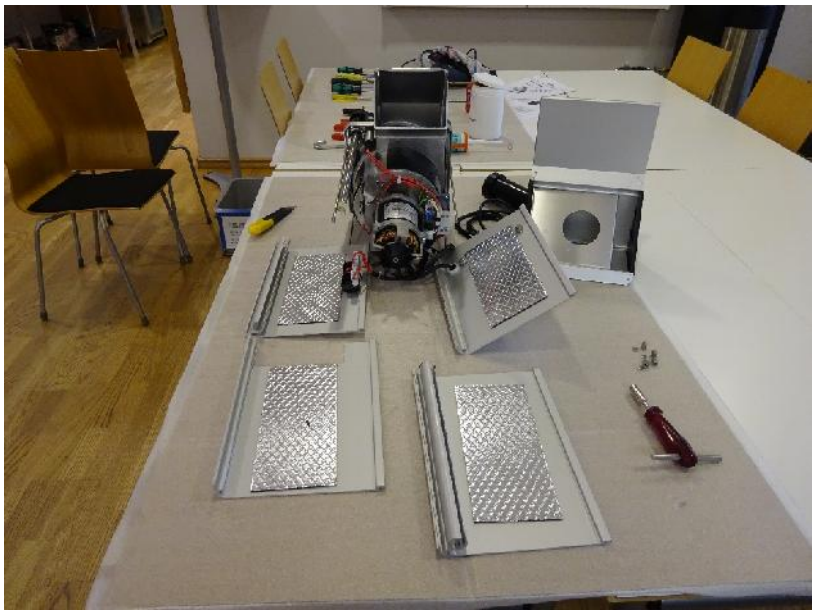
1. Position the machine as shown and remove 4 access nuts to remove base.



2. Remove base.



3. Carefully slide both housing panels up and clear of studs.

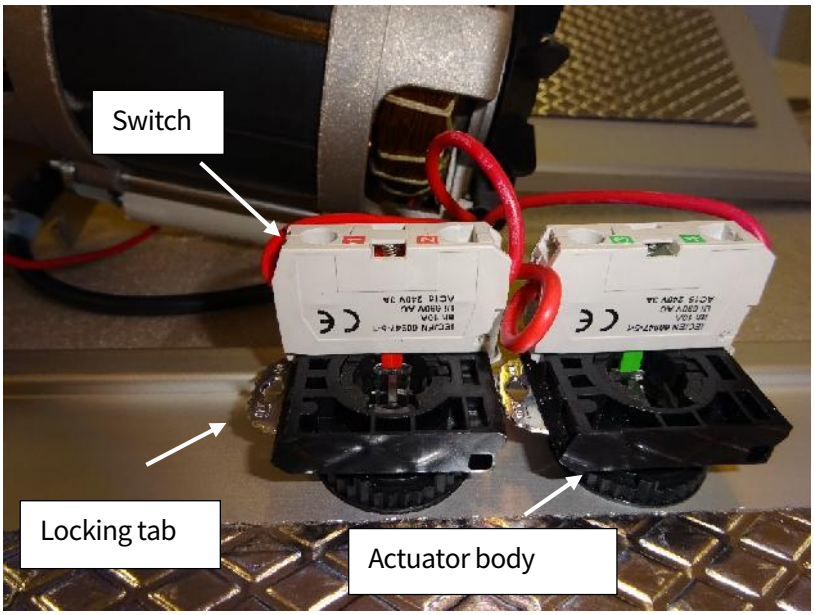


4. Reassemble in reverse order

On and Off switches

Note! Disconnect the electric power to the machine!

1. Remove right side machine housing panel as outlined under MACHINE HOUSING PANELS.
2. Lift the locking tab to release switch from actuator body.



3. Disconnect lead wires from switch.

4. Unscrew retaining ring from actuator body then remove actuator from machine.

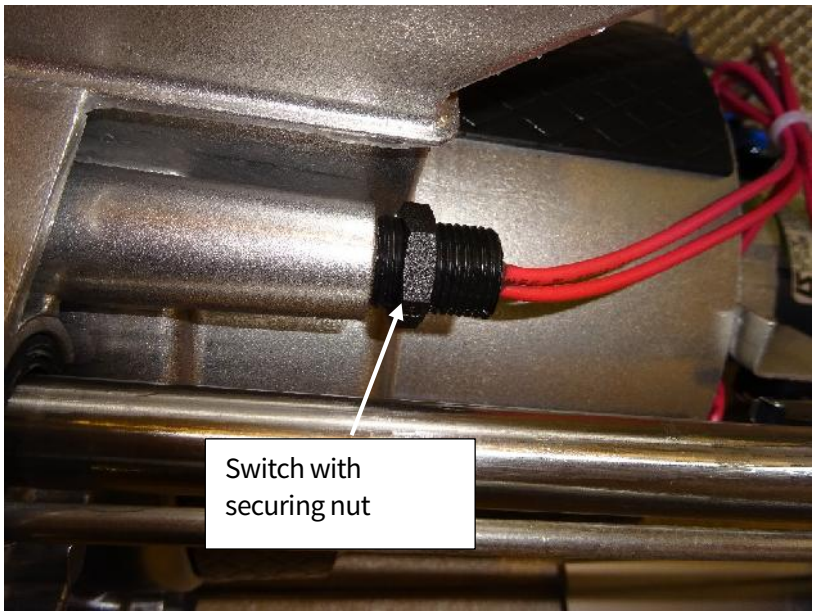
5. Reassemble in reverse order and check for proper operation. When installing a replacement switch, press the switch onto actuator body until locking tab snaps into place to secure.

Feed hopper switch

Note! Disconnect the electric power to the machine!

1. Remove left side and rear machine housing panels as outlined under MACHINE HOUSING PANELS.

2. Disconnect wiring to switch.



3. Unscrew the switch to remove from machine.

4. When installing feed hopper switch, thread the switch into the hole until it stops turning. Tighten the switch approximately 1/8 of a turn more to secure it. Do not over tighten or damage to the switch may occur.

5. Reassemble in reverse order.

6. Perform ELECTRICAL CONTROLS TEST PROCEDURE as outlined in SERVICE PROCEDURES AND ADJUSTMENTS.

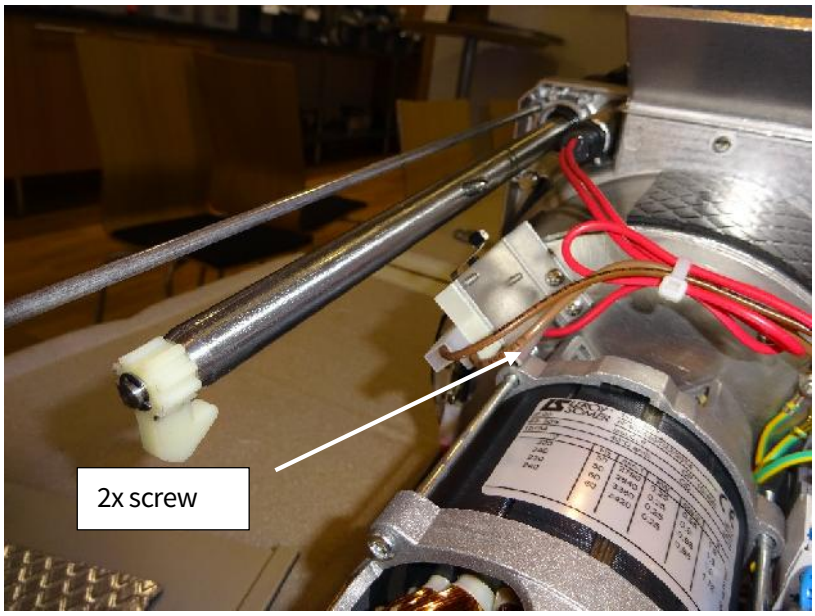
Pusher plate switch

Note! Disconnect the electric power to the machine!

1. Remove left housing panels as outlined under MACHINE HOUSING PANELS.

2. Disconnect lead wires from switch.

3. Remove 2 screws to remove switch and mounting plate from machine.



4. Reassemble in reverse order. If switch adjustment is necessary, the hole tolerance for the switch mounting bracket is the only available adjustment. The switch should open when pin engages roller. Loosen the mounting bracket screws and re-position the switch toward pusher plate shaft. Tighten screws and re-check operation. If activator pin does not return smoothly when released, remove mounting bracket screws then remove pin from bracket. Apply Omega 58 lubricant to the O-ring and re-install.

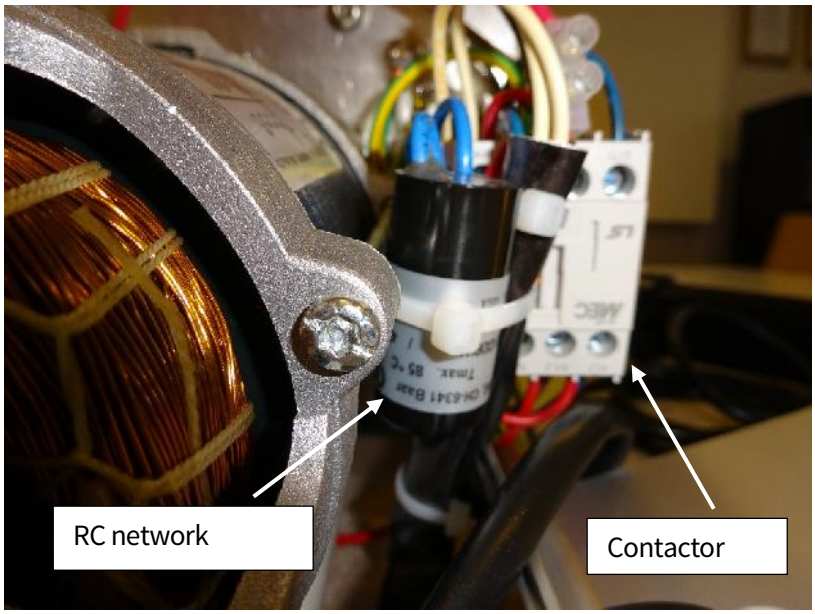
5. Perform ELECTRICAL CONTROLS TEST PROCEDURE as outlined in SERVICE PROCEDURES AND ADJUSTMENTS.

RC Network

Note! Disconnect the electric power to the machine!

1. Remove right side machine housing panel as outlined under MACHINE HOUSING PANELS.

2. Remove wire tie at RC network.

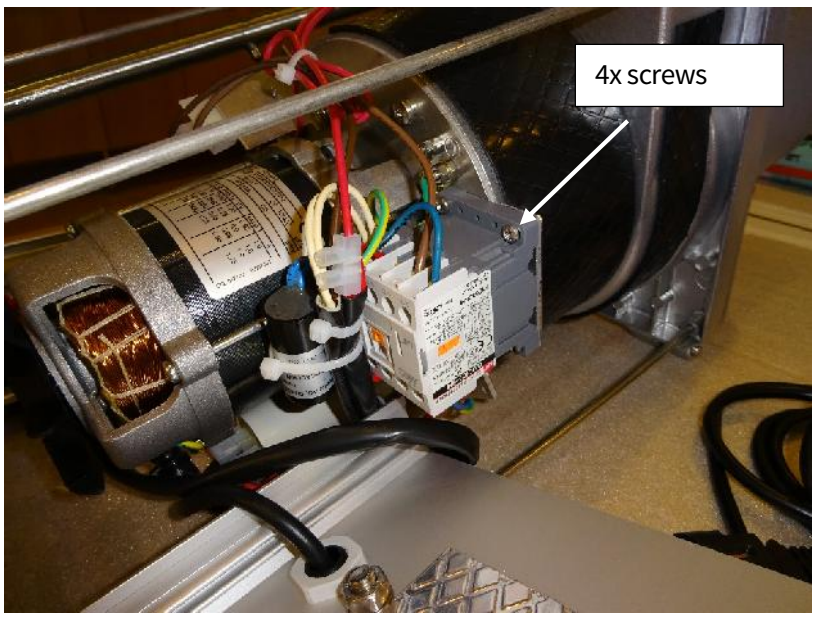


3. Disconnect lead wires from contactor.
4. Reassemble in reverse order and check for proper operation.

Contactor

Note! Disconnect the electric power to the machine!

1. Remove right side machine housing panel as outlined under MACHINE HOUSING PANELS.
2. Disconnect lead wires from contactor.
3. Remove 4 screws and remove contactor.

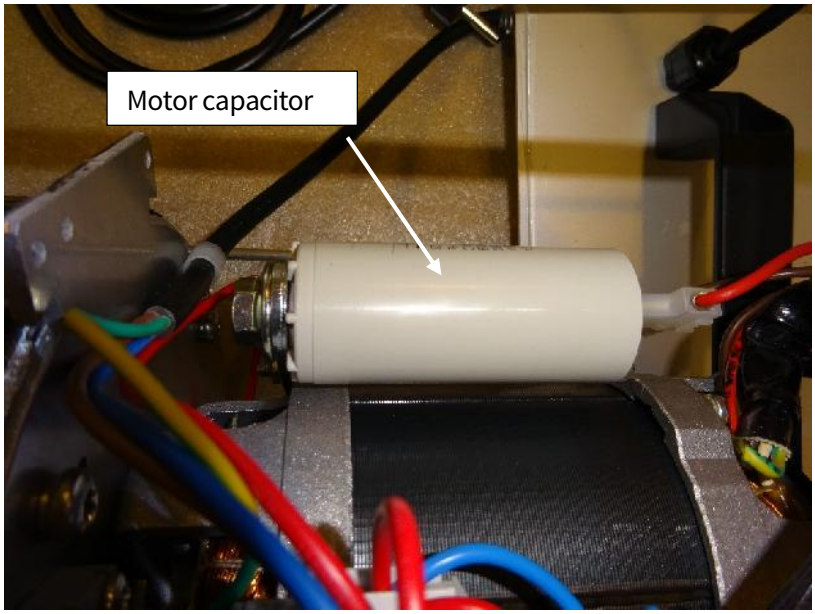


4. Reassemble in reverse order and check for proper operation.

Motor capacitor

Note! Disconnect the electric power to the machine!

1. Remove machine housing panels as outlined under MACHINE HOUSING PANELS.
2. Pry off protective cap.
3. Discharge capacitor by shorting terminals.
4. Disconnect lead wires from capacitor.
5. Remove capacitor from motor plate. When installing a replacement capacitor, remove threaded insert from bottom of original capacitor then install on replacement capacitor.

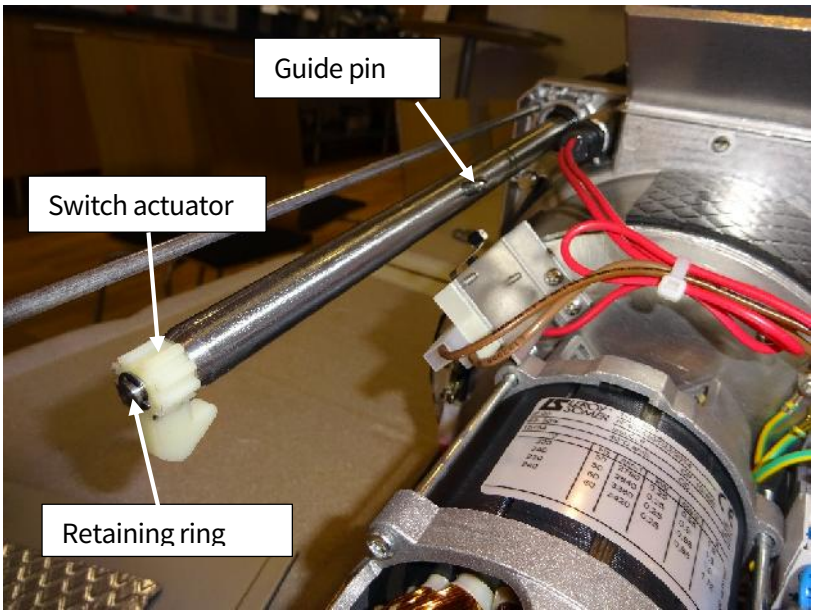


6. Reassemble in reverse order and check for proper operation.

Pusher plate and seal

Note! Disconnect the electric power to the machine!

1. Remove machine housing panels as outlined under MACHINE HOUSING PANELS.
2. Remove switch actuator from end of shaft by removing retaining ring.



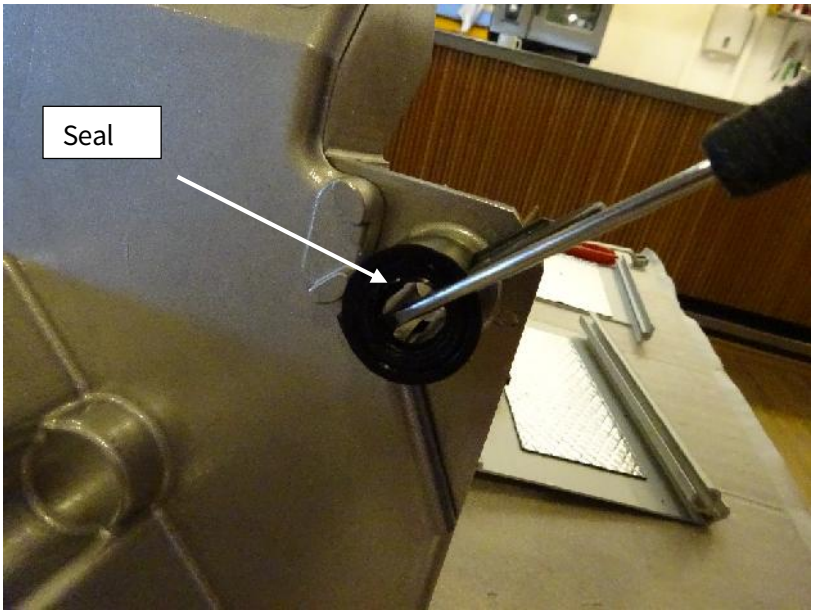
3. Remove guide pin from shaft.

Note! Pin is secured with Loctite and will be very tight. Apply Loctite 243 to threads of guide pin when reinstalling pin.

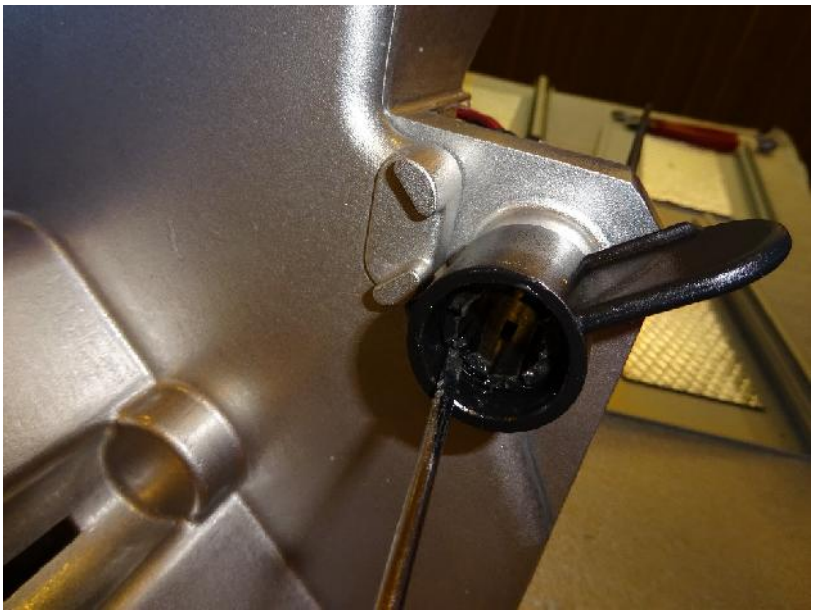
4. Remove pusher plate assembly.

5. Remove seal.

Note! When new seal is installed, apply a light coat of mineral oil to inside surface of seal.



6. Remove locking handle by releasing locking fingers.



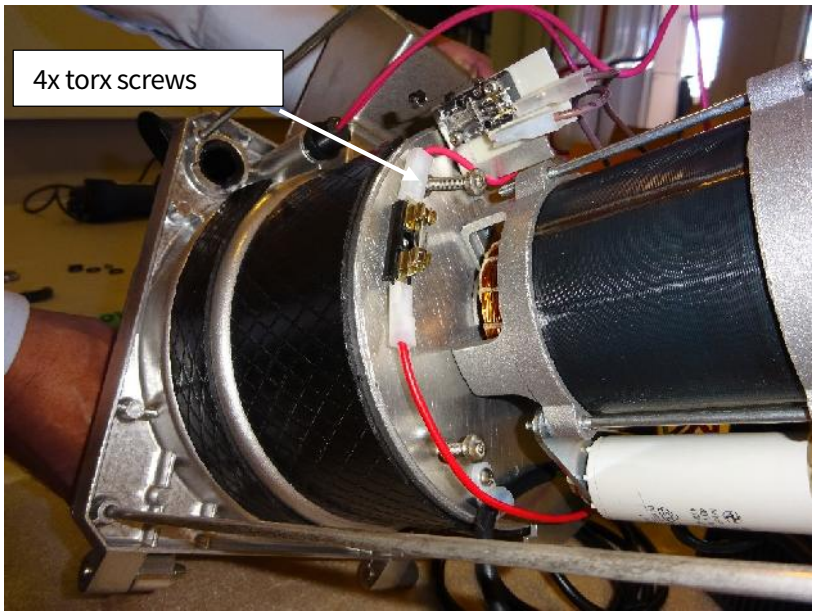
7. Reassemble in reverse order and check for proper operation.

Motor

Note! Disconnect the electric power to the machine!

1) Remove machine housing panels as outlined under MACHINE HOUSING PANELS.

2) Remove 4 torx screws securing the motor mounting plate.



3) To replace motor

   a) Remove 4 screws securing mounting plate to motor.

Note! These screws are secured with Loctite and will be very tight. Ally Loctite 243 to the screw s threads when reinstalling.

b) Disconnect motor lead wires.

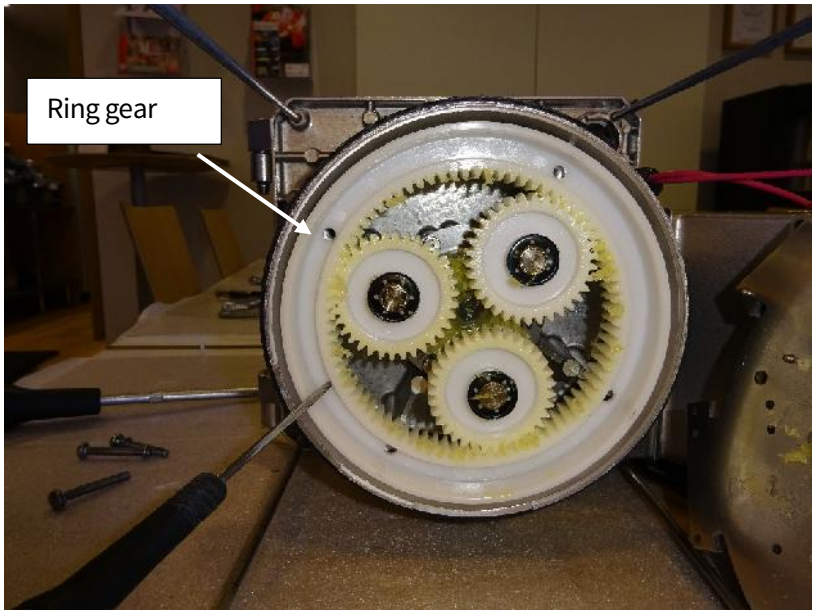
c) Remove capacitor

d) Reassemble in reverse order and check for proper operation.

Planetary gears

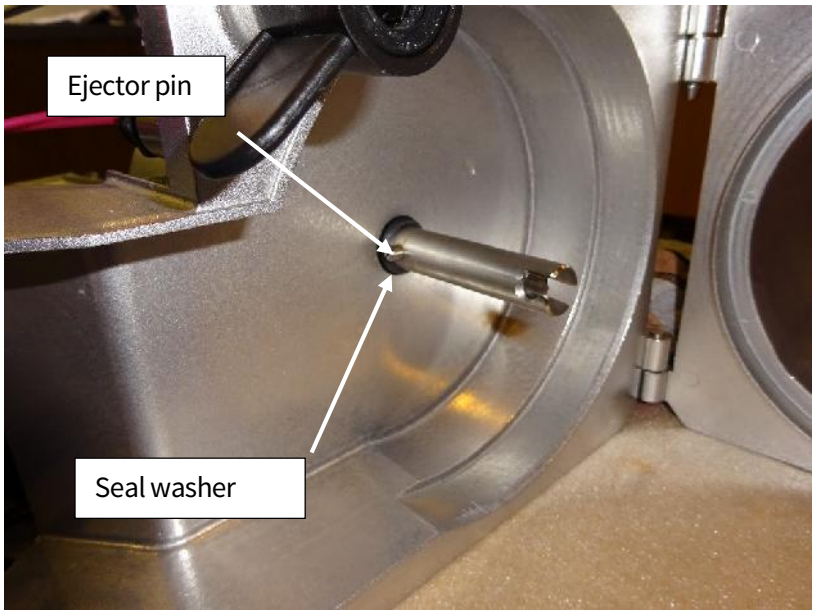
Note! Disconnect the electric power to the machine!

1) Remove ring gear by lifting out.

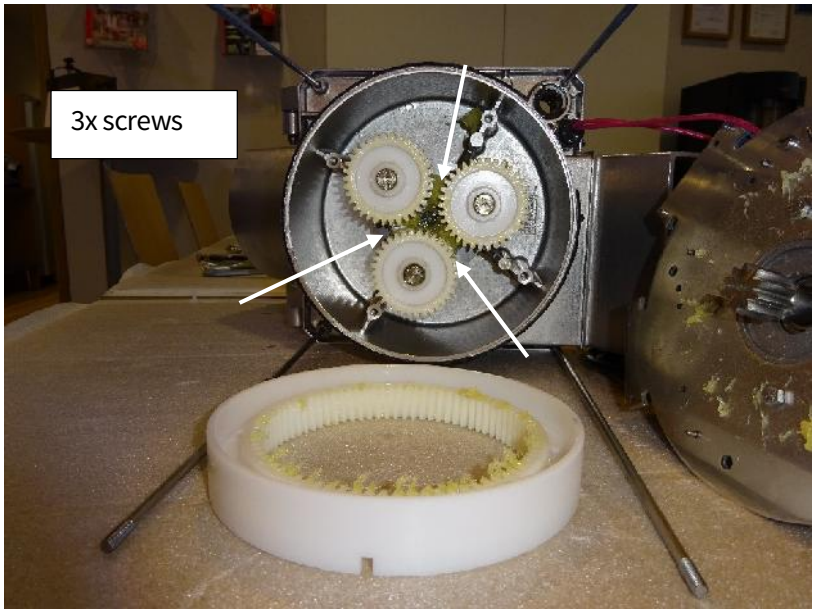


2) Remove ejector plate pin and seal washer from knife shaft.

Note! Pin is secured with Loctite and will be very tight. Apply Loctite 243 to the screw threads when reinstalling

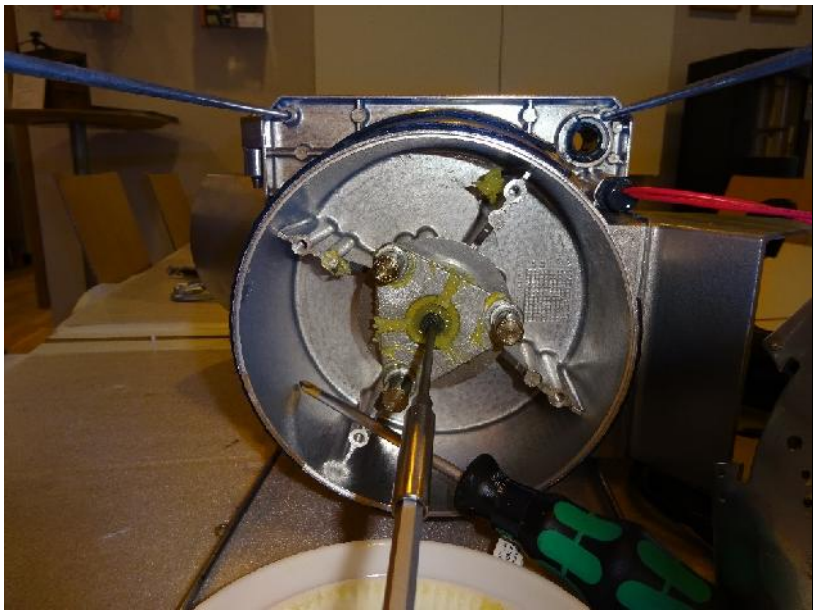


3) Remove 3 screws securing planetary assembly.



4) Remove planetary assembly by tapping on knife shaft with brass or plastic hammer.

5) Remove and replace shaft seal.

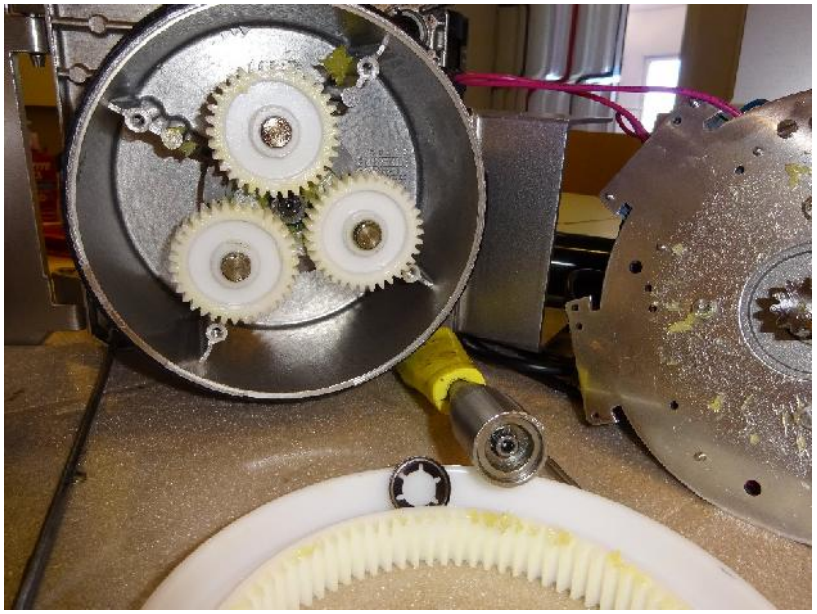


6) Remove socket head screw.

   Note! Parts are under spring pressure. Hold in place while removing screw. Screw is secured with Loctite and will be very tight. Apply Loctite to threads of screw when reassembling.

7) Remove planetary washer (retaining ring) then lift planetary wheel from shaft.

8) Reassemble in reverse order and check for proper operation. Don not re-use the retaining rings when assembling the planetary wheels. A special tool or 15 mm socket can be used to press the planetary washers evenly onto shaft.

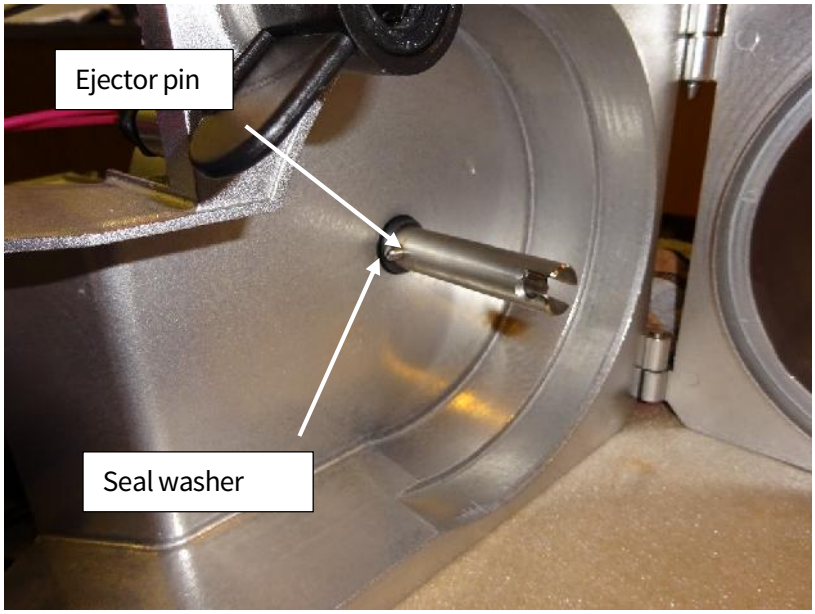


9) When installing planetary gears, apply a thin coating of gear lubricant to all gear teeth.

Seal washer

Note! Disconnect the electric power to the machine!

1. Remove guide pin from knife shaft.
2. Remove seal washer from knife shaft.



3. To install:
    a. Lubricate seal washer with food safe lubricant then place the seal washer onto knife shaft with the beveled side up.
    b. Slide new seal washer onto shaft until seal is just clear of guide pin hole and install guide pin.
    c. Install ejector plate and push it down as far as it will go. This will properly position the seal washer.
4. Apply Loctite 243 to threads of carrier pin set screw then install the carrier pin. Tighten set screw to secure carrier pin to knife shaft.
5. Check for proper operation.

Service Procedures and Adjustments

Electrical controls test procedure

1. Remove cutting tools.
2. Connect food processor to the proper voltage source.
3. Close feed hopper and position pusher plate into the feed hopper.
4. Press ON button and motor should start.
5. Press OFF button and motor should stop
6. Press ON button, motor starts. Raise pusher plate until the food processor stops. Motor should stop when the edge of pusher plate is positioned in line with the feed head.
7. Lower pusher plate and motor should restart. Press stop button to stop the food processor.
8. Raise pusher plate slightly and turn the lock handle counterclockwise. Raise the pusher plate to its highest position. You should not be able to remove it from the feed head. Turn lock handle to the locked position and remove pusher plate from the feed head.
9. Press ON button. You will hear the contactor energize but the food processor does not run.
10. Turn the lock handle to the unlocked position and slowly raise the feed head. You will hear the contactor de-energize when the feed head is raised a small amount. When the feed head is lowered, the contactor remains de-energized.

Motor test

Note! Disconnect the electric power to the machine!

1. Access motor as outlined in REMOVAL AND REPLACEMENT OF PARTS.
2. Disconnect motor lead wires.
3. Set VOM to measure resistance. Connect meter leads to test the motor windings and thermal overload according to the motor lead wire colors. See table below.

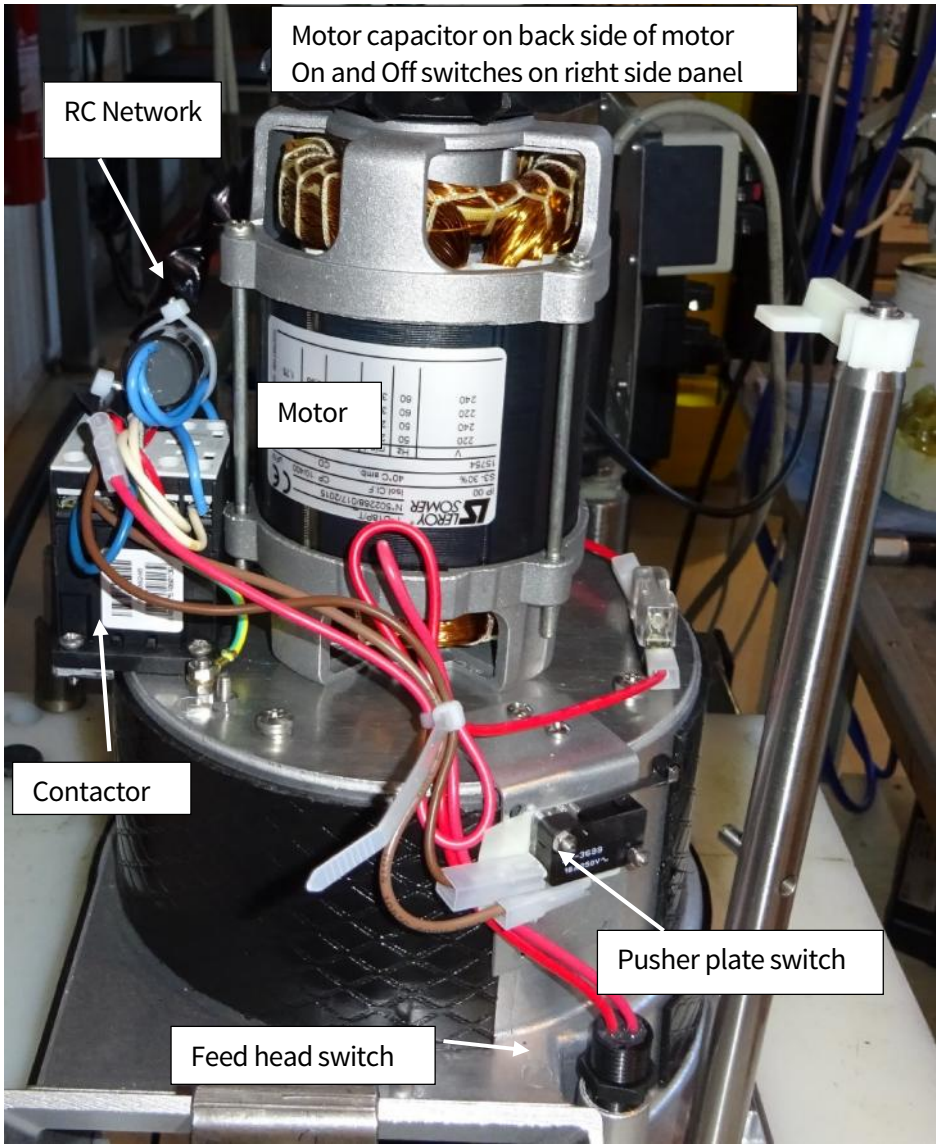
TEST	WIRE COLORS	RESISTANCE* (Ohm)
Main Winding	Black & Blue	0.8 to 1.0
Auxiliary Winding	Black & White	1.6 to 1.9
Thermal Overload	Blue & White	0 (approx.)

Electrical Operation

Component function

Motor	Turns cutting tool to slice product. Protected by thermal overload with auto reset.
Contactor	Controls power to motor.
ON Switch	Provides initial power to control circuit (momentary on).
OFF Switch	Removes power from control circuit (momentary off).
Feed Head Switch	Ensures feed hopper is down (feed switch closed) before food processor operation can begin.
Pusher Plate Switch	Held open when pusher plate is raised and to stop motor.
Motor capacitor	Shifts electrical phase to improve running efficiency.
RC Network	Filters electrical noise at contactor.

Component location



Sequence of operation

1. Conditions.
    a. Machine properly connected to power and properly grounded.
    b. Motor thermal overload is closed.
    c. Geed head switch is closed.
    d. OFF switch is closed.
    e. ON switch is open.
    f. Pusher plate switch is closed.

2. Press ON switch. Contactor is energized thru pusher plate switch with contactor closed, motor is energized thru contactor.

3. If feed hopper switch is opened, contactor is de-energized (latching circuit opens) and motor stops. Close feed head switch and press ON switch to restart motor.

4. If stop switch is pressed, contactor is de-energized and motor stops.

5. If pusher plate switch is opened, motor stops.

6. Latching circuit remains energized so that motor restarts when pusher plate switch is closed.

Electrical diagram

See user instructions and www.hallde.com for applicable electric diagram.

Troubleshooting

SYMPTOM	POSSIBLE CAUSES
Motor will not start, feed head is down and pusher plate is in operating position.	1. No voltage to machine. 2. 1OL tripped - current setting incorrect; or auto reset not selected; or malfunction. 3. Feed hopper switch (1LS) malfunction. 4. OFF switch (1PB) malfunction. 5. ON switch (2PB) malfunction. 6. Pusher plate switch (2LS) malfunction. 7. 1CON malfunction. 8. Thermal overload in motor open or malfunction. 9. Motor capacitors malfunction. 10. Motor malfunction.
Motor runs, but stops when ON switch is released.	1. Latching circuit open. 2. OFF switch (1PB) malfunction.
Motor does not stop when pusher plate is raised out of feed hopper and rotated past the 1 3/16" maximum allowable feed hopper opening.	1. Pusher plate switch not adjusted properly. 2. Tab on pusher plate shaft not engaging activator pin; or activator pin stuck; or activator pin spring malfunction. 3. Pusher plate switch (2LS) malfunction.
Motor stops during use, restarts after machine cools.	1. Machine overloaded with product; or excessive feed pressure on pusher plate. 2. 1OL tripped - current setting incorrect; or malfunction. 3. Thermal overload in motor open or malfunction. 4. Binds in planetary drive. 5. Motor capacitors malfunction. 6. Motor malfunction.
Low output or poor cutting.	1. Wrong combination of cutting tools used. 2. Cutting tools dull. 3. Excessive feed pressure on pusher plate.