START UP PACKAGE (INCLUDED):

- One gallon of Storm Super Concentrate™ Cleaner (1 oz. per tank of water)
- One gallon of Storm Super Shine™ Polish
- One 8 oz. bottle of Storm Sur-Fresh™ (4 oz. per gallon)
- Polishing Pads (3) – 75-100 polishes per pad
- Abralon® Pads (20 of each) – 500, 1000, and 2000 grit – 25-30 sands per pad
- Diagnostic Power Cord
- 3″ Center Pads (3)
- 6″ Velcro Pad (1)

MACHINE SET UP

1. Open crate and remove keys.
   - Keys are either attached to outside of the machine or are located on the inside of the main electrical door on the side of the machine inside of the money catch.
2. Open all doors to the machine (top, front – bottom, side, and back).
   - To open door, press in on the lock where key is inserted. Handle should pop out. Turn handle 90 degrees and pull.
3. Remove moisture absorption boxes two (2) from top and front compartments and discard.
4. To install Abralon® pads – remove sandpaper pads (if present) that have been pre-installed.

Abralon® pads MUST be installed in the following order for machine to operate properly:

A. 500 Abralon® pad installs directly to the right (clockwise) from the polishing pad.
(NORTH IF STANDING IN FRONT OF MACHINE OR 12:00 POSITION)

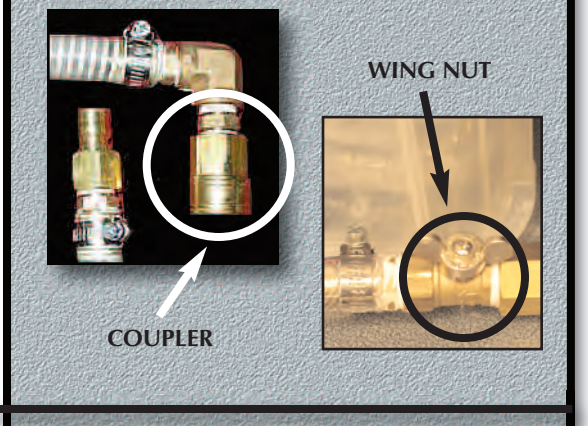
B. 1000 Abralon® pad installs directly across from the polishing pad.
(EAST IF STANDING IN FRONT OF MACHINE OR 3:00 POSITION)

C. 2000 Abralon® pad installs directly to the left (counter-clockwise) of the polishing pad.
(SOUTH IF STANDING IN FRONT OF MACHINE OR 6:00 POSITION)

NOTE

IT IS IMPORTANT TO PUT THE ABRALON® PADS IN THE CORRECT LOCATIONS IN ORDER TO ENSURE THE MACHINE WILL OPERATE PROPERLY.

5. Inside the bottom front compartment you will find the water reservoir. Close the valves (2) on the hose that comes out of the reservoir by rotating the two wing nuts on each side of the coupler 90 degrees. This will allow you to proceed without spilling liquid from the reservoir.
6. Disconnect the coupler by pulling back the ring and pulling both ends of the coupler to separate.
7. Remove drain pipe from the top of the reservoir and leave hanging.



8. Remove reservoir from compartment. There will be several components inside the reservoir that must be removed.

   They are:

   A. A black filter for the reservoir
   B. A supply of polishing pads and a cloth center pad
   C. Any additional maintenance items

9. Install the black filter by stretching opening around the top edge of the reservoir. This will keep all of the debris away from the opening where the hose is attached to the reservoir and will allow clean water to be used in the polishing and resurfacing process. This will also prolong the life of the water pump.
10. Add one (1) ounce of Storm Surface Factory Super Concentrate Cleaner to the reservoir. It is important to use only one ounce. Any more may cause foaming and damage to your machine.
11. Fill reservoir with 2 to 2-1/2 gallons (9.5 liters) of clean water.
12. Add bottle of Sur-Fresh™ to water to keep the water fresh and to protect the machine from corrosion and wear.
13. Resecure the lid on the top of the reservoir and put in the bottom compartment the same way it was removed.
14. Reinsert the drain hose into the opening on the lid of the reservoir.
15. Attach the coupling by pulling back the ring, placing the two ends together and then releasing the ring.
16. Open both valves on each side of the coupling by rotating the wing nuts counter-clockwise 90 degrees. This will allow the water to flow freely to the machine.

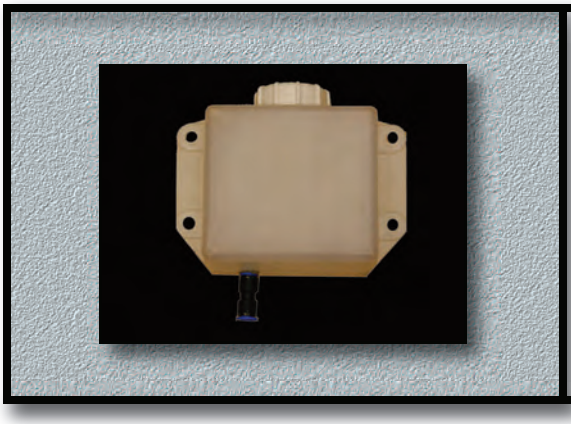
IMPORTANT

VALVES MUST BE OPEN DURING OPERATION TO PREVENT DAMAGE TO MACHINE!

17. Familiarize yourself with the contents that are included on the door of the bottom compartment.
    A. On the side of the door, closest to the hinge and near the top, is a safety switch. This will keep the machine from running while this door is open. There is another safety switch on the back door. These switches **do not** cut power to the machine.

NOTE IF YOU ARE DOING MAINTENANCE ON THE MACHINE IT IS IMPORTANT TO SWITCH THE CIRCUIT BREAKER (POWER ON/OFF) AND UNPLUG THE MACHINE BEFORE STARTING SERVICE

B. The Coin Hopper – take the keys and unlock the padlock that is attached to the middle compartment. This is where you will keep quarters for change for customers. While supplying your machine with change, make sure to fill the hopper above the line. After stocking your machine with quarters close and lock the coin vault.



C. The third compartment is the polish reservoir tank. Fill this reservoir full with Storm Super Shine Polish (included) and secure the lid. It is important to keep the polish tank at least half way full at all times. It is also very important to only use Storm Super Shine Polish as any other polish may cause the tubes to clog and will void the one year warranty on your machine.

WARNING **IF SURFACE FACTORY IS OPERATED WITH ANY POLISH OTHER THAN CERTIFIED STORM SURFACE FACTORY POLISHES, WARRANTY WILL BE VOID**

18. Open the side compartment – there are many very important components inside this compartment and on the side compartment door.
19. The Circuit Breaker (Power ON/OFF):

NOTE: Very Important

A. Attached to the door, on the bottom left is the circuit breaker. When you are servicing the machine it is important to turn off the circuit breaker by switching down, to avoid damaging your machine. While the circuit breaker is turned OFF there will be no lighting on the display on the front of the machine; this will help you know the power is OFF and the machine is safe to service.

B. After you turn the switch on the circuit breaker ON the machine will go through a brief power up cycle. When the machine is ready to use the display will read *"It will be able to use now."*

20. The Primer Switch (Compound ON Switch):

A. Attached to the door also is the primer (Compound ON) switch. This is located on the top half of the machine right below the controller panel. This switch will allow you to pull the polish from the reservoir tank up through the hose and up to the nozzle. To prime the machine, place the switch in the up position and you will be able to hear the motor pumping the the polish up through the hose. Open the top compartment and you will see the polish coming through the hose attached to the top door. Turn the switch OFF when the polish reaches the nozzle. This process may take several minutes for the polish to be pulled from the polish tank to the spout.

NOTE WHEN THE SWITCH IS IN THE DOWN POSITION, YOU CAN PRIME THE COIN HOPPER. IN ORDER TO OPERATE THE MACHINE, MOVE THE SWITCH TO THE NEUTRAL POSITION (MIDDLE).

21. The Remote Controller:

A. Also attached to the side compartment door is the remote controller. This is the panel that has the three red buttons on top and five black tabs below. This will allow you to set which mode the machine is running in (VEND or FEE), and will allow you to change prices in the vend mode.

B. Changing Prices – press the service for which you would like to change price (i.e. 500 sand) on the front of the machine. On the remote controller move the black tab labeled FEE to the up position. Press CANCEL on the front – the LCD should read *"It will be able/Fee: 2.00."* Press the appropriate red button on the remote controller to adjust the price up or down and it will show on the display what the price has been adjusted to. After you have chosen your desired price, press the red SET button on the remote controller. After you press the SET button the light below the service will move to the next service (i.e. 1000 sand). You can adjust this price by following the same procedure as above. Continue this process until you have adjusted all of the prices to your desired setting. After you are finished make sure to switch the black tab FEE to the down position.

C. Along with changing prices you can use the remote controller to adjust your maintenance alerts that will tell you when your machine needs new Abralon® or polishing pads. To change the alert schedules first locate the black tab labeled D-SET and switch it up. The machine will say *"disk set 400/25."* The 400 refers to the sandpaper that the machine is programmed for which is the equivalent of a 500 Abralon® pad, and the 25 refers to the amount of times the pad should be used before the machine alerts you that it is time to change that particular pad. The default number of times is 25.

To adjust up or down press the red buttons on the remote controller and the numbers will increase or decrease. After setting the number press the SET button. This will move the disk set to the next pad (800 grit sandpaper or 1000 Abralon®). Follow the steps until all three pads are done (1000 sandpaper is 2000 Abralon®). The final step in programming alerts is adjusting the polishing pad. The default number for the polishing pads is 100. Use the same steps from above to adjust that up or down to your preference. Don't forget to switch the D-SET tab to ON.

THE REMOTE CONTROLLER (CONTINUED)

D. Inside the side door there are also other components that are important to the machine but do not need to be adjusted. First is the coin acceptor and bill validator. This is where customers will insert money to use your machine. The money collected will dispense into the removable money collecting bin located below these two components.

22. Move the machine so you can access the back panel. Open the door and notice the accessibility to the different pumps, motors, switches, wires and belts. Remember that there is a safety switch attached to the door as well and the machine will not work while this door is open. There will still be power to the machine. To service the machine always flip the circuit breaker off so there will be no power to the machine.
23. Once you have your machine set up and ready to use, maneuver the machine to the exact location you would like it to stay. On the castors on the bottom of the machine rotate the orange dial in the clockwise motion to lower the black feet and help to keep the machine stationary.

REMEMBER

Turn the circuit breaker switch to the OFF position before doing ANY maintenance.

➤ WEEKLY

- Change water and cleaner in unit

NOTE

IF YOU ARE USING SUR-FRESH,™ THE WATER SUPPLY SHOULD LAST APPROXIMATELY ONE MONTH BETWEEN CHANGES.

- Change Abralon® pads if needed
- Check polish reservoir and refill as necessary
- Empty money tray
- Refill coin hopper, if necessary

➤ MONTHLY

- Change polishing pads if needed
- Replace 3" center cloth pad, if needed

➤ QUARTERLY

- Check rubber retainer pad and replace as necessary
- Check belts and replace as necessary
- Check hoses

➤ ANNUALLY

- Change rubber retainer bumper
- Change sand/polish disk sponge pads

➤ 3 - 5 YEARS

- Inspect the machine for any abnormal vibrations or noise caused by bearing wear. At this point in time, it may be necessary to repair, maintenance or replace certain bearings, gaskets and seals within the machine. For a detailed description of these parts, please refer to the SCHEMATICS & DIAGRAMS section located in Section #8 (page 56).

** Maintenance intervals may vary based on amount of use.*

Q. HOW DO I CANCEL A SELECTED SANDING, POLISHING, CLEANING, OR RESURFACING ACTION?

A. VEND mode – press the CANCEL key.

NOTE ACTIONS CANNOT BE CANCELLED AFTER COINS OR BILLS HAVE BEEN INSERTED.

Q. HOW DO I CHANGE THE FEE SETTING AMOUNT?

A. Select FEE mode by switching FEE switch UP and all other switches DOWN:

1. The FEE switch and the sanding 400 LED lamp will turn on (for 500 Abralon®).
2. The FEE amount will be displayed on the LCD screen.
3. Adjust the FEE amount by using the UP and DOWN keys.
4. Press the SET key.
5. Once the fee is set, the machine will move to the next option.
6. Follow the same process listed above to set the fee amount for each option.
7. To go to the next option without changing the fee amount simply press the SET key.
8. Turn the FEE switch OFF.

Q. HOW DO I CHANGE THE DISK SETTING AMOUNT?

– ***default times are 25 for Abralon® and 100 for polishing pads (how many times a disk will be used before changing alert comes on)***

A. Select D-SET mode by switching FEE switch UP and all other switches DOWN:

1. The D-SET switch will turn on.
2. The programmed number of disk sets is displayed on the LCD.
3. Use the UP and DOWN keys to adjust the number of disk sets.
4. Press the SET key.
5. After completing disk set mode, turn the D-Set switch OFF.

Q. WHAT DOES "S/P DISK CHANGE" MEAN?

– ***this message will appear when a disk is used more than the programmed amount***

A. In this case, replace the disk and clear the disk fault message on the LCD.

Q. HOW DO I CLEAR THE "S/P DISK CHANGE" ONCE THE PAD HAS BEEN CHANGED?

A. Select D-CLR mode by switching the switch UP and all other switches DOWN:

1. The number of times a disk is used is displayed on the LCD.
2. Use the UP and DOWN keys to find the replaced disk.
3. Press the SET key.
4. After the disk is cleared, turn the D-CLR switch OFF.

Q. HOW DO I RESET THE MACHINE?

A. Turn the power OFF and ON:

1. Use the circuit breaker (Power Switch) located on the inside of the side panel door.

Q. WHAT IS ADMINISTRATOR MODE?

A. Administrator mode can be used to check the status of the equipment without visually inspecting each component:

1. Pay special attention when using this mode, and be sure to deactivate it when the inspection is complete.
2. *(See the ADMINISTRATOR section of this user manual).*

Q. WHY HAS THE VELCRO ON THE INDIVIDUAL SANDING DISKS PEELED OR FALLEN OFF?

A. The Velcro can be re-attached using a 2-part epoxy adhesive so long as the Velcro has been properly cleaned and the plate has been cleaned and sanded. Alternatively, new sanding disks with the Velcro pre-attached can be purchased from an authorized dealer. For detais, see (page 69).

Q. I'VE LOST MY KEYS – WHAT DO I DO NOW?

A. If you've lost or broken your keys, new keys can be ordered from a Storm Authorized Dealer. If it is the square handle locks locked on the bottom front, back, and upper side of the machine, a new generic key can be ordered. If the key is the round drum lock located on the very top of the electrical housing or on the top of the front maintenance door, the lock will need to be removed by a professional locksmith and a new lock and key set will need to be ordered.

Q. HOW DOES THE MACHINE KNOW WHAT GRIT TO USE?

A. The machine has a either a set of inductive sensors or a set of four (4) limit switches that communicate to the main board what grit the machine is currently on. In the event of power failure or machine error, the main board will identify what disk it is currently on and re-orientate itself during its next power-up cycle.

It is extremely important to know the order of the disks in order to make sure it is sanding or polishing at the appropriate level. The polishing pad should be located at the 9:00 position after the machine has been reset. The 500-grit Abralon® should be located at 12:00; 1000-grit at 3:00; and 2000-grit at 6:00.

Q. HOW LONG SHOULD I RUN THE MACHINE TO GET THE OoB FINISH?

A. The out-of-box finish is determined by the manufacturer of the ball, and not all finishing processes are identical. As such, it is impossible to accurately describe the OoB finish for all balls. However, for Storm equipment, please visit www.stormbowling.com and search for "maintenance guide" for the most accurate description of finish processes.

Q. HOW OFTEN SHOULD I GREASE THE ASSEMBLY?

A.

1. ROLLER GUIDE (located on Table Indexing Assembly) – **YEARLY**
2. BALL ACTIVATION CAM ROLLER (located on the ball activation assembly in lower housing) – **YEARLY**
3. THE BEARINGS within the machine are designed for extended wear and should have oil or grease built into the design, held in place by the gasket seals and by the design of the chambers. However, for extended life on the bearings, it is advisable to clean, and replace the grease/oil **EVERY 2 YEARS** based on normal use.

POSSIBLE CAUSE / SOLUTION	ISSUE
1. Check power supply (from wall and into machine). 2. Check that power harness and IDC harness are correctly connected. 3. Verify the internal circuit breaker has been switched to "ON."	**POWER DOES NOT TURN ON**
1. Check power supply. 2. Check that harness on relay board is correctly connected. 3. Check LED lamp on relay is turned ON.	**MOTOR DOES NOT OPERATE**
1. Check that coin harness is connected correctly. 2. Select MODE using key board in VEND mode and after pressing the SET key, check that red LED lamp on the right side of coin selector turns on. 3. If red LED lamp does not turn on replace coin harness. 4. If symptoms do not improve, replace main board.	**COINS DO NOT INSERT**
1. Check that bill harness is connected correctly. 2. Select MODE using key board in VEND mode and after pressing the SET key, check that red LED lamp on the right side of the coin selector turns on. 3. Refer to "ICT BILL VALIDATOR" section (page 18). 4. When red LED lamp does not turn on replace bill validator. 5. If the symptoms do not improve, replace main board.	**BILLS DO NOT INSERT**
1. Check that hopper harness is correctly connected. 2. Check that there are coins in the hopper. 3. Remove coins. 4. If symptoms continue, replace hopper. 5. If symptoms do not improve, replace main board.	**CHANGE COINS ARE NOT RETURNED**
1. Check that LCD harness is correctly connected. 2. Contrast adjustment: Turn VR on the KM BOARD to adjust.	**LCD IS NOT VISIBLE**

ISSUE	POSSIBLE CAUSE / SOLUTION
MODE CANNOT BE SELECTED	1. When all modes (500/1000/2000/POL) or (400/600/1000/POL) are unable to be selected: Select the mode, check to see if relay of selected mode operates. 2. Once it goes into ERROR mode, press cancel button on switch board to deactivate the error, then reactivate to confirm. 3. If relays for all modes do not activate, inspect signals on main board and relay board (page 52). 4. If symptoms continue, replace main board. 5. If symptoms do not improve, replace relay switch. 6. Check solenoid and harness – when there are no errors with the above-mentioned and solenoid still does not activate, disconnect solenoid powerjack and connect diagnostic power cord. 7. Check sensor and motor activation relay – when solenoid activates, sensor will detect it and activate relay board which will in turn activate the operation motor.
WATER PUMP DOES NOT WORK	1. Check and treat #3 relay (page 52). 2. Check water valves for clogging. 3. Check hose from water pump to water output located on the main ball door lid. 4. Verify water level in reservoir tank. 5. Raise the water reservoir as far above the water pump as possible and allow the pump to run for at least two minutes. It is possible the water pump has become air-locked. 6. If the pump does not work using Step 5, remove the six (6) bolts on the front of the water pump and verify the fins have not become clogged or obstructed. If Steps 1-6 do not resolve the issue, replace water pump.
ALL FOUR POLISHING AND SANDING DISKS DO NOT TURN	1. Check operational status of #1 relay and magnetic switch (page 52). 2. Check electric wire between magnetic switch and activation motor and treat, if necessary. 3. Use diagnostic power cord to check motor. 4. If symptoms persist, and no error code is present, replace motor. If a certified electrician is present, have them test the two capacitors and magnetic switch. Replace parts as necessary. If no electrician is present, replace entire motor.

POSSIBLE CAUSE / SOLUTION	ISSUE
1. Fill compound tank (reservoir) with compound. Tank must be full for normal operation. 2. Confirm component on primer switch inside the control box is OFF (middle/neutral position). 3. Confirm output line on switch is connected to terminal on #4 relay found on relay board (page 52). 4. Select POLISHING and press start button to activate machine. 5. Open back door of mechanical room and disconnect water pump jack. 6. Do not place bowling ball in machine. 7. Check that #4 relay is ON after 37 seconds. *– The LED lamp located on the CENTER of the relay board verifies operational power and the LED lamp located on the SIDE of the relay board checks the AC supply status –* 8. If relay is operating normally, check that compound pump is activating. 9. If pump is activating normally, confirm compound is being supplied to polishing room. 10. If compound supply is activating normally, but compound is not being supplied to polishing room through supply hose, inspect connections for air leaks; if no air leaks exist,turn control box switch ON and activate compound supply pump until compound is supplied into polishing room through the hose. 11. Verify polish pump is working using the diagnostic power cord. 12. If the pump works but no compound is supplied, remove four (4) bolts on cover of compound supply pump and replace compound hose. 13. If there is a problem with relay, replace main board and/or relay board.	**BALL POLISHING SEQUENCE DOES NOT WORK**

ISSUE	POSSIBLE CAUSE / SOLUTION
ONE OR TWO POLISHING AND SANDING DISKS DO NOT TURN	1. Replace appropriate belt. For details see Center Drum Belts (page 29).
RETAINER DOES NOT MOVE	1. Examine operation status of #2 relay (page 52). 2. Check electric wire between #2 relay and activation motor. 3. Verify the retainer spring is still connected to the assembly cam rod and the main spring mount plate. 4. Use diagnostic power cord to check motor function. 5. If symptoms persist, replace motor.
WHEN BALL IS RESURFACING OR POLISHING, IT HAS THE TENDENCY TO ROTATE "WILDLY" OR "SPIN LIKE A TOP" ONLY SANDING A LIMITED PORTION OF THE BALL	This may be caused by multiple problems, or a combination thereof: 1. Replace the 3" cloth pad (SKU SF30) found in the center of the drum with a new pad. 2. Replace the 6" Velcro sponge pad (SKU SF28) with a new pad. **NOTE** THE SKU SF28 PAD HAS BEEN DESIGN WITH THE PROPER HARDNESS TO PRODUCE OPTIMAL RESULTS. USING DIFFERENT PADS MAY INCREASE OR DECREASE THE SURFACE FEET PER MINUTE OF THE ABRALON® BEYOND THE RECOMMENDED LEVELS. 3. Clean the rubber retainer bumper (SKU SF32). 4. Change the water from the water tank set (SKU SF6). **If you are using Sur-Fresh™ (SKU CHSF8) check the concentration. If the water used in the reservoir is "soft," you may need to lower the concentration by using 2 or 3 oz. per gallon rather than the recommended 4 oz. per gallon.*

POSSIBLE CAUSE / SOLUTION	ISSUE
1. Attempt to locate the source of the noise. It is possible that one or more of the belts within the machine have worn or that the they are slipping. If it is belt slippage, use the appropriate tensioning method to tighten the belts. If it is due to belt wear, replace as necessary. 2. If the noise is not related to the belts, it is possible that the bearings or bushing within the machine are worn and may need replacing. All of the bearings, bushings, gaskets, and seals are replaceable and may require replacement every 3 to 5 years, depending on usage. For schematics of all the parts, please refer to Schematics section of the manual starting on page 56.	**THE MACHINE IS MAKING A HIGH-PITCHED SQUEAKING/SQUEALING NOISE**
1. This problem is caused by the machine failing to identify the green inductive sensor (SKU SF11SOL) located below the solenoid assembly. This can be solved by checking the alignment and positioning of the solenoid assembly. For proper alignment there should be a 1/16" gap between the sensor and the metal plate. Next, adjust the sensor all the way up until a small red LED located on the back of the sensor turns ON and then continue to lower the sensor until LED turns OFF and re-tighten.	**DURING THE CYCLE THE MACHINE STOPS RUNNING AND THE LED DISPLAY READS "DISK ERROR"**
1. If water is leaking on the solenoid assembly or is visibly leaking from the plunger assembly, the plunger assembly may need to be replaced. The rubber water sheath that protects against leaking does experience wear over time and may need replaced. 2. It is also possible that the plunger has experienced enough wear to require replacing as well. In either event, a replacement rubber sheath (SKU SF67P) or the whole assembly (SKU SF67) can be purchased from a Storm Authorized Dealer.	**WATER IS LEAKING FROM THE SOLENOID ASSEMBLY**
1. If the wheel set assembly is leaking, then the gasket seals within the wheel set may need to be replaced or the o-ring seal between the wheel set and the main plate may have worn. For reference parts, please refer to the SCHEMATICS section (page 56).	**WATER IS LEAKING FROM THE WHEEL SET ASSEMBLY**

ISSUE	POSSIBLE CAUSE / SOLUTION
WATER IS LEAKING FROM THE BALL ACTIVATION ASSEMBLY	1. If water is leaking from the ball activation assembly, it is possible that the rubber gasket seals or the o-ring seals may have worn. For reference parts, please refer to the SCHEMATICS section (page 60).
WATER IS LEAKING FROM THE WATER DRAINAGE ASSEMBLY	1. This assembly normally has some minor water leakage due to the design. If the leakage is excessive, allow the machine the dry. Remove the drain hose, and re-silicone the connection between the main housing and the main plate.
WATER IS LEAKING FROM THE SIDES OF THE MACHINE	1. Leaking from the side of the machine is extremely unlikely. Verify that the water leakage is not occurring from the front of the ball door before continuing. 2. If the leakage is coming from the side of the machine, allow the machine to dry and add a layer of silicone to the problem area on the inside of the housing. 3. If the trouble still persists, contact a Storm Authorized Surface Factory Mechanic for troubleshooting.
THE MACHINE FAILS TO ROTATE TO THE CORRECT PAD	This can be caused by the either the dual inductive sensors failing to recognize the location of the of the machine (newer unit) or by the four (4) limit switch sensors not properly activating. 1. Ensure that the either the inductive sensors or the limit switches are approximately 3/32" from either the metal cam plate or the plastic cam plates, respectively. 2. If the machine still fails to rotate correctly, check the connection of the aforementioned sensors and verify they are properly plugged into the main board and the relay board. 3. Finally, it is possible that the solenoid plunger is not properly locking into place during the cycle and is therefore sending a bad signal to the main board. To fix this, power down the machine and unplug it from the power source. After the machine is fully powered down, (CONTINUED)

POSSIBLE CAUSE / SOLUTION	ISSUE
(CONTINUED) open the main ball door housing and clean any dirt, residue or "sludge" from under the turn table, paying special attention to the four notches cut into the bottom of the turn table plate. The plunger mechanism has a high tension spring that normally locks the table in place, but in certain cases it is possible that the plunger cannot create enough tension to fully extend the solenoid into the "locked" position. 4. It is also possible that the spring (SKU SF42)inside the plunger housing may need replaced. 5. The most unlikely cause of the problem may also be water leakage on the solenoid via a bad seal on the plunger assembly. Check and verify that the solenoid is dry and does not have any water leaking into it. If water leakage exists, replace the plunger assembly (SKU SF67) (page 67).	**THE MACHINE FAILS TO ROTATE TO THE CORRECT PAD** **(continued)**
1. Use the diagnostic power cord to verify the motor (SKU SF3) is functioning correctly. **WARNNG** **DO NOT LEAVE MOTOR ON OR DAMAGE MAY OCCUR.** 2. If the motor appears to function, verify the solenoid assembly is functioning. otherwise the plunger pin will lock the assembly turn table in place not allowing the machine to index. 3. If the motor functions when using the diagnostic cord, verify the connection between the motor and the corresponding molex connector. 4. Next, verify the cord is securely attached to the relay #5 "Activation Motor for Revolving Disk" (page 52). 5. Replace relay board (SKU SF21), if necessary.	**TABLE INDEXING MOTOR FAILS TO START OR WORK**
1. Use the diagnostic power cord to verify the motor (SKU SF2) functions normally. 2. If the motor functions when using the diagnostic cord, verify the connection between the motor and the corresponding molex connector. 3. Next, verify the cord is securely attached to the relay #2 on relay board (page 52). 4. Replace relay board (SKU SF21), if necessary.	**BALL RETAINER MOTOR FAILS TO START OR WORK**

ISSUE	POSSIBLE CAUSE / SOLUTION
WHEN THE MACHINE RUNS, THE BALL FAILS TO MOVE BACK AND FORTH FROM THE DESIRED SANDING PAD TO THE 3" CLOTH PAD FOUND IN THE CENTER OF THE MACHINE OR IT OCCASIONALLY GETS STUCK IN-BETWEEN	1. Verify the retainer shaft set (SKU SF46) is rotating. If it does not rotate when the machine is ran, check the retainer activation motor (SKU SF2) for functionality using the diagnostic power cord (SKU SF37). If the motor operates using the diagnostic power cord, verifying the wiring, wiring harness, and circuit board connection have not become loose, corroded, or broken. If the motor does not operate using the diagnostic power cord, the motor may need replaced. If the motor does function using the diagnostic power cord (SKU SF37), verify that the retainer spring (SKU SF63) is still in place, and the retainer activation shaft arm (SKU SF10) has not broken. If the motor appears to run, but the retainer activation motor CAM (SKU SF2B) does not turn, then the retainer activation gear box (SKU SF2A) may need replaced. 2. If the retainer shaft set (SKU SF46) rotates, but the ball fails to move back and forth, check the two (2) hex head alan bolts located on the inner ring collar (SKU SF9A) of the metal retainer ring (SKU SF9). If these bolts have become loose, or the inner ring collar has broken, the retainer shaft will rotate as expected, but it will not be able to move the ball back and forth. 3. If the ball moves back and forth the majority of the time, and only intermittently sticks when returning to the center pad, verify that the height of the 6" Velcro sponge pad (SKU SF28) plus the height of the abrasive or polish pad being used is equal to the height of the rubber center pad (SKU SF36B) plus the height of the 3" cloth pad (SKU SF31). If the heights are drastically different, the ball may fail to move back and forth properly. 4. If the problem is intermittent, or only occurs when using a heavier weight ball, check the tension of the retainer spring (SKU SF63). If the tension of the spring has weakened from normal usage the ball may get stuck on the return portion of the cycle. Replacing the old spring with a new retainer spring (SKU SF63) should resolve the problem.

THE BILL ACCEPTOR IS NOT WORKING

LED FLASHES –

1 BILL JAMMED – Open bill path unit and then remove the jammed bill.

2 DISABLE – Inspect for right DIP switch setting.

3 RECOGNITION SENSOR MODULE ERROR – Inspect for foreign objects on sensor or bill path and clean.

3+1 SENSOR ERROR – Inspect for foreign objects on sensor or bill path and clean.

3+2 HOOK SENSOR ERROR – Inspect for foreign objects on sensor or bill path and clean.

3+4 FISH SENSOR ERROR – Inspect for foreign objects on sensor or bill path and clean.

4 A STRINGING ATTEMPT HAS BEEN DETECTED – Inspect for foreign objects on sensor or bill path and clean.

6 STACKER ERROR OR STACKER FULL – Inspect for foreign objects on stacker and clean or empty the bill box.

7 MOTOR ERROR – Inspect for foreign objects on bill path and clean.

For additional troubleshooting,
please contact ICT Tech Support at:

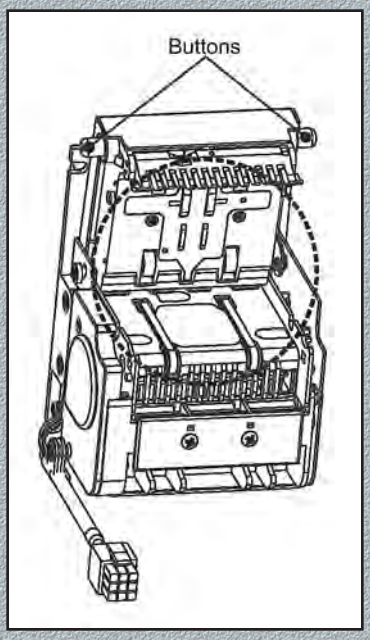
1-510-353-0289

MAINTENANCE –

Foreign objects on the LED or sensor may cause bill jamming and decrease acceptance rate. To make sure the bill acceptor always works smoothly, please clean the internal parts regularly.

To clean the internal parts:

1. Turn bill acceptor off.
2. Open LED assembly by pushing buttons on both sides.
3. Use a soft, dry cloth or towel to clean the bill path and sensors.



IMPORTANT

ANY IMPROPER MAINTENANCE WILL RESULT IN INVALID WARRANTY

RECOMMENDED CLEANER:

MILD, NON-ABRASIVE, SOAPY WATER

DO NOT USE:

ORGANIC SOLVENT, ALCOHOL, OR VOLATILE LIQUID

OPERATION TIME FOR EACH MODE

➤ SANDING 400, 800, 1000 (Abralon® – 500, 1000, 2000)

Default Run-Time: SANDING

Increase of 30 seconds per additional SANDING cycle

Disk Setup & Water Injection – 09 seconds
Sanding Operation – 84 seconds
Disk Set – 05 seconds
Standby Before Disk Setting – 02 seconds
Polishing Disk Setup – 09 seconds
Drying Time – 15 seconds
Complete Disk Cycle – 05 seconds

• TOTAL TIME – 129 seconds

➤ POLISHING

Default Run-Time: POLISHING

Increase of 66 seconds per additional POLISHING cycle

Disk Setup & Water Injection – 09 seconds
Drying Time – 33 seconds
Polish Injection – 07 seconds
Polish Operation – 60 seconds
Cleaning Operation – 40 seconds
Drying Time – 15 seconds
Complete Disk Cycle – 05 seconds

• TOTAL TIME – 169 seconds

➤ CLEANING

Default Run-Time: CLEANING

Increase of 30 seconds per additional SANDING cycle

Polishing Disk Setup & Water Injection – 09 seconds
Cleaning Operation – 42 seconds
Drying Time – 15 seconds
Complete Disk Cycle – 05 seconds

• TOTAL TIME – 71 seconds

➤ RESURFACING 800 FINISH (1000 Abralon®)

Default Run-Time: SANDING

Increase of 30 seconds per additional SANDING cycle

400 Disk Setup & Water Injection – 09 seconds
Sanding Operation – 82 seconds
Disk Set – 05 seconds
Standby Before Disk Setting – 02 seconds
800 Disk Setup – 09 seconds
Sanding Operation – 119 seconds
Disk Set – 05 seconds
Standby Before Disk Setting – 02 seconds
Polishing Disk Setup – 09 seconds
Drying – 15 seconds
Complete Disk Cycle – 05 seconds

• TOTAL TIME – 262 seconds

➤ RESURFACING 1000 FINISH (2000 Abralon®)

Default Run-Time: SANDING

Increase of 30 seconds per additional SANDING cycle

400 Disk Setup & Water Injection – 09 seconds
Sanding Operation – 80 seconds
Disk Set – 05 seconds
Standby Before Disk Setting – 02 seconds
800 Disk Setup – 09 seconds
Sanding Operation – 119 seconds
Disk Set – 05 seconds
Standby Before Disk Setting – 02 seconds
1000 Disk Setup – 09 seconds
Sanding Operation – 119 seconds
Disk Set – 05 seconds
Standby Before Disk Setting – 02 seconds
Polishing Disk Setup – 09 seconds
Drying Time – 15 seconds
Complete Disk Cycle – 05 seconds

• TOTAL TIME – 395 seconds

OPERATION TIME FOR EACH MODE (CONTINUED)

➤ RESURFACING POLISHING FINISH

Default Run-Time: SANDING, POLISHING

Increase of 30 seconds per additional SANDING cycle

Increase of 66 seconds per additional POLISHING cycle

400 Disk Setup (500 Abralon®) & Water Injection – 09 seconds
Sanding Operation – 110 seconds
Disk Set – 05 seconds
Standby Before Disk Setting – 02 seconds
800 Disk Setup (1000 Abralon®) – 09 seconds
Sanding Operation – 139 seconds
Disk Set – 05 seconds
Standby Before Disk Setting – 02 seconds
1000 Disk Setup (2000 Abralon®) – 09 seconds
Sanding Operation – 139 seconds
Disk Set – 05 seconds
Standby Before Disk Setting – 02 seconds
Polishing Disk Setup – 09 seconds
Drying Time – 30 seconds
Polish Injection – 07 seconds
Polish Operation – 60 seconds
Polish Injection – 06 seconds
Polish Operation – 60 seconds
Cleaning Operation – 40 seconds
Drying Time – 15 seconds
Complete Disk Cycle – 05 seconds

• TOTAL TIME – 668 seconds

NOTE

THE ADMINISTRATOR MODE CAN BE USED TO CHECK THE STATUS OF THE MACHINE; HOWEVER, IT CAN BE DANGEROUS WHILE IN USE. MAKE SURE TO DEACTIVATE THE ADMINISTRATOR MODE WHEN FINISHED CHECKING THE MACHINE'S STATUS. WHEN ERRORS OCCUR IN ADMINISTRATOR MODE, THE ERROR STATUS CAN BE CANCELLED, REACTIVATED AND CHECKED REPEATEDLY. ERRORS CAN BE CANCELLED BY PRESSING THE CANCEL BUTTON ON THE FRONT OF THE MACHINE.

➤ To turn on ADMINISTRATOR mode:

- Turn VEND, FEE, and D-SET switches OFF
- Turn FREE and D-CLR switches ON
- Press the SET, then DOWN, then UP buttons in order

➤ To clear ADMINISTRATOR mode:

- Turn FREE and D-CLR modes OFF
- Turn VEND mode ON

IMPORTANT

BEFORE PROCEEDING WITH ANY REPAIR, REPLACEMENT OR CLEANING, THE POWER MUST BE TURNED OFF AND THE MACHINE MUST BE UNPLUGGED FROM THE LOCAL POWER SOURCE!

➤ MAIN HOUSING FRAME

– SPECIAL ORDER ONLY

WARNING

REMOVING THE MAIN HOUSING FROM THE BODY OF THE MACHINE VOIDS WARRANTY. THIS SHOULD ONLY BE DONE IF ABSOLUTELY NECESSARY AND ONLY IF AUTHORIZED BY A STORM CERTIFIED SURFACE FACTORY MECHANIC.

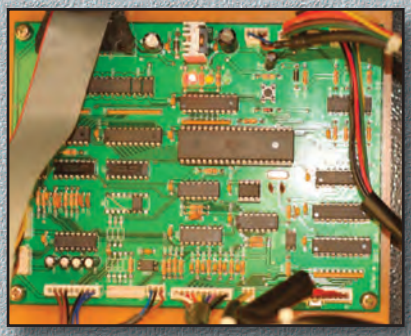
REQUIRED TOOLS:

1. 13mm Socket Wrench
2. 8mm Wrench
3. Phillips Head Screwdriver
4. 8.5 - 10″ Socket Extender
5. 3″ Paint Scraper

STEP 1:

A. Locate the green Inductive lid sensor (SKU SF11LID) located in the top right, inside of the housing.

B. Follow wiring on inside of control housing and disconnect the green inductive lid sensor (SKU SF11LID) from circuit board.



C. Unbolt and remove the two (2) bolts holding the sensor in place using a Phillips head screwdriver and an 8mm wrench.

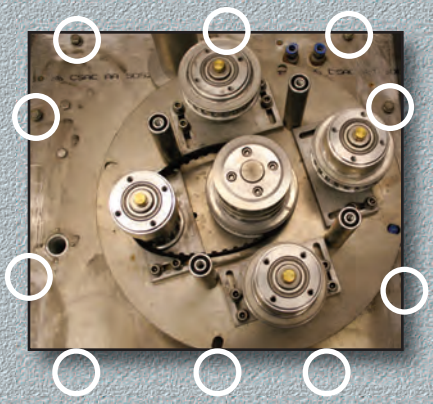
STEP 2:

A. Locate the stabilization bolt in the back, right corner of the machine.

B. Unbolt and remove from machine.

STEP 3:

Disconnect the water hose (SKU SFHOSE32) and polish hose (SKU SFHOSE33) located behind the main drum using the Quick-Connect Release System.

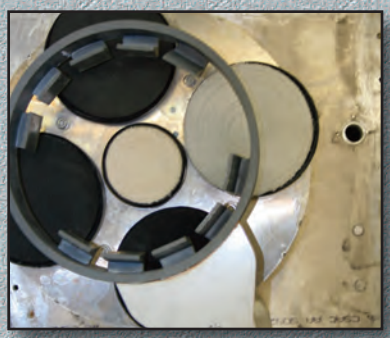


STEP 4:

Remove the ten (10) 13mm bolts, washers, and lock washers from the inside of the housing.

NOTE

THESE HAVE BEEN SECURED WITH SILICONE AND WILL REQUIRE CLEANING BEFORE RE-INSTALLATION.



STEP 5:

Remove silicone seal with paint scraper by forcing the scraper between the housing and the aluminum plate attached to the main frame.

NOTE

IT MAY BE NECESSARY TO LOOSEN THE FOUR (4) BOLTS IN THE ELECTRICAL HOUSING TO REMOVE THE MAIN BALL HOUSING

NOTE

USE **EXTREME CAUTION** WHEN BREAKING THE SILICONE SEAL. SCRAPING THE PAINT, SCRATCHING THE METAL, BENDING THE HOUSING, OR ALUMINUM PLATE CAN CAUSE WATER LEAKS AFTER RE-INSTALLATION. ALSO, BE AWARE OF WHERE THE BALL RETAINER ASSEMBLY, WATER & POLISH HOSE ASSEMBLY, DRAIN HOSE ASSEMBLY, AND THE PLUNGER ASSEMBLY ARE LOCATED; FORCING THE SCRAPER TOO FAR UNDER THE HOUSING FRAME CAN DAMAGE THESE ASSEMBLIES.

RE-ASSEMBLY NOTES:

Before reversing STEPS 4 through 1, pay special attention to the aluminum plate, the bottom of the main housing frame, and the bolts from STEP 3 – these all need to be thoroughly cleaned and scraped of all remaining silicone. Failure to properly clean these parts can result in water leakage issues.

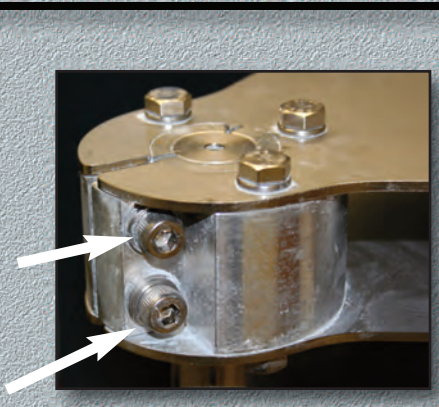
➤ METAL RETAINER RING (SKU SF9)

REQUIRED TOOLS:

1. 6mm Allen Wrench

STEP 1:

Locate the two (2) allen hex head bolts located on the side of the metal retainer ring on the retainer ring inner collar (SKU SF9A).



NOTE

DUE TO CORROSION, THESE BOLTS MAY BE EXTREMELY TIGHT. USE CAUTION WHEN REMOVING.

STEP 2:

Lift metal retainer ring (SKU SF9) straight upward until it is clear of the ball retainer assembly.

NOTE

AS WITH THE BOLTS IN STEP 1, THE METAL RETAINER RING (SKU SF9) MAY BE EXTREMELY DIFFICULT TO REMOVE. TWISTING THE ASSEMBLY IN PLACE AS IT IS LIFTED MAY AID IN THE REMOVAL PROCESS.

RE-ASSEMBLY NOTES:

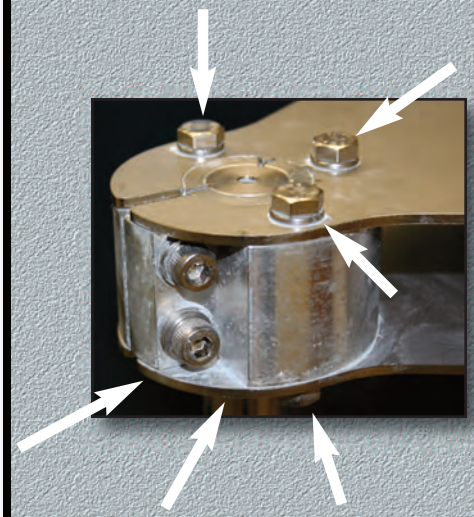
Reverse STEPS as normal for re-installation paying special attention to STEP 1: Due to the design of the metal retainer ring, the bolts from STEP 1 need to be tightened enough to keep the ring from assembly from turning in place while the machine operates, but not enough to break the machined aluminum collar; over-tightening these bolts can cause this collar to break.

➤ RETAINER RING INNER COLLAR

(SKU SF9A)

REQUIRED TOOLS:

1. 13mm Wrench



STEP 1:

Follow the **Metal Retainer Ring** removal procedure (page 26).

STEP 2:

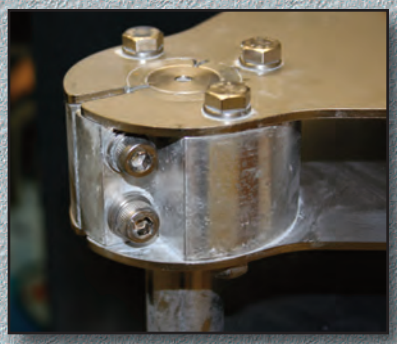
After the metal retainer ring (SKU SF9) has been removed, loosen and remove the six (6) 13mm bolts located on the top and bottom of the ring.

STEP 3:

Gently separate the top and bottom bracing until the retainer ring inner collar (SKU SF9A) can be removed.

NOTE

THESE BOLTS MAY BE EXTREMELY TIGHT. USE CAUTION WHEN REMOVING.



➤ CENTER DRUM

– SPECIAL ORDER ONLY

STEP 1:

Follow the **Metal Retainer Ring** removal procedure (page 26).

REQUIRED TOOLS:

1. 5mm Allen Wrench
2. 6mm Allen Wrench

STEP 2:

Remove any sanding, polishing, or foam pads from the machine to reveal four (4) sets of (4) 5mm allen hex head bolts (SKU SF44SSB). Remove all sixteen (16) bolts and the plastic sewn Velcro disk plate (SKU SF44V3) from the center drum.

NOTE

SINCE THE VELCRO DISKS HAVE THE TENDENCY TO SPIN WHEN UNBOLTING, IT IS TYPICALLY EASIER TO HOLD A SECOND DISK IN PLACE WHILE YOU LOOSEN THE PRIMARY UNIT YOU ARE CURRENTLY WORKING ON BEFORE MOVING TO THE NEXT UNIT. THIS PROCESS WILL MAKE IT EASIER TO LOOSEN ALL SIXTEEN (16) BOLTS BEFORE COMPLETELY REMOVING THEM. THE SAME TRICK WORKS FOR TIGHTENING.

STEP 3:

Carefully lift entire center drum straight upwards until it clears the internal components and then turn and remove from machine.

NOTE

REMOVING THE CENTER DRUM FROM THE MAIN HOUSING FRAME MAY REQUIRE A MODERATE AMOUNT OF JOCKEYING TO CLEAR ALL OF THE INTERNAL COMPONENTS.

➤ CENTER DRUM BELTS

– SEE "NOTE" ON PAGE 30 FOR SKUs

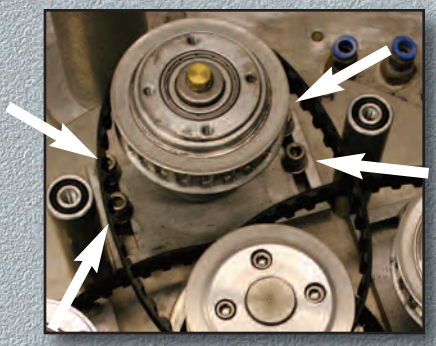
REQUIRED TOOLS:

1. 6mm Allen Wrench

STEP 1:

A. Follow the **Metal Retainer Ring** removal procedure (page 26).

B. Follow the **Center Drum** removal procedure (page 28).

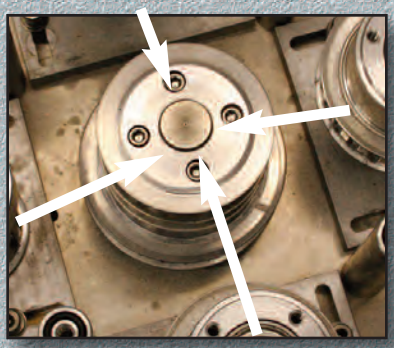


STEP 2:

Loosen the four (4) 6mm allen hex head bolts on each of the sanding cylinder assemblies starting with the "500-grit" (north) cylinder working clockwise.

STEP 3:

Slide the sanding cylinder assemblies towards the central pulley post relieving the tension on the belts. Remove and replace the belts as necessary, paying attention to the order in which they were removed.

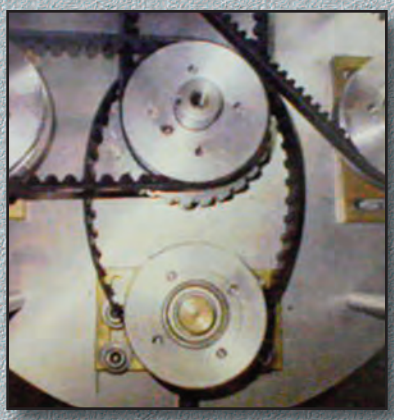


STEP 4:

After the belts have been replaced, slide each sanding cylinder assembly away from the central pulley assembly to add tension to the belts.

NOTE

DEPENDING ON THE MACHINE VERSION, T-BELTS AND/OR V-BELTS MAY BE PRESENT. PLEASE REFER TO THE PICTURES AT RIGHT TO DETERMINE WHICH BELTS TO ORDER, AND ALSO THE PROPER TENSION PROCEDURE.

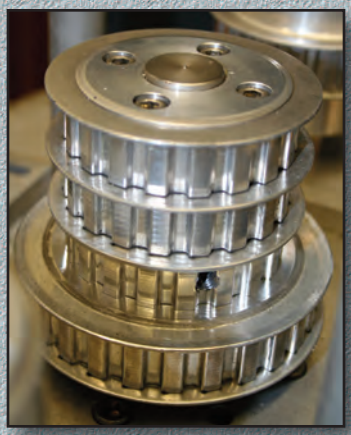


PICTURE AS SHOWN:

- 1x Belt from Center to Polish Disk (SKU SF4)
- 2x Belt from Center to 500 or 2000 (SKU SF4A21)
- 1x Belt from 1000 to 2000 (SKU SF4A26)

PICTURE AS SHOWN:

- All four (4) Belts (SKU SF4)



➤ CENTER PULLEY ARRAY

– SPECIAL ORDER ONLY

REQUIRED TOOLS:

1. 5mm Allen Wrench
2. 4mm Allen Wrench
3. Grease Pencil or Marker

STEP 1:

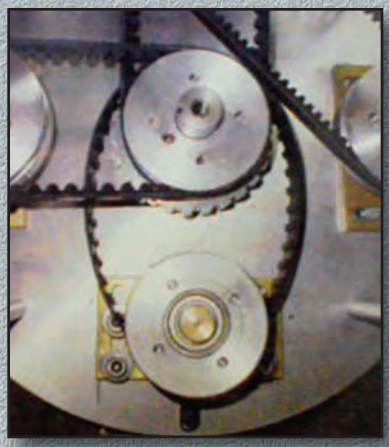
A. Follow the **Metal Retainer Ring** removal procedure (page 26).

B. Follow the **Center Drum** removal procedure (page 28).

C. Follow the **Center Drum Belts** removal procedure (page 29).

STEP 2:

Remove four (4) 5mm allen hex head bolts located on center of the central pulley assembly.



STEP 3:

There are THREE versions of this assembly. Please identify which version you have before continuing:

ASSEMBLY 1 –

IDENTIFYING CHARACTERISTIC: Uses three different types of Belts (SKU SF4A21; SKU SF4A26; SKU SF4)

Remove the six (6) 4mm allen hex head set screws located on the side of each pulley. After the bolts have been removed, evenly lift each pulley straight upward. If necessary, use a pulley puller to remove each individual pulley. Use a grease pencil or marker to note the order of the pulleys for re-assembly.

WARNING

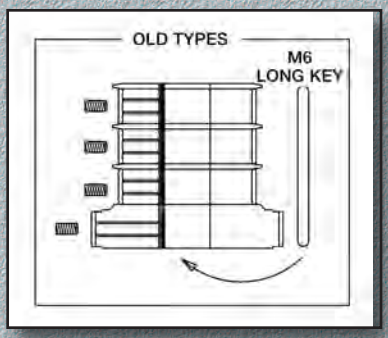
The aluminum used for the pulleys is very soft and will bend or break if uneven or excessive pressure is applied during the removal or installation process.

After the pulleys have been removed, use a metal file to remove any scrapes, rough spots, or protrusions from the central shaft or set key.

ASSEMBLY 2 –

IDENTIFYING CHARACTERISTIC: Uses the same belts (SKU SF4) and the top of the central shaft has a visible groove for the shaft key, and/or the shaft key is visible.

Remove the eight (8) 4mm allen hex head set screws located on the side of each pulley. After the bolts have been removed, evenly lift each pulley straight upward. If necessary, use a pulley puller to remove each individual pulley. Use a grease pencil or marker to note the order of the pulleys for re-assembly.



WARNING

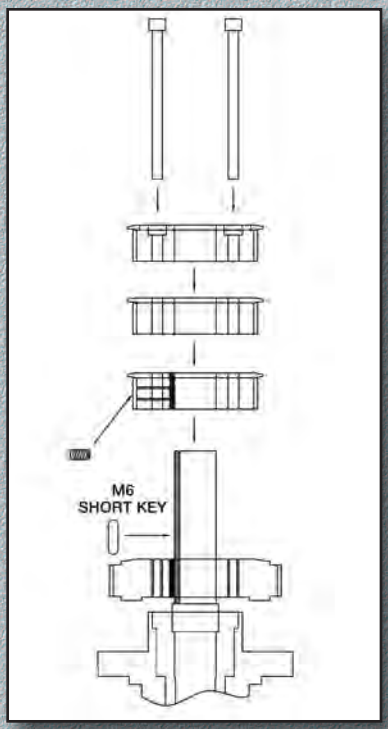
The aluminum used for the pulleys is very soft and will bend or break if uneven or excessive pressure is applied during the removal or installation process.

After the pulleys have been removed, use a metal file to remove any scrapes, rough spots, or protrusions from the central shaft or set key.

ASSEMBLY 3 –

IDENTIFYING CHARACTERISTIC: Uses the same belts (SKU SF4), but there is no visible groove for the shaft key (top of shaft appears perfectly round) and two (2) 4mm allen hex head bolts are located on top pulley.

Remove the two (2) 4mm allen hex head bolts located on the side of the 3rd pulley and the two bolts on the top of the first pulley. After the bolts have been removed, evenly lift the top three pulleys straight upward, one at a time. If necessary, use a pulley puller to remove each individual pulley. Use a grease pencil or marker to note the order of the pulleys for reassembly. After the 3rd pulley has been removed, remove the set key from the side of the central shaft using the pliers. The 4th pulley can now be removed.



WARNING

The aluminum used for the pulleys is very soft and will bend or break if uneven or excessive pressure is applied during the removal or installation process.

After the pulleys have been removed, use a metal file to remove any scrapes, rough spots, or protrusions from the central shaft or set key.

RE-ASSEMBLY NOTES:

The order of the pulleys is extremely important. Use the marks made in STEP 3 to re-install the pulleys in the same order they were removed. After cleaning and filing, the pulleys should slide back into place with relative ease. If necessary, use a rubber mallet to gently tap the pulleys in place.

➤ CENTER DRUM PLATE

– SPECIAL ORDER ONLY

REQUIRED TOOLS:

1. 6mm Allen Wrench
2. *Optional*: Cleaning Supplies

STEP 1:

A. Follow the **Metal Retainer Ring** removal procedure (page 26).

B. Follow the **Center Drum** removal procedure (page 28).

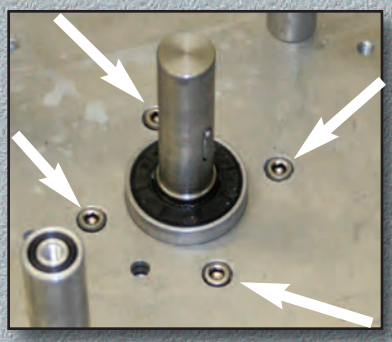
C. Follow the **Center Drum Belts** removal procedure (page 29).

NOTE

ALTHOUGH THE CENTER DRUM PLATE CAN BE REMOVED WITHOUT REMOVING THE SANDING CYLINDER ASSEMBLIES, IT IS HIGHLY RECOMMENDED TO REMOVE THEM FROM THE PLATE FOR EASE OF MANEUVERING AND CLEANING.

VERY IMPORTANT – MARK THE NUMBER AND LOCATION OF EACH SANDING CYLINDER ON BOTH THE CYLINDER AND THE PLATE BEFORE REMOVAL. THE ORDER AND PLACEMENT IS CRITICAL TO MACHINE OPERATION.

D. Follow the **Central Pulley Array** removal procedure (page 31).



STEP 2:

Remove four (4) 6mm allen hex head bolts from center of plate.

STEP 3:

Clean the immediate area surrounding the central shaft assembly.

STEP 4:

Lift the plate straight upwards until it is clear of the central shaft assembly.

NOTE

THIS PLATE CAN BE EXTREMELY DIFFICULT TO LIFT DUE TO CORROSION AND NORMAL WEAR. IT MAY BE NECESSARY TO TURN THE PLATE WHILE LIFTING UPWARD. IN ORDER TO DO SO, THE SOLENOID ASSEMBLY MUST BE REMOVED OR THE PLUNGER MUST BE HELD DOWN. HAVING A SECOND PERSON HOLD THE PLUNGER DOWN WHILE SIMULTANEOUSLY HOLDING THE SHAFT TO KEEP IT FROM TURNING MAY BE NECESSARY.

CAUTION:

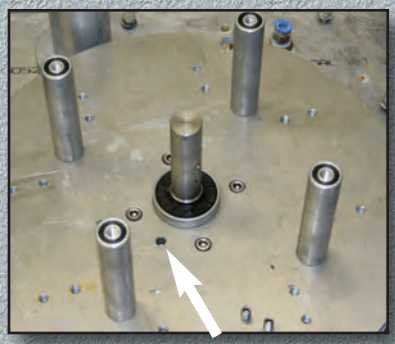
IF USING THE ASSISTANCE OF A SECOND PERSON, MAKE SURE THEY DO NOT DIRECTLY HOLD THE BELTS IN ORDER TO AVOID INJURY.

OPTIONAL

AFTER THE PLATE HAS BEEN REMOVED, IT IS HIGHLY RECOMMENDED TO TAKE THE TIME TO THOROUGHLY CLEAN THE INSIDE OF THE MAIN HOUSING FRAME WHILE IT IS READILY ACCESSIBLE.

NOTE

THE CENTER DRUM PLATE IS NOT A COMMON REPLACEMENT ITEM AND WILL ONLY BE MADE TO ORDER. BEFORE PLACING AN ORDER, MEASURE THE OUTSIDE DIAMETER OF THE WHEEL SET ASSEMBLY (SKU SF45V1 OR SKU SF45V2). THE MEASUREMENT SHOULD BE EITHER 57MM IN DIAMETER OR 62MM IN DIAMETER.



RE-ASSEMBLY:

When re-installing the center drum plate, it is necessary to get the correct alignment before re-installing the four (4) bolts. This is achieved by aligning the 5th hole located on the plate with the alignment hole found on center shaft assembly.

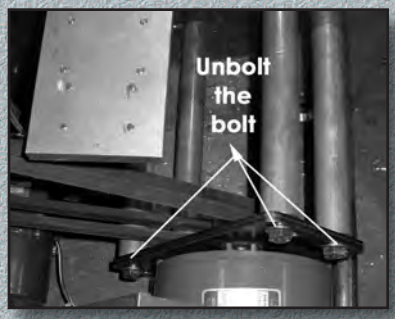
NOTE

ON SOME UNITS, THIS 5TH ALIGNMENT HOLE IS THREADED; THE ALIGNMENT HOLE DOES NOT REQUIRE A BOLT.

➤ DISK ROTATION BELTS (SKU SF36)

REQUIRED TOOLS:

1. 17mm Wrench



STEP 1:

Loosen the four (4) 17mm bolts located on the bottom of the disk rotation motor (SKU SF35).

NOTE

IT MAY BE NECESSARY TO ACCESS THE MOTOR FROM BOTH THE FRONT AND BACK PANELS.

STEP 2:

Slide the motor towards the central wheel set assembly to relieve the tension on the belts.

STEP 3:

Remove and replace the belts as necessary: Disk Rotation V-Belt A-38 (SKU SF36).

NOTE

ALTHOUGH THE BELTS CAN BE FORCED OFF WITHOUT RELIEVING THE TENSION, THIS CAN DAMAGE THE MOTOR, THE PULLEY, OR INJURE THE USER AND IS THEREFORE NOT ENDORSED.

RE-ASSEMBLY NOTES:

After the new belts have been realigned, it may be necessary to pull the motor away from the central pulley assembly with one hand while tightening the bolts with the other. When doing so, it is important to get the belts tight enough to avoid slippage, but loose enough as to not damage the motor.

NOTE

THERE ARE EIGHT (8) RUBBER SHOCK ABSORBERS THAT HELP ELIMINATE VIBRATION AND WEAR ON THE MOTOR SHAFT. THESE SHOULD BE TIGHTENED ENOUGH TO HOLD THE MOTOR IN PLACE, BUT NOT SO TIGHT AS TO COMPLETELY COMPRESS THE RUBBER.

➤ TURN TABLE BELT (SKU SF4A26)

REQUIRED TOOLS:

1. **17mm Wrench**

STEP 1:

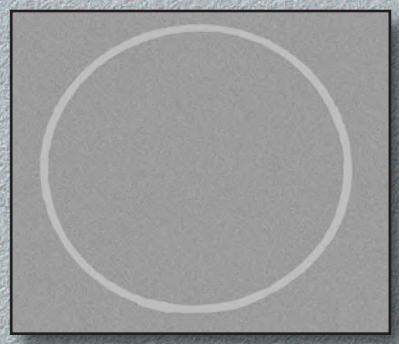
Follow the **Disk Rotation Belts** removal procedure (page 35).

STEP 2:

Loosen the two (2) 17mm bolts located on the bottom of the motor bracket mounts.

STEP 3:

Slide the motor towards the central wheel set assembly to relieve the tension on the belt.



STEP 4:

Remove and replace the belt as necessary:

- Disk Rotation V-Belt A-26 (SKU SF4A26).

NOTE

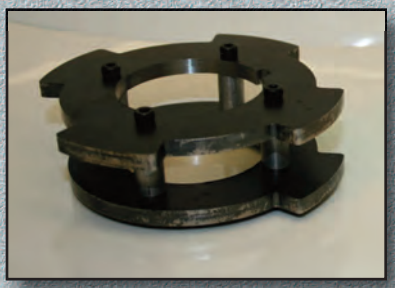
ALTHOUGH THE BELT CAN BE FORCED OFF WITHOUT RELIEVING THE TENSION, THIS CAN DAMAGE THE MOTOR, THE PULLEY, OR INJURE THE USER AND IS THEREFORE NOT ENDORSED.

RE-ASSEMBLY NOTES:

It is very important to keep the belt and the roller track guide aligned. The roller track guide will help keep tension on the belt and also keep the belt from jumping off the pulley. When re-installing the belt, pull the motor directly backwards to create a moderate amount of tension before tightening the bolts loosened in STEP 2.

VERSION 1 (SKU SF56)

VERSION 2 (SKU SF56M)



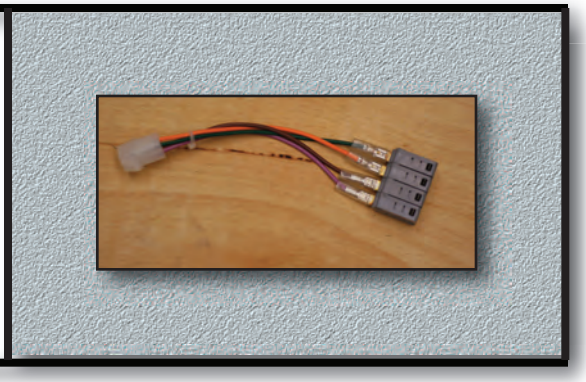
➤ DISK ROTATION SENSOR

– SEE PAGE 65 FOR SKUs

REQUIRED TOOLS:

1. 6mm Allen Wrench
2. *Optional:* Wire Cutters

➤VERSION 1 – MICRO SWITCH ASSEMBLY
(SKU SF38)



STEP 1:

Disconnect 4-pin molex harness leading from the four (4) micro switch sensor assembly to the main circuit board and remove the yellow power cord from the assembly.

STEP 2:

Remove two (2) 6mm hex head bolts connecting the metal bracket to the main support plate.

RE-ASSEMBLY NOTES:

When re-attaching the micro switch assembly, it is important to get the spacing and alignment correct. Since the micro switch assembly is soldered, the order of individual switches should stay the same unless the factory installed wires are removed or re-attached. In the event the wires have been changed, verify the order *(from top to bottom)*:

• Green • Orange • Brown • Violet •

Place the assembly so the GREEN wire is on the top, closest to the main support plate.

Hand tighten the two (2) hex head bolts so that the assembly can slide back or forwards.

Assuming the turn table assembly is locked in place by the solenoid plunger mechanism, the micro switch assembly should be slid forward until three of the four micro-switches are triggered; when they trigger, there should be an audible “clicking” telling you the circuit is now closed.

When the assembly is in proper alignment, there should be a 1/16” gap between the body of the micro switch assembly and the clear acrylic CAM plates. Once the assembly has been aligned, tighten the two (2) hex head bolts to keep the assembly from shifting. To verify that clear acrylic CAM plate assembly is in the correct order (page 65).

➤ VERSION 2 – INDUCTIVE SENSOR ASSEMBLY (SKU SF11CAM)

STEP 1:

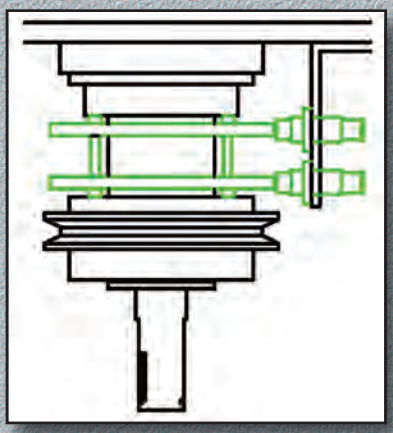
Remove two (2) 6mm hex head bolts connecting the metal bracket to the main support plate.

STEP 2:

In order to loosen or remove the inductive sensor assembly, it may be necessary to use the wire cutters to carefully cut any Zip ties that may be prohibiting movement of the assembly.

NOTE

THESE SENSORS ARE PRE-WIRED FROM THE FACTORY.
IF ONE OF THE SENSORS GOES BAD, BOTH SENSORS WILL NEED TO BE REPLACED.
IF REPLACING THESE SENSORS, IT IS NECESSARY TO MAKE SURE
BOTH THE #1 MACHINED CAM PLATE AND #1 SENSOR ALIGN.
BOTH THE INDUCTIVE SENSOR AND THE MACHINED CAM PLATE
SHOULD HAVE ENGRAVING INDICATING THE NUMBER.



RE-ASSEMBLY NOTES:

When re-attaching the inductive sensor assembly, the plate must be moved within 1/8" of the machined CAM plate, but no closer than 1/16". If the sensors are moved too close the machined CAM plate, during normal operation, may damage or destroy the sensors.

➤ CENTRAL WHEEL SET ASSEMBLY

– SEE PAGE 56 FOR SKUs

REQUIRED TOOLS:

1. 6mm Allen Wrench
2. 4mm Allen Wrench
3. Pulley Remover
4. Pliers
5. Metal File

STEP 1:

A. Follow the **Metal Retainer Ring** removal procedure (page 26).

B. Follow the **Center Drum** removal procedure (page 28).

C. Follow the **Center Drum Belts** removal procedure (page 29).

D. Follow the **Central Pulley Array** removal procedure (page 31).

E. Follow the **Center Drum Plate** removal procedure (page 33).

F. Follow the **Disk Rotation Belts** removal procedure (page 35).

G. Follow the **Turn Table Belt** removal procedure (page 36).

H. Follow the **Disk Rotation Sensor** removal procedure (page 37).

STEP 2:

After all of the belts have been removed, use a 4mm allen wrench to remove the four (4) set screws located on the upper and lower pulley assemblies.

STEP 3:

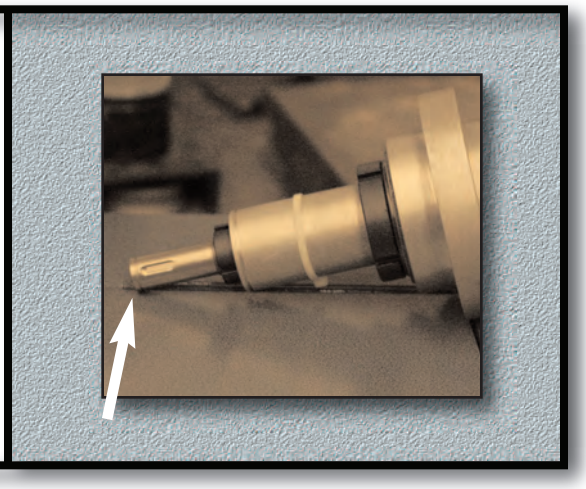
Once all four (4) set screws have been removed, use the pulley remover to carefully remove the bottom pulley from the central wheel set assembly shaft.

NOTE

MAKE SURE THAT THE ARMS ON THE PULLEY REMOVER ARE EVENLY DISTRIBUTED BEFORE REMOVING, OTHERWISE UNEVEN PRESSURE WILL DAMAGE OR BREAK THE RIMS ON THE PULLEYS.

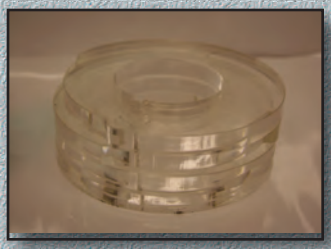
STEP 4:

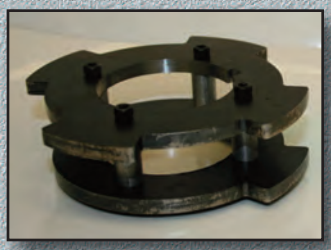
After the pulleys from STEP 3 and the CAM plate assemblies from STEP 1 have been removed, use the pliers to remove the key from the key-way located on the central shaft.



STEP 5:

Use the pulley remover to remove the top pulley from the wheel set assembly.



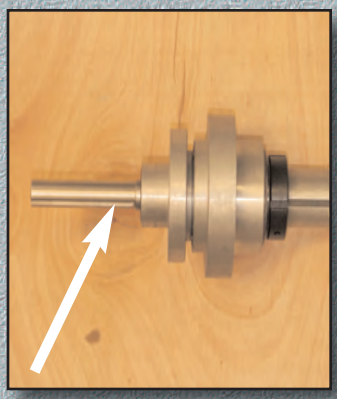


STEP 6:

After the pulleys from STEP 3 have been removed, the clear acrylic CAM plate assembly or the machined CAM plate assembly should easily slide off of the central wheel set assembly.

NOTE

BOTH VERSION 1 AND VERSION 2 OF THE CAM PLATE ASSEMBLIES HAVE NUMBERED ENGRAVING ON THEM SIGNIFYING ORDER FOR RE-INSTALLATION. WHEN RE-INSTALLING, ENSURE THAT THE #1 CAM IS LOCATED ON THE TOP-MOST PORTION OF THE ASSEMBLY.



STEP 7:

Remove the key from the key-way located on the secondary shaft.

STEP 8:

Use a 6mm allen wrench to remove the four (4) hex head bolts located on the bottom of the main machine plate.

NOTE

USE CAUTION WHEN REMOVING THESE BOLTS AS THEY ARE EXTREMELY TIGHT AND WILL REQUIRE A SIGNIFICANT AMOUNT OF TORQUE TO RELEASE FROM THEIR TIGHTENED POSITION.

STEP 9:

After the pulleys and four (4) bolts have been removed, open the ball door lid and gently rock the shaft in a circular motion to loosen the seal and break the rim of silicone located around the outside edge of the central wheel set assembly.

RE-ASSEMBLY NOTES:

Before reversing STEPS 5 through 1, it is necessary to clean the central wheel set assembly shaft with a metal file to insure safe installation of the pulley assemblies located on both the top and bottom of the central wheel set assembly shaft.

Cleaning, as referred to in this manual, is the removal of any protrusions, burrs, or snags that may inhibit the re-installation of the pulley or assembly.

NOTE

IT IS A GOOD IDEA TO REPLACE THE RUBBER 0-RING AFTER THE ASSEMBLY HAS BEEN REMOVED FROM THE MAIN MACHINE PLATE. THE REASON IS THIS O-RING WILL WEAR OVER TIME AND IS THE PRIMARY LINE OF DEFENSE AGAINST WATER LEAKAGE. ALSO, IF THE MACHINE HAS SIGNIFICANT USE OR IS OVER THREE YEARS OLD, IT MAY BE WORTH REPLACING THE BEARINGS AND SEALS.

SEE PAGE 56 FOR SKUS.

➤ TURN TABLE ASSEMBLY

(SKU SF3) – Motor Only
(SKU SF3A) – Capacitor Only
(SKU SF3GB) – Gear Box Only

REQUIRED TOOLS:

1. **Two (2) 17mm Wrenches**
2. **4mm Hex Head Allen Wrench**
3. **Phillips Head Screwdriver**
4. **Metal File**
5. **Rubber Adhesive (for re-installation)**
6. **Pulley Remover (optional)**

STEP 1:

A. Follow the **Turn Table Belt** removal procedure (page 36).

STEP 2:

AFTER THE BELT HAS BEEN REMOVED, THE ASSEMBLY CAN BE BROKEN DOWN INTO DIFFERENT COMPONENTS:

A. Pulley
B. Roller guide used to keep tension on pulleys
C. Mounting plate
D. Gear box assembly (SKU SF3GB) S8KA100B
E. Motor (SKU SF3) S8R25GA
F. Capacitor (SKU SF3A) 8B2701 DMF 251006 SH

PROCEDURE A:

This pulley has a key-way and is secured by two (2) 4mm hex head allen set screws.

After the bolts have been removed, the pulley should slide free of the gear box shaft and key-way. If necessary, a pulley remover may be used.

NOTE BEFORE RE-INSTALLATION MAKE SURE TO REMOVE ANY BURRS, SNAGS, OR PROTRUSION LOCATED ON THE PULLEY, GEAR BOX SHAFT, OR KEY.

PROCEDURE B:

The roller guide may be maintained by removing the one (1) 4mm hex head allen bolt located on top of the roller guide. The key moving part on this assembly is the HMK 1015 bearing (SKU SF3HMK) .

The entire roller guide assembly may be removed using two (2) 17mm wrenches. This assembly shouldn't require any maintenance except cleaning and greasing of the roller bearing. The assembly is available by *special order only* and may have a lead time before completion and subsequent shipment.

NOTE THE BEARING SHOULD BE REMOVED, CLEANED AND RE-GREASED ON A YEARLY BASIS.

PROCEDURE C:

The mounting plate is use to stabilize the assembly and has been custom machined for the Surface Factory. This part is not considered a normal wear part and should require no maintenance. Replacement mounting plates are available by *special order only* and may have a lead time before completion and subsequent shipment.

PROCEDURE D:

The gear box assembly can be removed if the pulley (Procedure A) has been removed and the four (4) Phillips head bolts attaching the motor and gear box to the mounting plate are removed.

NOTE THE GEAR BOX ASSEMBLY IS A COMPLETE, MANUFACTURER FINISHED PART AND CANNOT BE REPAIRED ALA CARTE. IF THE GEAR BOX ASSEMBLY MALFUNCTIONS, THE ENTIRE GEAR BOX ASSEMBLY (SKU SF3GB) WILL NEED TO BE REPLACED.

PROCEDURE E:

The motor can be removed and replaced by removing the four (4) Phillips head bolts that are located on the four (4) corners of the motor.

NOTE

WHEN REMOVING THE MOTOR, USE CAUTION AS THE GEAR BOX ASSEMBLY AND MOTOR ARE ATTACHED USING THE SAME FOUR (4) BOLTS. WHEN THE MOTOR IS REMOVED, THE GEAR BOX ASSEMBLY WILL HAVE NO SUPPORT AND MAY FALL OFF THE MOUNTING PLATE IF THE PULLEY FROM STEP 1 (A) HAS BEEN REMOVED.

THIS MOTOR REQUIRES NO GENERAL MAINTENANCE.

PROCEDURE F:

The capacitor may be attached to the assembly in a few different ways: either bolted directly to the mounting plate; attached by a construction grade rubber adhesive; or via Zip ties. Depending on the method it was attached, use a "best judgment" approach when removing the capacitor (SKU SF3A) 8B2701 DMF 251006 SH.

NOTE

IF DETACHING ONE OR MORE OF THE ELECTRIC WIRES, MAKE NOTATION DOCUMENTING WHERE EACH WIRE HARNESS WAS REMOVED FROM. THE FACTORY WIRING SHOULD HAVE THE POWER WIRE (RED) AND SECONDARY POWER CABLE TO THE MOTOR (WHITE) LOCATED ON THE RIGHT POST WHEN ORIENTATED AS SHOWN.

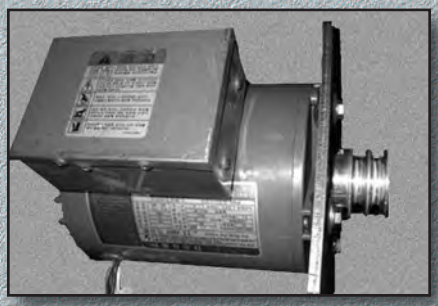
THIS CAPACITOR IS POLARITY SENSITIVE; INCORRECT WIRING CAN RESULT IN AN ELECTRICAL SHORT, DAMAGE TO THE UNIT, OR POTENTIALLY CAUSE AN ELECTRICAL FIRE.

➤ DISK ROTATION MOTOR

(SKU SF35) – Motor Only

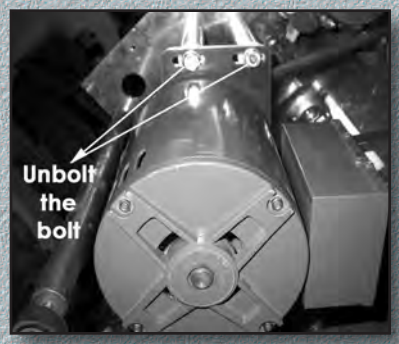
REQUIRED TOOLS:

1. 17mm Wrench
2. 13mm Wrench
3. 4mm Hex Head Allen Wrench
4. Metal File
5. Pulley Remover (optional for pulley removal)



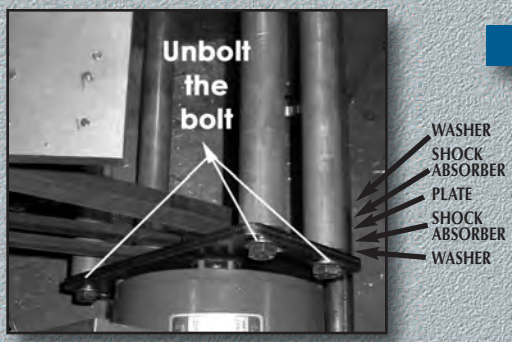
STEP 1:

Follow the **Disk Rotation Belts** removal procedure (page 35).



STEP 2:

After the belts have been removed, the entire motor can be removed from the four (4) mounting posts if the 17mm bolts are removed.



NOTE

THE MOTOR IS MOUNTED TO THE FOUR (4) MOUNTING POSTS WITH A SHOCK ABSORBING RUBBER CUSHION TO PREVENT DAMAGE TO THE MOTOR AND WHEEL SET ASSEMBLY DURING START-UP AND POWER-OFF CYCLE. DURING RE-ASSEMBLY IT IS IMPORTANT TO GET THE SAME ORDER OF WASHERS, SHOCK ABSORBERS, AND LOCKING WASHERS. SEE THE PICTURE (LEFT) FOR THE CORRECT ORDER.

STEP 3:

After the motor has been removed from the mounting posts, the pulley can be removed after the two (2) 4mm hex head set screws have been removed. A pulley remover may be required for STEP 3.

NOTE

BEFORE THE PULLEY IS RE-INSTALLED, ALL THE BURS, SNAGS, AND PROTRUSIONS FROM THE KEY, KEY-WAY, MOTOR SHAFT, AND PULLEY SHOULD BE REMOVED AND CLEANED USING A METAL FILE. DURING RE-ASSEMBLY, THE PULLEY SHOULD BE ALIGNED TO THE SAME HEIGHT AS THE CENTRAL WHEEL SET ASSEMBLY PULLEYS.

STEP 4:

To remove the motor from the mounting plate, use a 13mm wrench to remove the four (4) mounting plate bolts.

NOTE

FOR RE-ASSEMBLY, MAKE SURE TO KEEP THE SAME ORDER OF WASHERS, SHOCK ABSORBERS, AND LOCKING WASHERS. MAKE SURE NOT TO OVER-TIGHTEN THE BOLTS OR THE SHOCK ABSORBERS WILL BE TOO COMPRESSED AND WILL FAIL TO ABSORB THE NORMAL START-UP AND SHUT-OFF SHOCK OF THE MOTOR.

ELECTRICAL NOTES:

If the motor fails to rotate when the machine is run, check the disk rotation motor (SKU SF35) for functionality using the diagnostic power cord (SKU SF37). If the motor operates using the diagnostic power cord, verify the wiring, wiring harness, and circuit board connection have not become loose, corroded, or broken. If the motor still fails to start, it is possible that one or more of the electrical components have failed. If so, large KSC4803 capacitor (SKU SF35AKSC), the square DMF-25605 capacitor (SKU SF35ADMF), or the MECS-12R700L5 electronic centrifugal switch (SKU SF35AMAG) may have failed.

Do not attempt to replace these components unless you are a certified electrician.

DISCLAIMER:

Storm Products, Inc., does not claim responsibility for any accident or injury as a direct or indirect result of attempting to fix or tampering with any electrical components listed in this manual.

➤ RETAINER SHAFT ASSEMBLY

– SEE PAGE 60 FOR SKUS

REQUIRED TOOLS:

1. 5mm Hex Head Allen Wrench
2. Metal File
3. Spring Puller
4. Pulley Remover (optional)
5. 4mm Hex Head Allen Wrench

STEP 1:

Follow the **Metal Retainer Ring** removal procedure (page 26).

STEP 2:

Use a spring puller to remove the spring located between the tension rod and the retainer CAM arm.

STEP 3:

Remove the four (4) 5mm hex head allen bolts located on the bottom of the retainer shaft to remove the retainer CAM arm.

STEP 4:

Remove the four (4) 5mm hex head allen bolts connecting the retainer shaft assembly to the main plate.

NOTE

RETAINER SHAFT ASSEMBLY MAY HAVE A LIGHT BEAD OF SILICONE AROUND THE OUTSIDE PORTION OF THE ASSEMBLY WHERE IT IS CONNECTED TO THE MAIN PLATE AND EXPOSED TO WATER. THIS IS A GOOD TIME TO REPLACE THE O-RING (SKU SFOR2) FOR FUTURE WATER LEAKAGE PREVENTION.

STEP 5: *(optional)*

REMOVAL OF THE RETAINER CAM ARM MOUNTING PLATE:

To remove the mounting plate for the retainer CAM arm, loosen or remove the two (2) 4mm allen hex head set screws located on the mounting plate. It may be necessary to use a pulley remover to remove the plate.

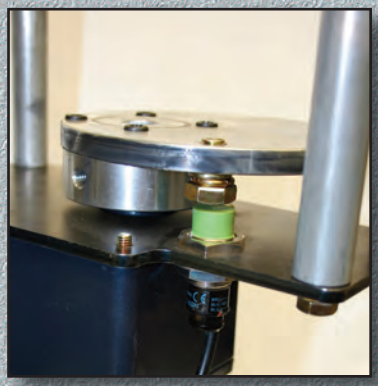
NOTE

BEFORE RE-INSTALLATION, MAKE SURE TO CLEAN REMOVE ALL PROTRUSIONS, BURRS, OR SNAGS THAT MAY INHIBIT THE RE-INSTALLATION OF THE MOUNTING PLATE.

RE-ASSEMBLY NOTES:

Before re-installing the retainer shaft assembly, it is a good idea to replace all seals and bearings. For schematics on which bearings and seals to order (page 60).

Alignment is important for proper ball rotation. The CAM arm should be roughly 60 degrees turned compared to the metal retainer ring if examined from above. If, when the assembly is in the zero/home position as determined by the inductive sensor located on the retainer assembly plate, and the ball is not centered on center pad located in main housing, the ball retainer ring may be loosened and adjusted as necessary.



➤ BALL RETAINER MOTOR ASSEMBLY

(SKU SF2) – MOTOR ONLY
(SKU SF2GB) – GEAR BOX ONLY
(SKU SF2AC) – CAPACITOR ONLY
(SKU SF2B) – CAM PLATE

REQUIRED TOOLS:

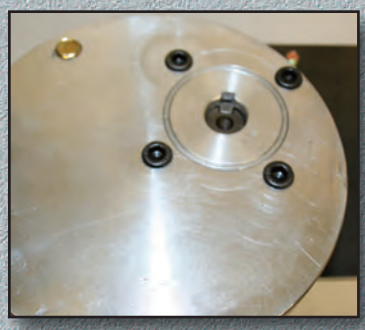
1. **24mm Wrench**
2. **17mm Wrench**
3. **13mm Wrench**
4. **5mm Hex Head Allen Wrench**
5. **4mm Hex Head Allen Wrench**
6. **Phillips Head Screwdriver**
7. **Spring Puller**
8. **Metal File**
9. **Pulley Remover**
   (optional for Pulley removal)

STEP 1:

Locate and remove the spring connecting the retainer CAM arm to the tensioning rod using the spring puller.

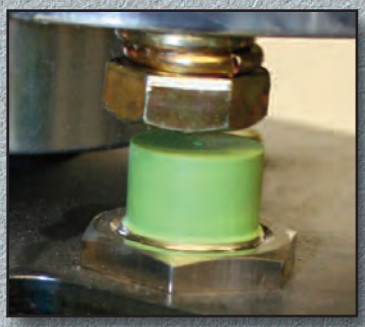
STEP 2: *(optional)*

Depending on the procedure, it may be easier to remove the retainer CAM arm from the assembly to create more workspace. If this is desired, the retainer CAM arm can be removed after removing four (4) 4mm hex head allen bolts from the bottom of the retainer shaft assembly.



NOTE

ALIGNMENT IS IMPORTANT FOR PROPER BALL ROTATION. THE CAM ARM SHOULD BE ROUGHLY 60 DEGREES TURNED COMPARED TO THE METAL RETAINER RING IF PICTURED FROM ABOVE. IF, WHEN THE ASSEMBLY IS IN THE ZERO/HOME POSITION AS DETERMINED BY THE INDUCTIVE SENSOR LOCATED ON THE RETAINER ASSEMBLY PLATE AND THE BALL IS NOT CENTERED ON CENTER PAD LOCATED IN MAIN HOUSING, THE BALL RETAINER RING MAY BE LOOSENED AND ADJUSTED AS NECESSARY.



STEP 3:

The CAM plate can be removed by removing the four (4) 5mm hex head allen bolts located on the top of the motor assembly.

NOTE

THE CAM PLATE SHOULD SELF-ALIGN SO LONG AS THE LARGE BOLT LOCATED ON THE UNDERSIDE OF THE PLATE IS PROPERLY ALIGNED TO THE INDUCTIVE SENSOR. THE GAP BETWEEN THE BOLT AND THE SENSOR SHOULD BE APPROXIMATELY 1/8 INCH.

STEP 4:

To remove the CAM plate mount, loosen or remove the two (2) 4mm hex head allen set screws located on the side of the motor shaft. A pulley remover may be necessary to remove this mounting plate.

NOTE

MAKE SURE TO REMOVE ANY PROTRUSIONS, BURRS, OR SNAGS LOCATED ON THE KEY-WAY, KEY, MOUNTING PLATE, OR SHAFT BEFORE RE-INSTALLATION.

STEP 5:

After the CAM plate, and CAM plate mount have been removed, the motor can be removed from the main mounting plate. To remove the motor and gear box assembly, unscrew the four (4) Phillips bolts and lower the entire unit. Use caution when removing these bolts as the motor and gear box assembly are separate units and can free-fall if both are not secured when the last bolt is removed.

NOTE

THE GEAR BOX ASSEMBLY IS A COMPLETE MANUFACTURER FINISHED PART AND CANNOT BE REPAIRED ALA CARTE. IF THE GEAR BOX ASSEMBLY MALFUNCTIONS, THE ENTIRE GEAR BOX ASSEMBLY (SKU SF2GB) WILL NEED TO BE REPLACED.

STEP 6:

The capacitor may be attached to the assembly in a few different ways: either bolted directly to the mounting plate; attached by a construction grade rubber adhesive; or via Zip ties. Depending on the method it was attached, use a "best judgment" approach when removing the capacitor (SKU SF2AC) DMF 251506 SH.

NOTE

IF DETACHING ONE OR MORE OF THE ELECTRIC WIRES, MAKE NOTATION DOCUMENTING WHERE EACH WIRE HARNESS WAS REMOVED FROM. THE FACTORY WIRING SHOULD HAVE THE POWER WIRE (RED) AND SECONDARY POWER CABLE TO THE MOTOR (WHITE) .

THIS CAPACITOR IS POLARITY SENSITIVE; INCORRECT WIRING CAN RESULT IN AN ELECTRICAL SHORT, DAMAGE TO THE UNIT, OR POTENTIALLY CAUSE AN ELECTRICAL FIRE.

STEP 7:

The green inductive sensor may be removed from the plate using two (2) 24mm wrenches.

NOTE

WHEN REPLACING THIS INDUCTIVE SENSOR, THE HEIGHT IS EXTREMELY IMPORTANT. THE GAP BETWEEN THE BOLT (LOCATED ON THE RETAINER CAM) AND THE SENSOR SHOULD BE BETWEEN 1/8 AND 1/16 OF AN INCH. IF THE GAP IS TOO SMALL, THE BOLT MAY DAMAGE OR DESTROY THE SENSOR DURING NORMAL OPERATION. DISTANCES GREATER THAN 1/8 MAY CAUSE THE MACHINE TO GET A FALSE NEGATIVE AND GIVE A DISK ERROR.

STEP 8:

If necessary, the main mounting plate can be removed from the main plate. To remove the mounting plate, remove the four (4) 13mm bolts located on the underside of the plate.

USE CAUTION

Make sure the spring from STEP 1 has been removed to avoid damaging the machine.

ELECTRICAL COMPONENTS:

In general, the electrical components will either work correctly, or they will not work at all. If one or more of the electrical components fail, refer to the diagram located on the inside of the machine and confirm all connections are still firmly attached to the circuit board.

If the problem is intermittent, remove the cable(s) from the circuit board(s). Use a dry duster to clean the connections and check for any corrosion. If the connections appear to be in good shape, re-install the connectors.

OPERATING SPECIFICATIONS:

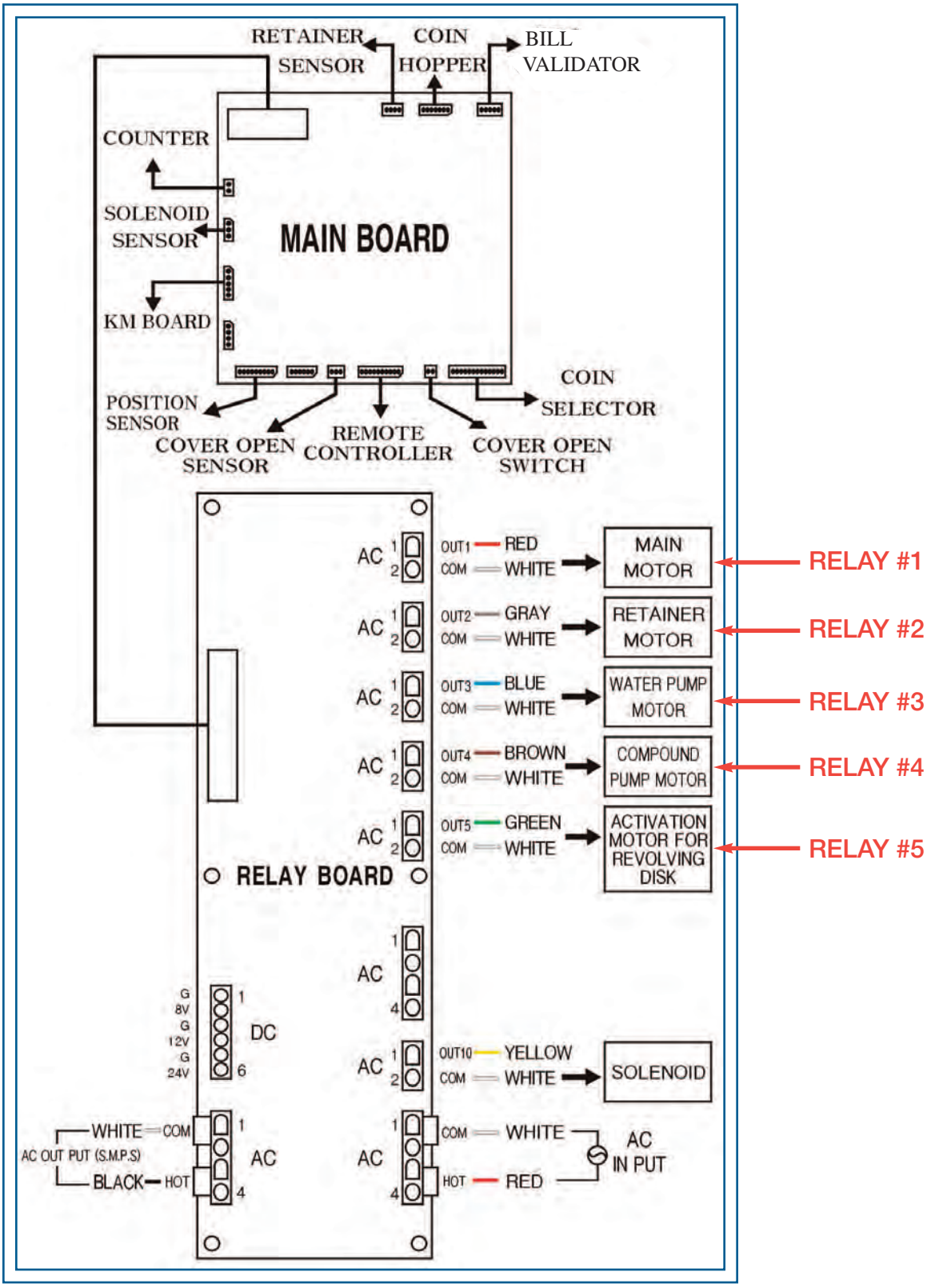
115V	60Hz	30 AMP Breaker
		42 AMP Peak During Startup
		3.8 - 6.0 AMP Constant Draw
		~14 AMP Power Supply Recommended

PHYSICAL DIMENSIONS:

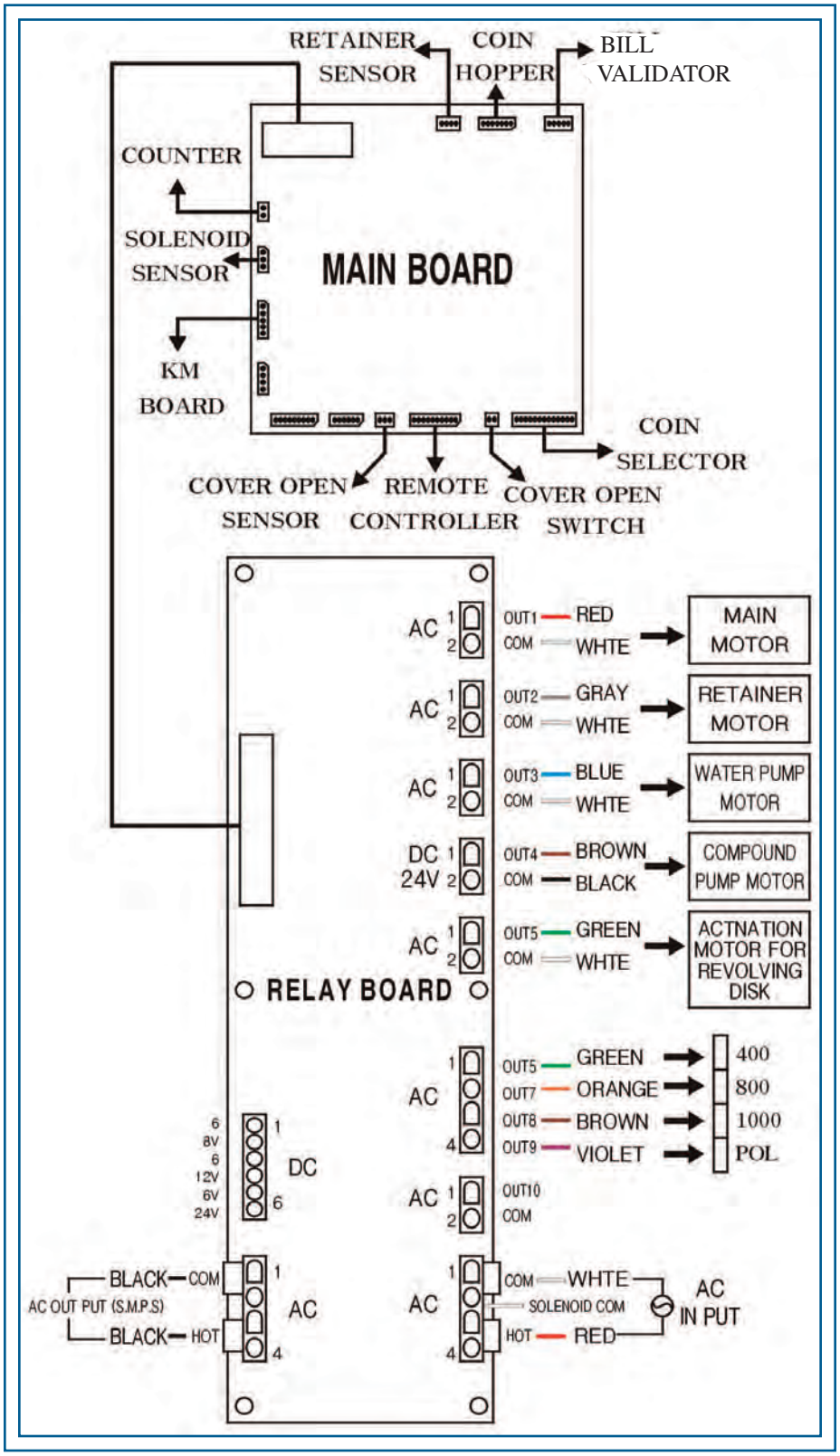
HEIGHT	42¾″	60½″ with Lid Open
WIDTH	29½″	
DEPTH	21¼″ Body	22½″ with Bill Acceptor

Approximately 380 lb. Empty

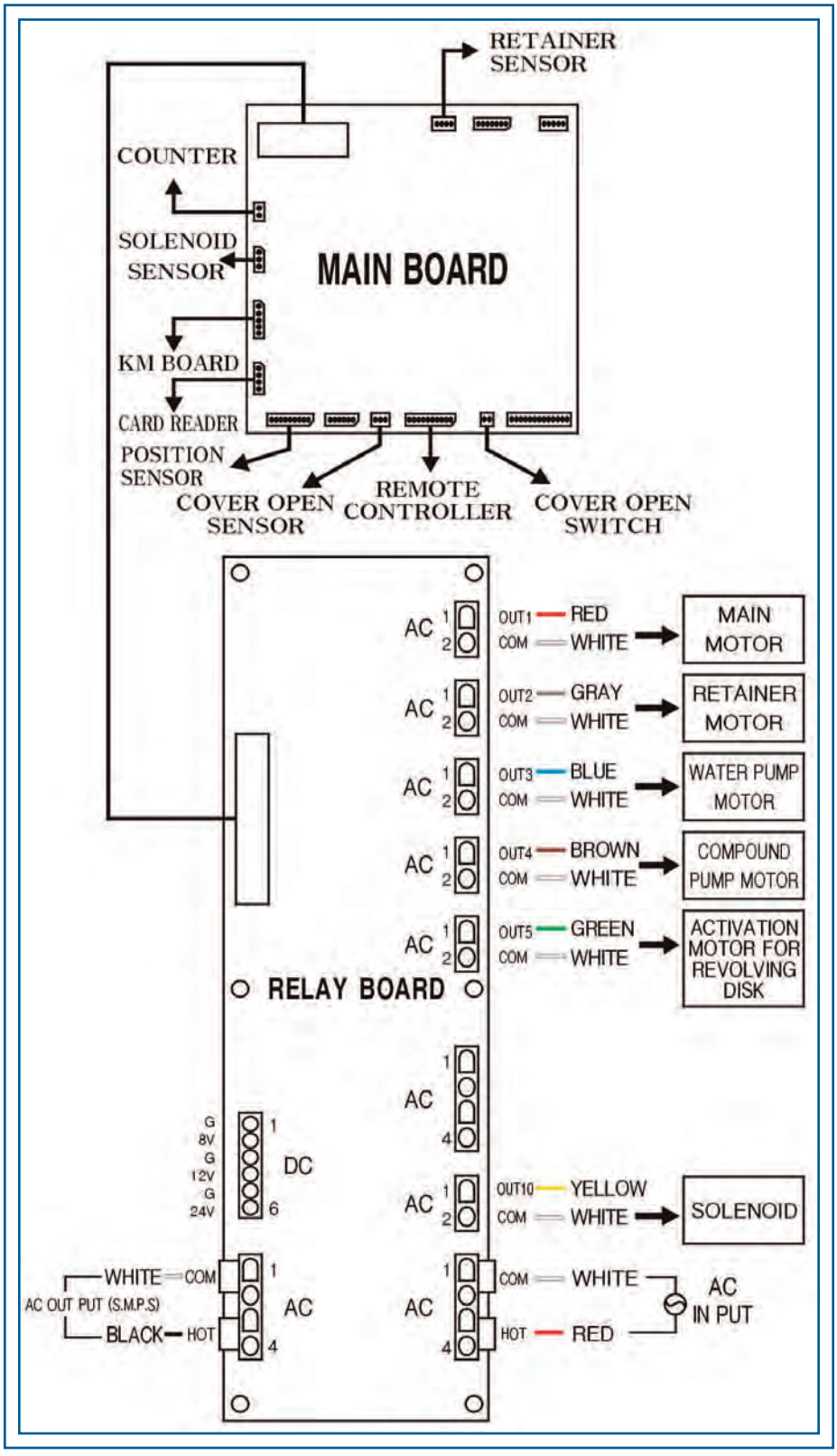
– INDUCTIVE SENSOR SYSTEM (New) –



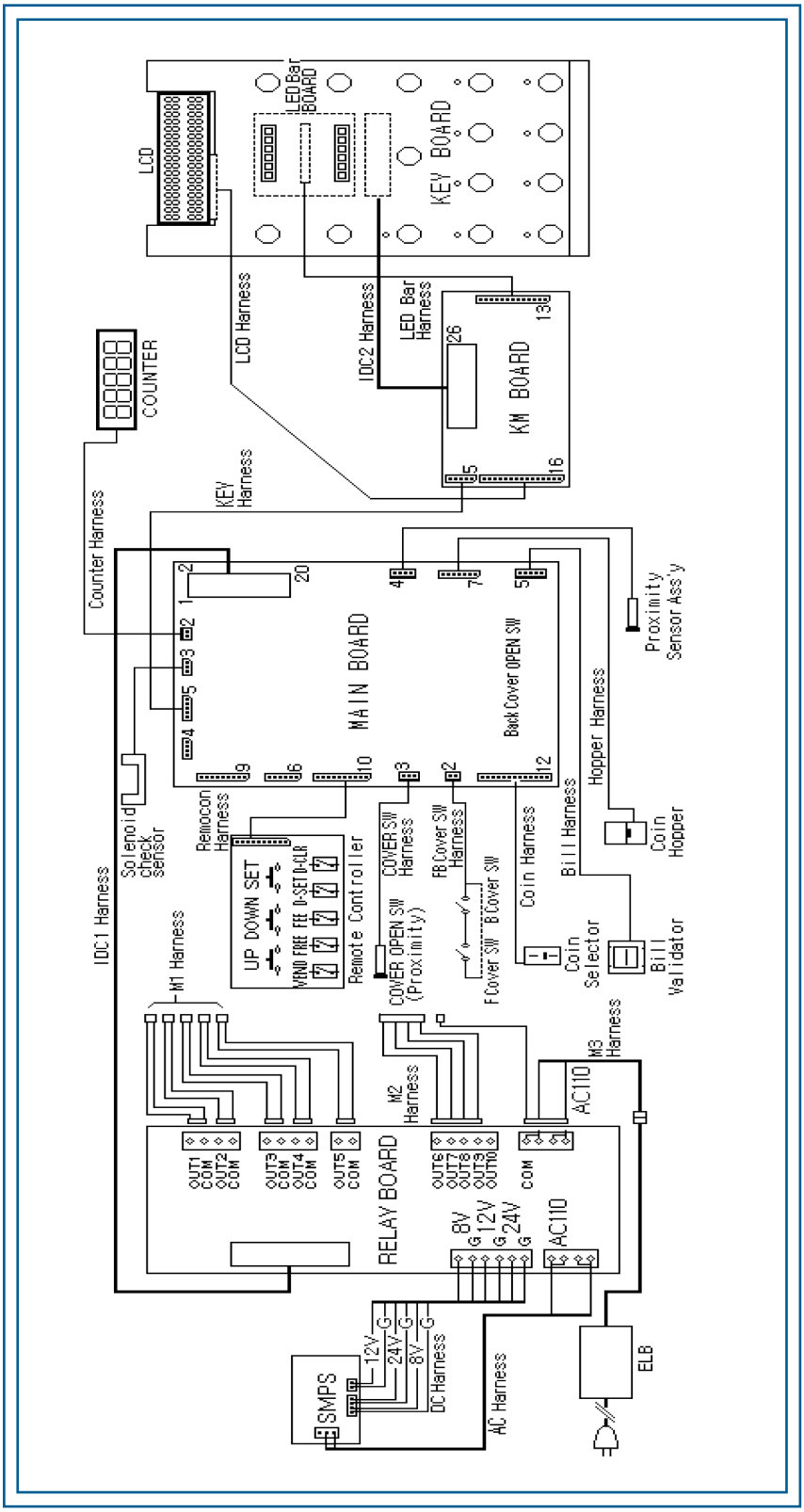
– MICRO-SWITCH SYSTEM (Old) –



– CARD READER (International) –



– ELECTRONIC OVERVIEW SCHEMATIC –

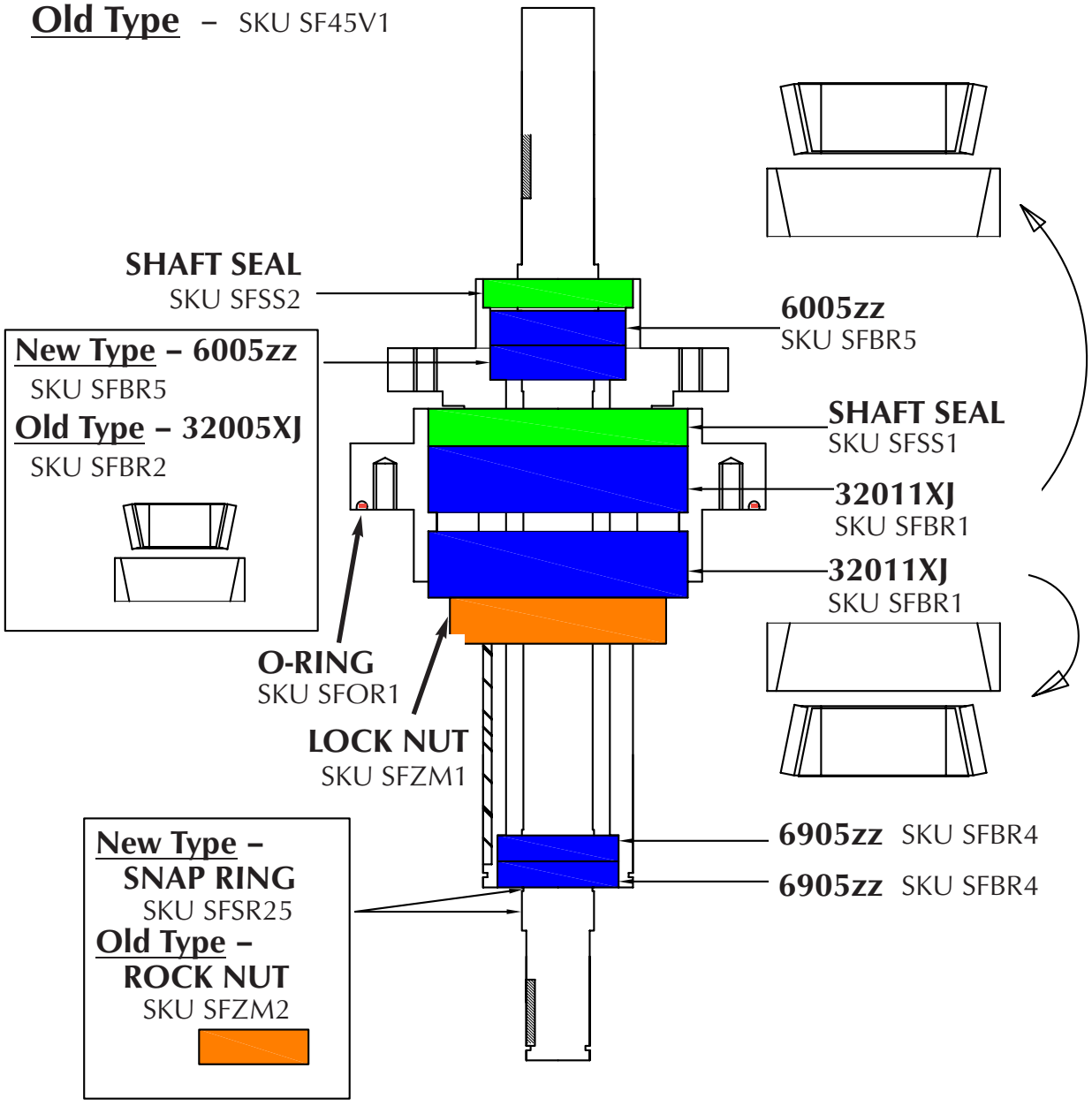


BEARING, SHAFT SEAL, LOCK NUT

– WHEEL SET –

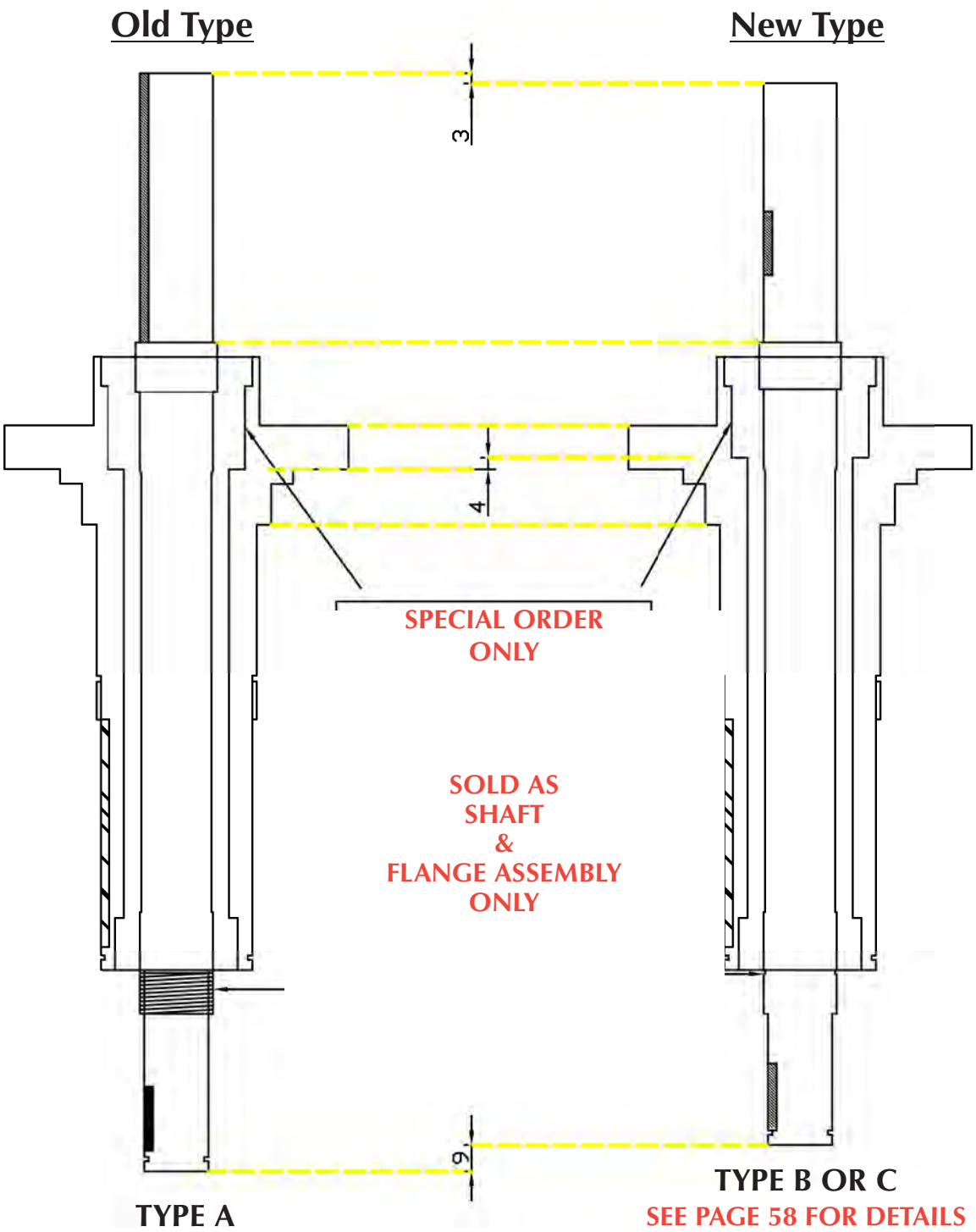
New Type – SKU SF45V2

Old Type – SKU SF45V1



OLD TYPE and NEW TYPE

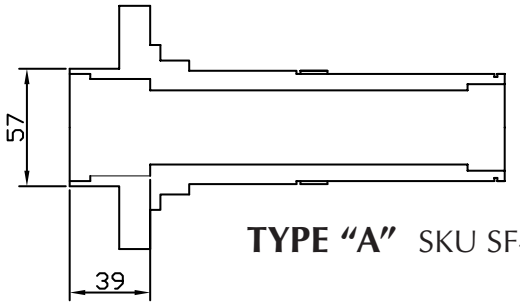
– LARGE DISK FLANGE & SHAFT –



SEE PAGE 58 FOR DETAILS

– LARGE DISK FLANGE TYPES –

① **Old Type**
ORIGINAL
30 MACHINES



TYPE "A" SKU SF47A

LARGE DISK CENTER HOLE : 57

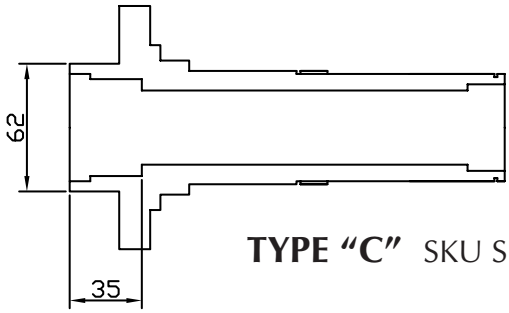
② ↑

New Type

↓ ③

TYPE "B" SKU SF47B

LARGE DISK CENTER HOLE : 57



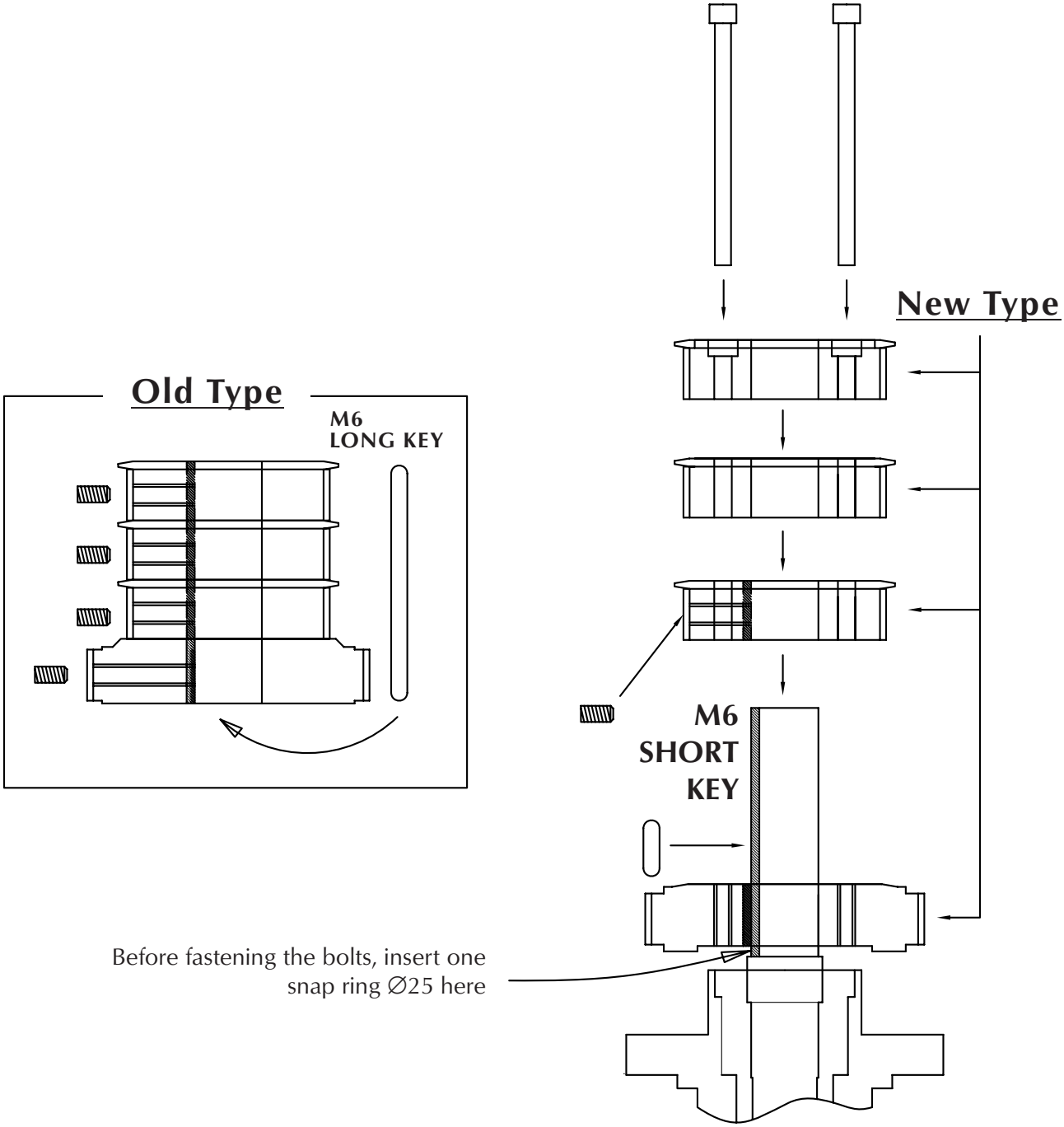
TYPE "C" SKU SF47C

LARGE DISK CENTER HOLE : 62

OLD TYPE and NEW TYPE

– WHEEL SET PULLEY ARRAY –

SPECIAL ORDER ONLY

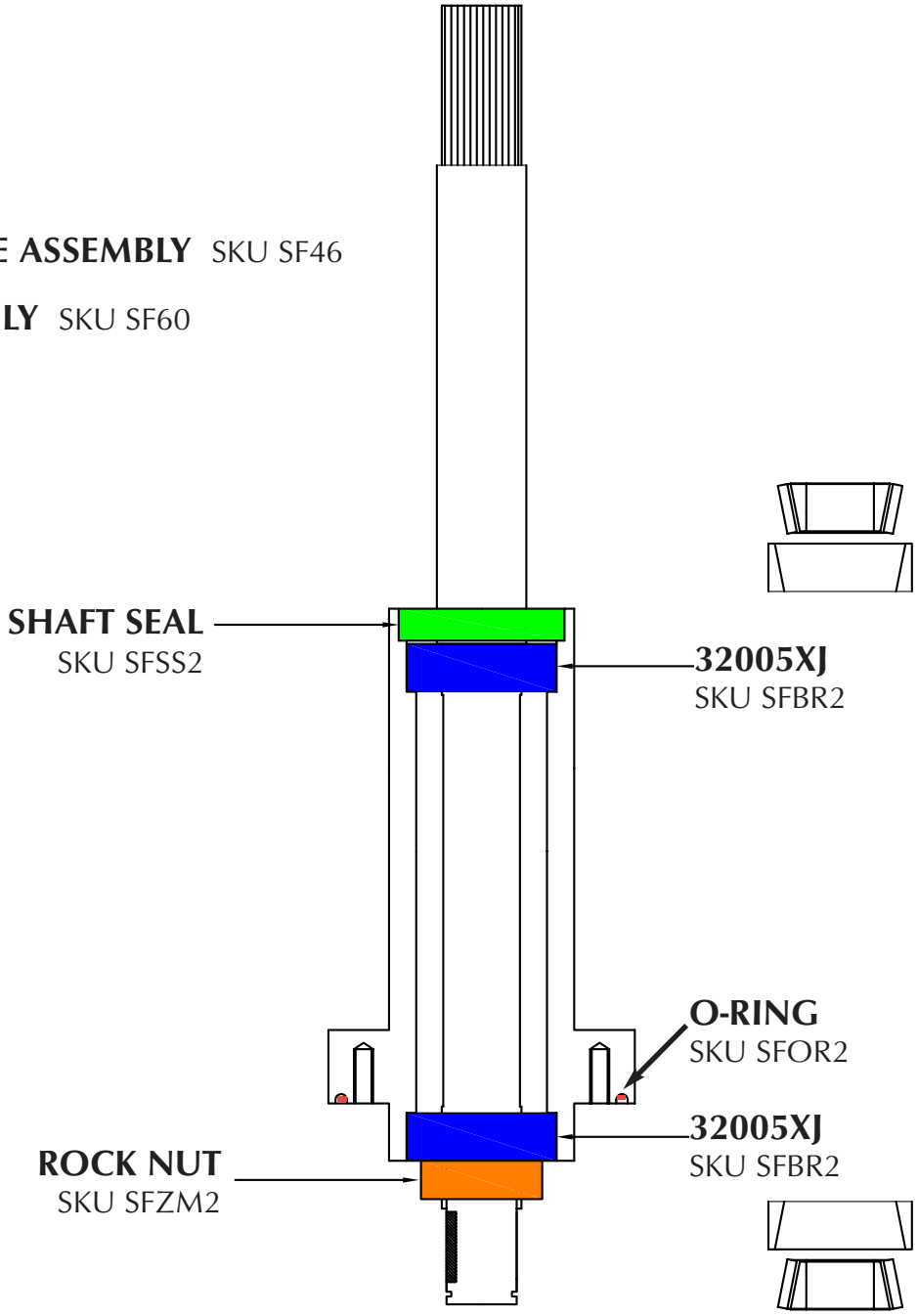


BEARING, SHAFT SEAL, LOCK NUT

– RETAINER SET ASSEMBLY –

COMPLETE ASSEMBLY SKU SF46

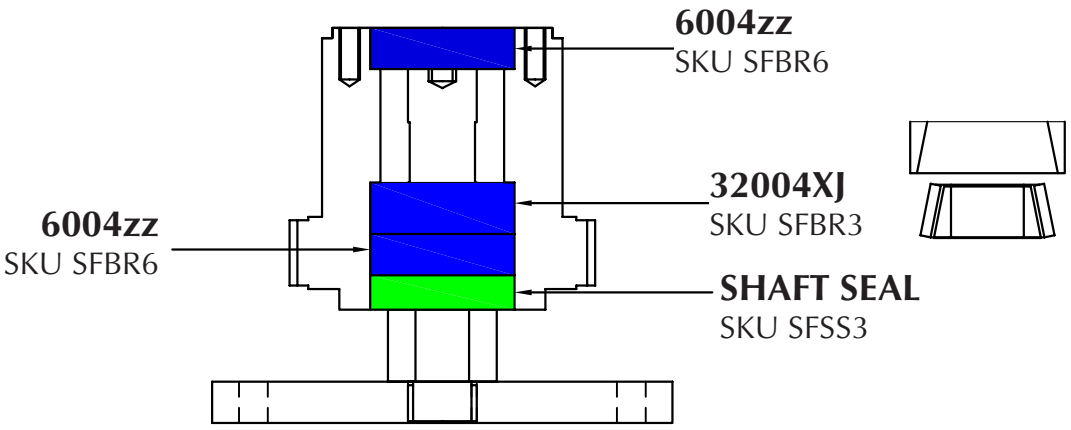
SHAFT ONLY SKU SF60



BEARING, SHAFT SEAL, LOCK NUT

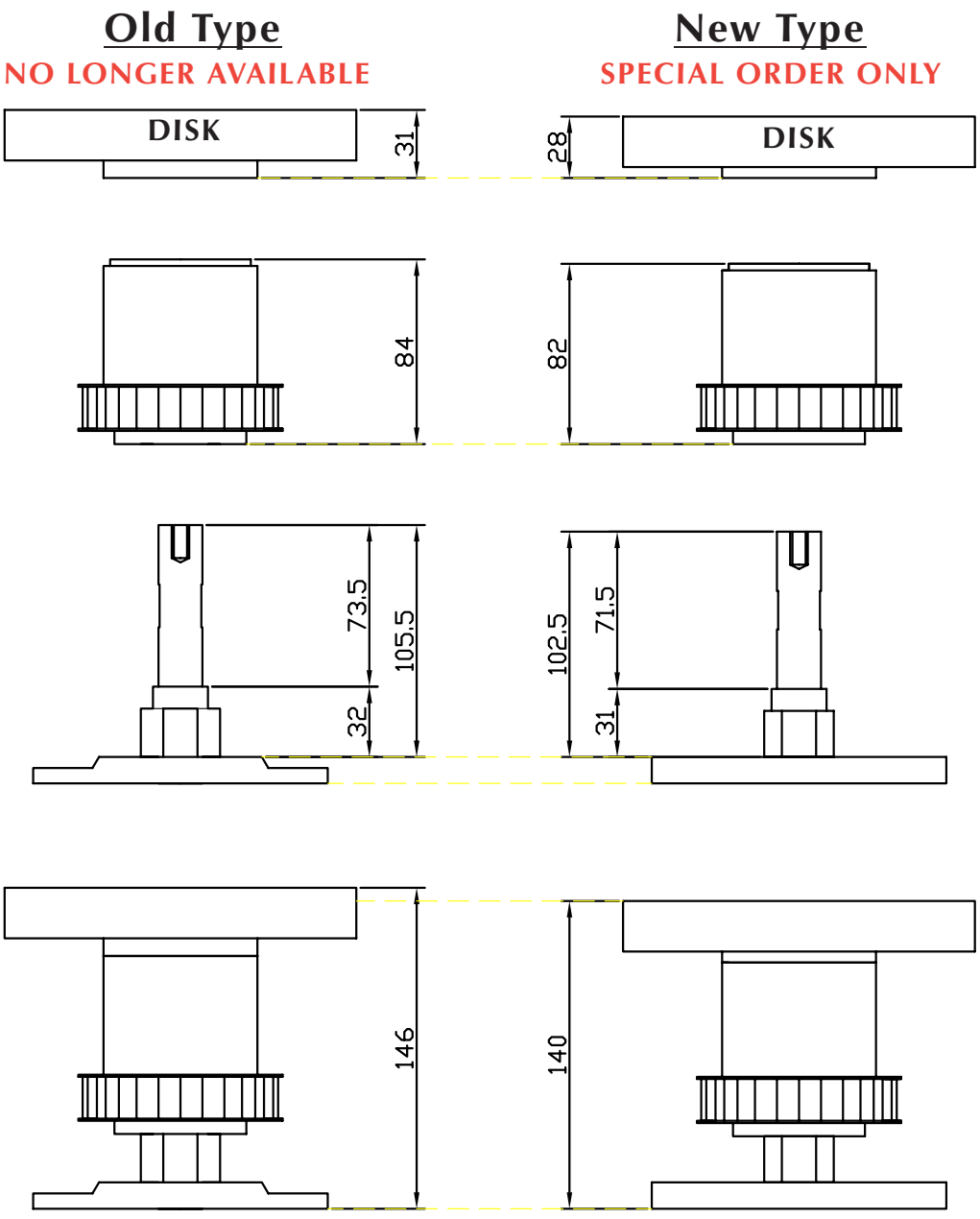
– SANDING TIMING PULLEY 1,2,3 SET –

– POLISHING TIMING PULLEY SET –



OLD TYPE and NEW TYPE

– SANDING & POLISHING TIMING PULLEY –



BEARING, SHAFT SEAL, LOCK NUT

NOT SHOWN:

MOTOR ONLY

Old – 24DC SKU SF14V1DC

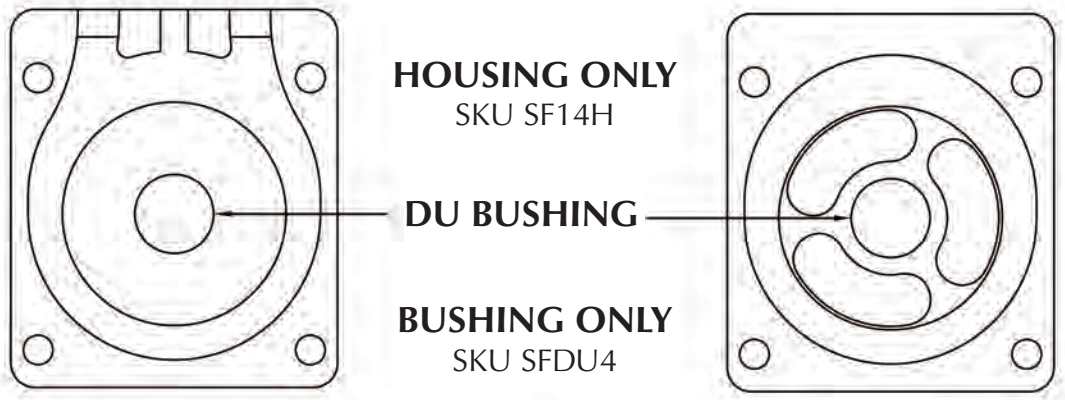
New – 12AC SKU SF14V2AC

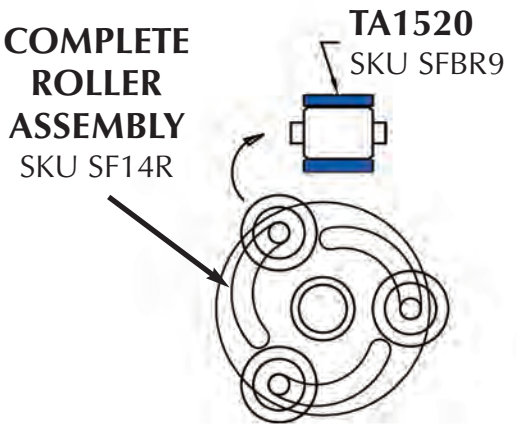
COMPOUND TUBE ONLY SKU SF33

RUBBER BLOCKER ONLY SKU SF59

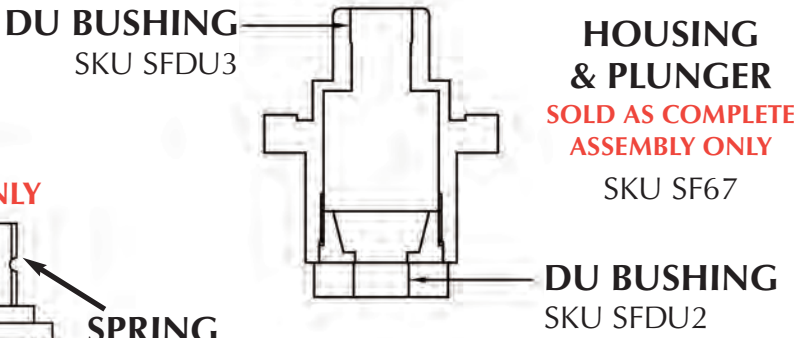
– COMPOUND PUMP –

COMPLETE COMPOUND PUMP ASSEMBLY
SKU SF14

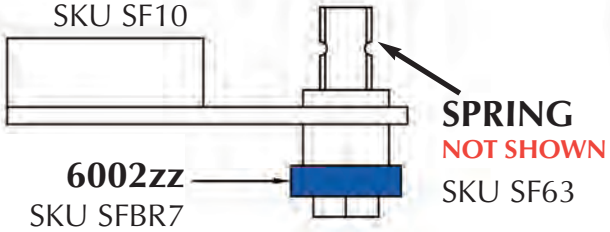




SOLENOID PLUNGER HOUSING



BALL RETAINER CAM ARM
SOLD AS COMPLETE ASSEMBLY ONLY
SKU SF10



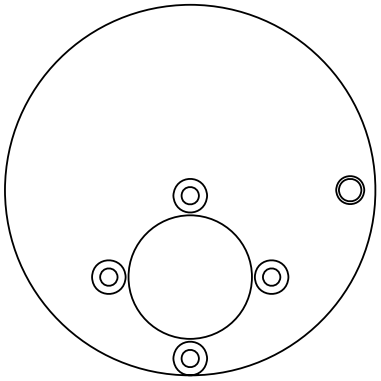
OLD TYPE and NEW TYPE

DELAY TIME & WHEEL RPM INCREASE

– RETAINER CAM –

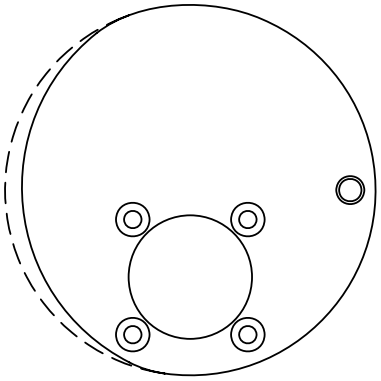
Old Types

NO LONGER AVAILABLE

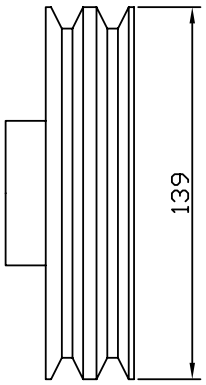


New Types

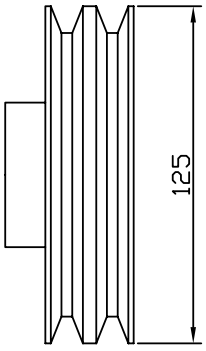
SKU SF2B



– CENTER PULLEY –



SKU SF45RV1

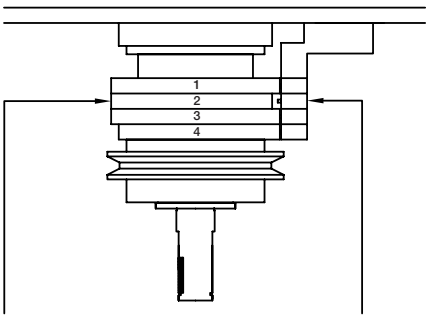


SKU SF45RV2

OLD TYPE and NEW TYPE

– POSITION CAM & SENSOR –

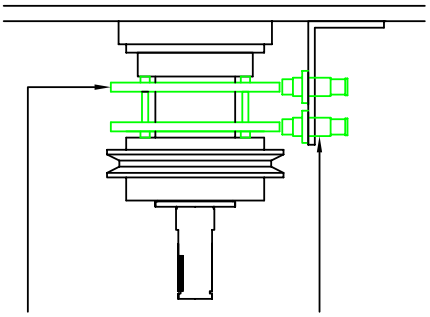
Old Type



ACRYLIC CAM
SKU SF56

MICRO-SWITCH
SKU SF38

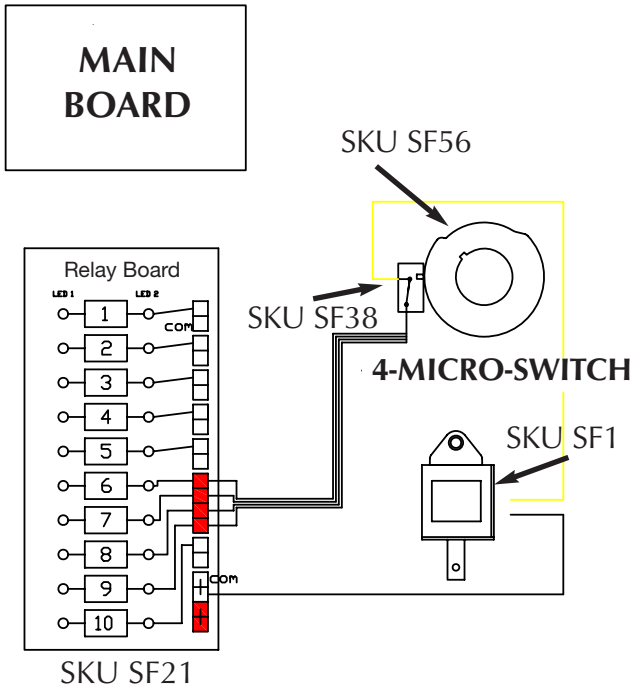
New Type



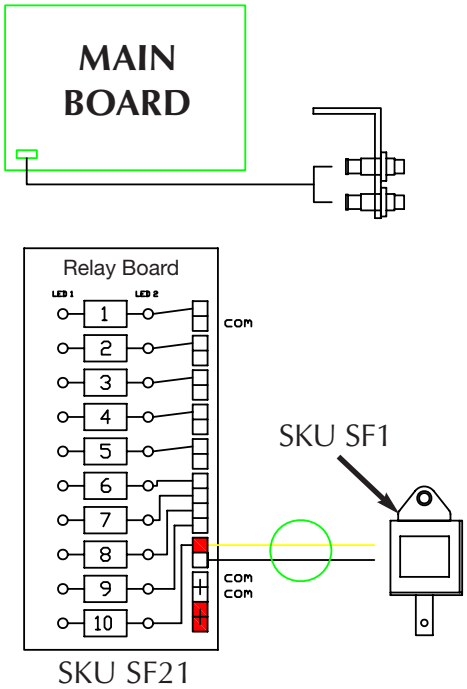
STEEL CAM
SKU SF56M

SENSOR
SKU SF11CAM

Old Type SKU SF25



New Type SKU SF25V2



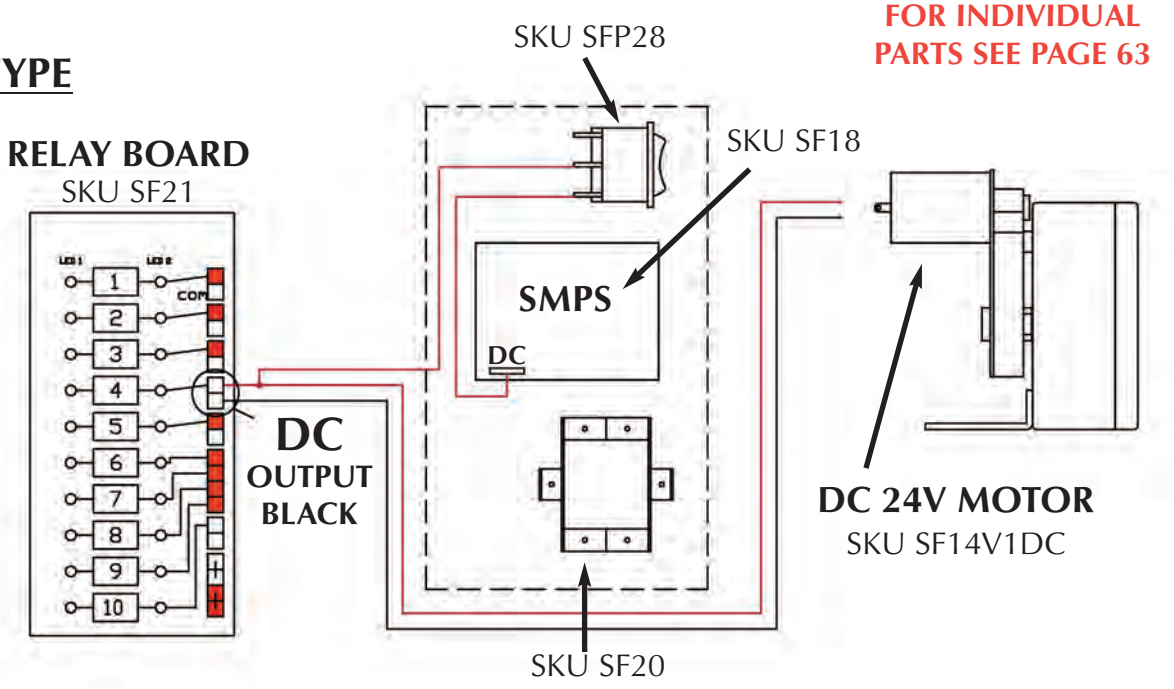
OLD TYPE and NEW TYPE

– COMPOUND PUMP –

– RELAY BOARD –

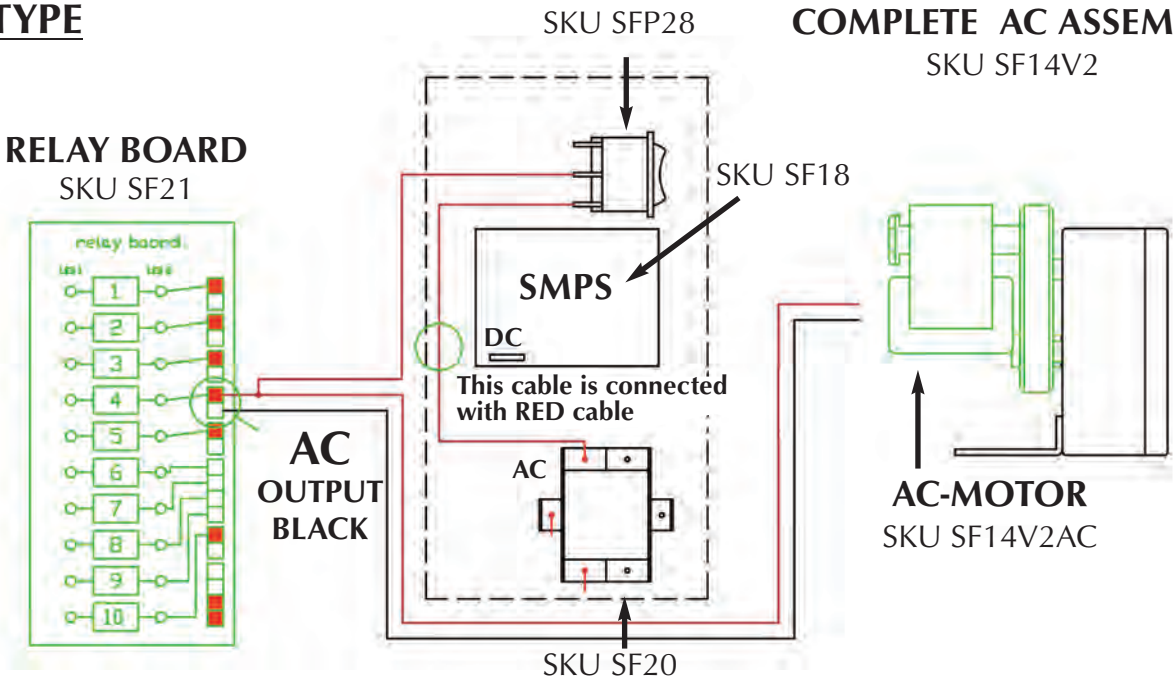
COMPLETE DC ASSEMBLY
SKU SF14
FOR INDIVIDUAL PARTS SEE PAGE 63

OLD TYPE



NEW TYPE

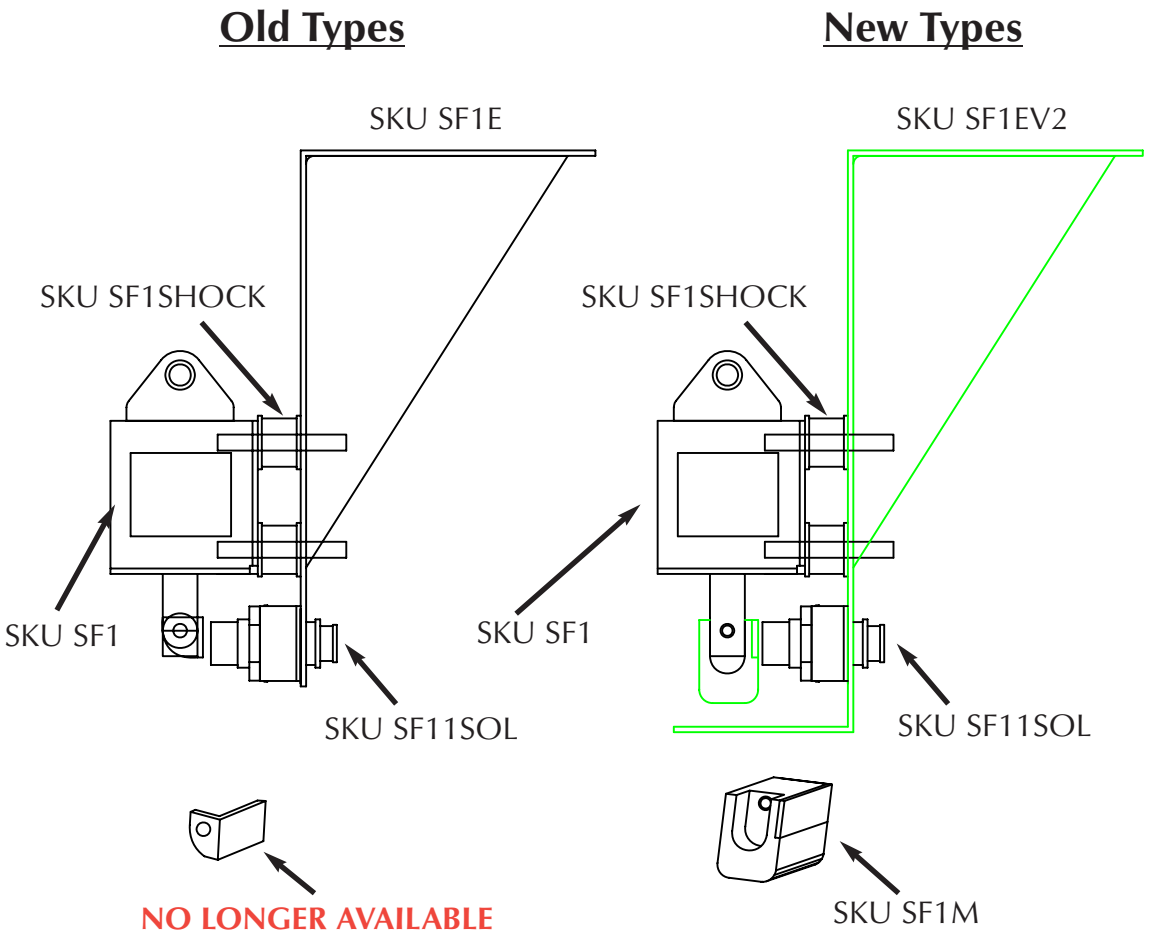
COMPLETE AC ASSEMBLY
SKU SF14V2



OLD TYPE and NEW TYPE

– PLATE FOR SOLENOID SENSOR –

– SOLENOID MOUNT BRACKET –

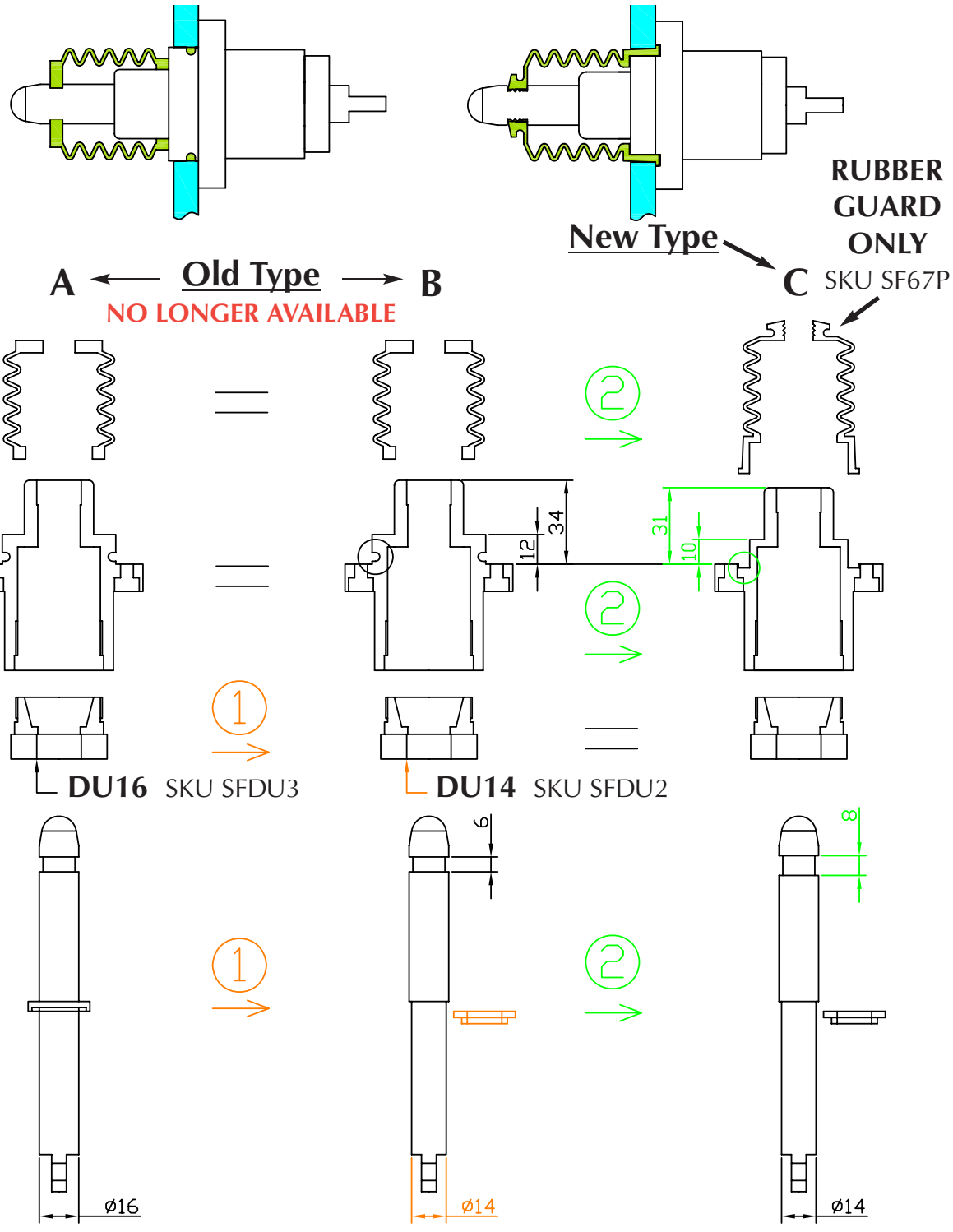


OLD TYPE and NEW TYPE

COMPLETE ASSEMBLY SKU SF67

– SOLENOID PIN –
– HOUSING ASSEMBLY –

NOT SHOWN:
SPRING SKU SF42



OLD TYPE and NEW TYPE

– VELCRO SANDING DISK –