

Sunbeam

Original Service Manual for Model T-9 'Silent Automatic' Toaster



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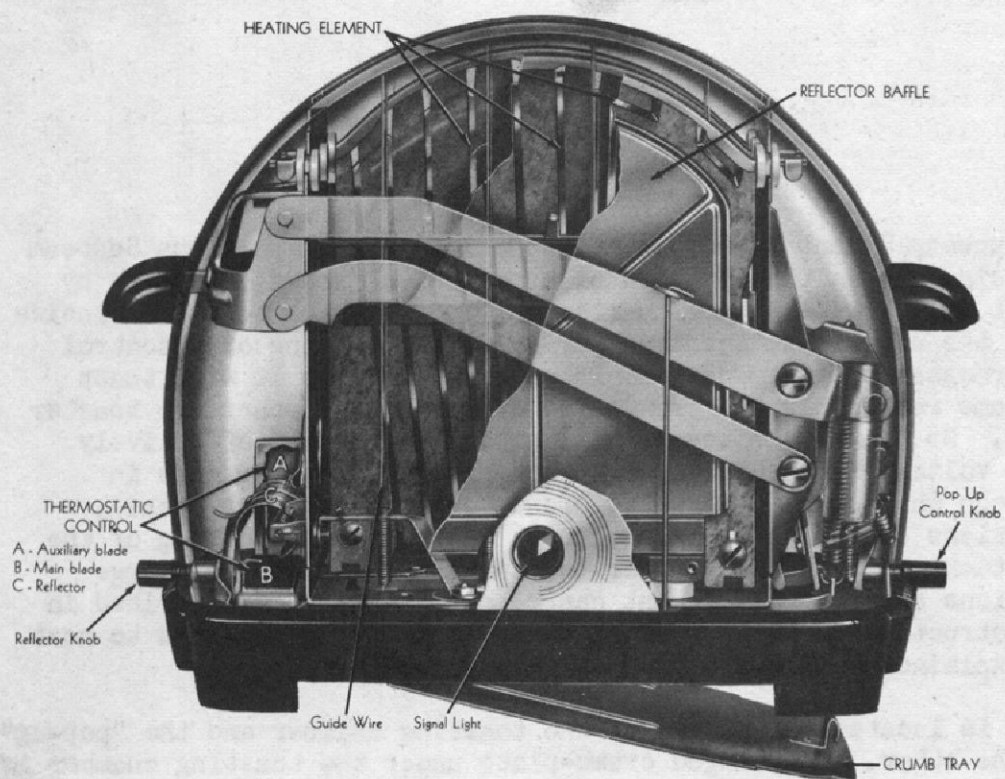
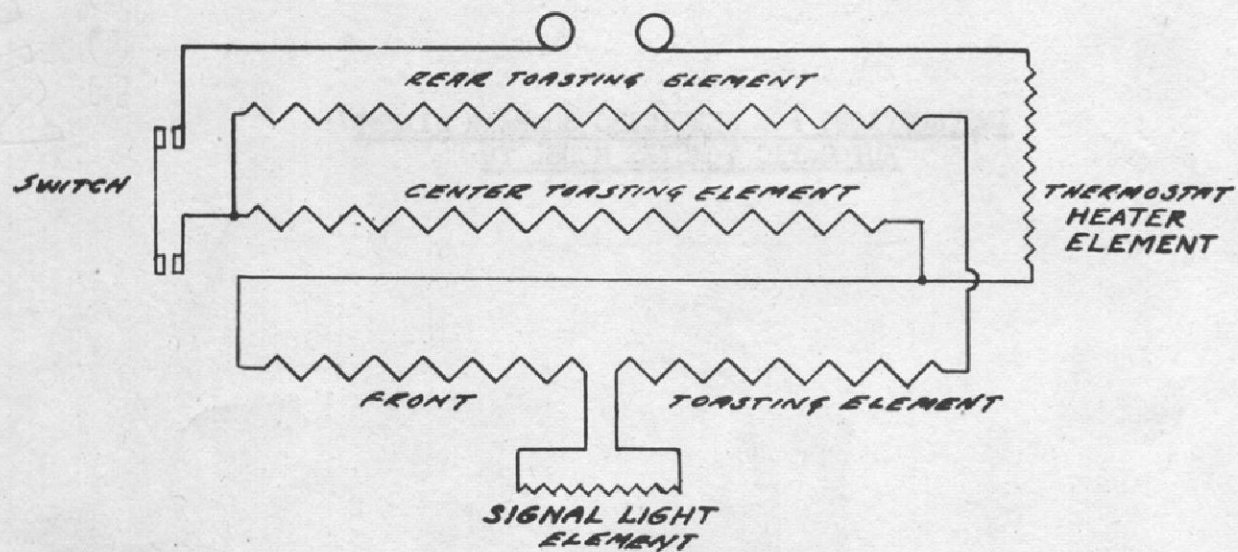
INSTRUCTIONS FOR SERVICING SUNBEAM SILENT AUTOMATIC TOASTER MODEL T9



GENERAL

The Model T9 Sunbeam Silent Automatic Toaster differs from previous Sunbeam toasters in design and in the addition of a selective "pop-up" feature by which the toast may be made either to rise automatically or to remain inside the toaster at the end of the toasting period by the setting of a control knob. The thermostat timing mechanism is so arranged that it will toast bread to the same reasonably uniform degree of brownness whether the toaster is hot or cold. No toaster, however, will automatically and effectively compensate for voltage fluctuations or for considerable differences in bread (as between whole wheat and white bread, or fresh arid dry bread), but such variations can be taken care of by a change in the setting of the Bakelite adjustment knob on the side of the Sunbeam Toaster. For large voltage variations a second adjustment can be made readily as described in the Toaster instruction booklet, (one of these booklets is attached to next page) and as explained in Section 3N-3 of this bulletin.

The thermostat is located at one end of the toasting chamber and the "pop-up" mechanism at the other. The hinged crumb-plate under the toasting chamber is easily opened for cleaning. The wiring diagram on the next page shows the



electrical circuit connections as arranged in the 110-120 volt and 125-130 volt Model T9 Toasters.

Note: The front of the Toaster is the side with the signal light; which places the movable handle and thermostat adjustment knob on the right side and the fixed handle and "pop-up" control knob on the left side when the user faces the front of the Toaster. USE ON ALTERNATING CURRENT ONLY.

HOW TO SERVICE MODEL T9 SUNBEAM AUTOMATIC TOASTER

1. Normal Operation

Plug toaster cord into electric power circuit of same voltage as that marked on name plate at bottom of toaster, The electric power circuit must have sufficient capacity for supplying the Toaster with the wattage it requires 1100 watts, When the movable handle (see Key Number 15 on illustrated parts list attached to this bulletin) is lowered the switch closes, all elements will heat to a cherry red color, and the signal light will glow.

The main thermostat blade (key number 47) is heated by the thermostat heater element (5), the heat is reflected to the thermostat by the reflector (3) and the amount of heat reaching the thermostat blade is regulated by moving this reflector through the cam (13) turned by the thermostat adjustment knob (24). The temperature at which the thermostat snaps off is regulated by the tension of the coiled spring (48), which can be adjusted by turning the nut (49A). The thermostat blade will snap with a "click" against the flat surface of its supporting castings But before it reaches this surface the thermostat blade hits the end of lever (33) which opens the switch and if the control (24D) is set to "pop-up" the toast rack will move up, coming to a slow stop. The cushioning cylinder (56A) dampens the action of the "pop-up" spring. If the control knob (24D) is in the position marked "Keeps Toast Warm", the movable handle (15) must be raised by hand to remove the toast. The thermostat blade (47) cools rapidly and snaps back into its original position with a second "click" a few seconds after the first, thus resetting the thermostat. The next toast must not be started until after this second click. The auxiliary thermostat (46) compensates for the temperature rise in the metal parts of the toaster. Without the auxiliary thermostat, the toast would tend to become lighter as successive slices were made.

2. Taking Toaster Apart.

2-A. To remove bottom cover and thermostat bracket assembly (12). Use Tool No. 1 (see list of tools at the end of this bulletin) to remove the four Gulmite screws (60A) near the edges of the thermostat bracket and the crumb tray and bracket (12) may be removed from the plastic base (16). The thermostat bracket should be carefully lifted out, sliding the thermostat blade (47) over the end of the switch locking lever (33). Removing the thermostat bracket (12) permits inspection of the heat adjustment cam (13), the reflector assembly (3) and the thermostat heater element (5).

2-A1. The thermostat blade (47) may be removed from the assembly by first loosening the spanner nut (49A) for tension on adjusting spring (48). Then take off shield (64) from the auxiliary thermostat (46), and remove shoulder screw (44) and its nut (44A). This will relieve pressure of setscrew (55) on the main thermostat blade (47), which may now be lifted out from under the thermostat stop (43).

- 2-B. To remove plastic base (16), remove the four base fastening studs (16A) and two base fastening screws (16B). Remove hexagon nuts (30D) from terminal studs (30). The plastic base and cord can now be lifted off.
- 2-B1. Cord (14) is removed from the molded base by loosening two round-head screws (66) and hexagon nuts (67) holding the two cord clamps (54). Remove the tape from the cord and it may then be turned and carefully twisted out of molded base (16).
- 2-C. To remove body (40, 51, 52) - The three parts of the body are fastened to the bottom mounting plate (11) by eight body mounting screws (41). Before the center section is removed take off the movable handle (15) by loosening its setscrew (15A). After lifting off the center section (40), the stationary handle (39) may be removed if necessary. It is held in place by two machine screws (39A).
- 2-D. To remove toast rack assembly (56), remove the four shoulder screws (10A). Remove the switch spring (23) and the ejector extension spring (21). The adjustment nut (21A) and screw (32) for the ejector extension spring may be removed at the same time from the mounting plate. When this is done, carefully raise and pivot the top parallel bars of the rack assembly (56) over the top of the toaster. The rack may now be withdrawn and carefully guided by hand through the openings at the end of the element frame (1). The parallel bars and rack form one complete assembly riveted and spot-welded together and no effort should be made to separate its parts.
- 2-E Upper and lower shaft assemblies (9 and 10) - The upper shaft assembly (9) and lower shaft assembly (10) may be removed after the four shoulder screws (10A) have been taken out. The upper shaft assembly (9) is pushed to one side and through the extruded opening in the element frame assembly (1). Pivoting on the upper shaft assembly (9) is the ejector lever (35), cushioning cylinder (56A) and roller bracket (34), which are securely held in position by retainer clips. The lower shaft and switch assembly (10) cannot be removed until the switch locking lever (33) is disengaged from the switch arm (36A). To do this, bend back the bearing supports for the locking lever (33) at the bottom of the element frame assembly (1) with a pair of pliers. The locking lever and its torsion spring (33A) may be readily lifted out of place. The lower shaft assembly (10) may now be removed from element frame by pushing the shaft to one side through its bearings in the element frame. The switch assembly (36) and the moving contact points (36B) are part of this assembly (10) and if they are damaged the entire assembly must be replaced.
- 2-F. To remove control knobs (24 and 24D) and cams (13 and 22), remove hexagon nuts (24A), lock washers (24B) and tension washers (24C).
- 2-G. To remove toaster heating element assemblies (6, 7, 8). - All elements used in Model T9 Sunbeam Toasters are graded and matched for resistance value. To obtain uniform toast all of the elements used in a toaster must have the same grade number, 1, 2, 3, 4 or 5, stamped on the upper metal border of the element and this same number must also appear on the thermostat heater element (see Section 2L). Before removing the toasting elements, remove the sixteen guide wires (19 & 20). Lift the wires out of holes with a small hook or bent wire. Do not stretch the wires more than necessary in removing or the springs may lose their tension. Keep the eight longer center guide wires separate from the eight shorter ones to avoid confusion later in reassembling. Remove the element frame top (18) by bending outward with a pair of pliers the

four pairs of ears at the ends so they can be lifted over the lugs on the element frame (1). The insulating spacing washers (59 & 65) may now be lifted out and the elements can be removed by disconnecting bus-bar connections. See wiring diagram on page 1 of this bulletin for bus-bar connections.

- 2-H. The signal light element (57) at the front of the toaster may be replaced after the front cover (52) has been removed. Connections are made by two small terminal screws (69), nuts (71) and washers (70). The nuts (71) can usually be held with the fingers reaching inside the element frame, but if this is impossible the front heating element (6) must be removed and the nuts (71) held with a wrench.
- 2-I. To remove bottom mounting plate assembly (11), twist the four small lugs on the bottom of the element frame with pliers 80 that they will pass through the slots in this plate.
- 2-J. To remove reflector (3) - The reflector may be removed by filing or cutting one flattened end of the hinge pin (4) and pulling it out. Before reassembling toaster, be sure that the inner surface of the reflector is clean and bright. Dust or burned marks on this reflector will affect the timing of the thermostat by reducing the heat which reaches it.
- 2-K. Stationary switch contact points (2) are riveted to element frame assembly and if they need replacement the frame assembly (1) should be replaced.
- 2-L. To remove thermostat heater element (5), first remove the two terminal screws (73), which connect the element (5) to bus-bars (25 & 26). Mica washers (30A & 5B) should be removed and put aside. The thermostat heating elements (5) are graded and grade number is marked on one supporting bracket, to match grade of toasting elements. When replacing, be sure that the same grade number appears on all heating and toasting elements including this thermostat heater (see Section 2G).
- 2-M. Piston assembly for cushioning cylinder (63) - The piston (63) is fastened to bottom mounting plate (11) with a split washer (68). The piston must not bind at the point where it passes through the plate (11). If the toast rises too rapidly examine the graphite surface of the piston and the interior of the cushioning cylinder (56A) for scratches or signs of wear. Do not put grease or oil on the graphite plunger. If parts are worn, replace them.

3. Assembling Model T9 Toaster

- 3-A. To fit toasting elements (6, 7, 8) into element frame (1), make sure that all elements used have the same grade number stamped on the upper metal border (see Section 2-G). For correct electrical connections, refer to the wiring diagram on page 1 of this bulletin. (When repairing 200 to 250 volt toasters observe bus-bar connections before taking apart. Elements on such toasters are connected in series so that bus-bar connections are not made as indicated below.) Fix elements in place by fastening terminal screws on bus-bar as tightly as possible to prevent loosening in operation of the toaster and poor electrical contact. On 110-120 volt (and 125-130 volt) toasters, bus-bar (26) connects terminal stud (30) to thermostat heating element (5). Bus-bar (25) connects other end of the thermostat heating element to left end of front toasting element and to right end of center toasting element (7). Bus-bar (28) connects right ends of front and rear toasting elements (6 & 8). Bus-bar (27) connects left ends of rear and center toasting elements. Bus-bar (1A) is

permanently riveted to one fixed switch contact point and connects it to left end of center element (7) and fixed bus-bar (1B) connects other switch contact to terminal stud, thus completing the circuit as shown on the wiring diagram.

- 3-B. To fit top for element frame (18), put six porcelain insulators (59) in position on frame (1) and fit top (18) in position by bonding ears over lugs on element frame. (See note under Key No. 18 on parts list). Be sure that top is firmly held in correct position.
- 3-C. Guide wires (19 & 20). - The long (19) and short (20) guide wires may be replaced, long ones in the center, by first hooking the lower ends to the openings in small lugs on the bottom of the element frame and then pulling the top loops up with a small hook to engage the openings in the element frame top (18).
- 3-D. Bottom Mounting Plate Assembly (11). Before assembling the bottom mounting plate to the toaster, the adjusting cam for reflector (13) and the ejector cam (22) should be assembled to their respective bearings. The order of assembly for each one is as follows: Control Knob (24) spring tension washer (24C), bearing cam lock washer (24B) and hexagon nut 24A). Then place the bottom mounting plate assembly under the element frame (1) so that the projecting lugs of element frame enter corresponding slots in the mounting plate. Twist the lugs just enough to insure a tight engagement between the element frame and mounting plate.
- 3-E. The reflector (3) for the thermostat heating assembly is mounted on the element frame assembly by inserting reflector pin (4) through the bracket openings and hinge in the back of the reflector. Projection on top of reflector should be outside, not under, reflector spring (31). Flatten end of pin (4) so that it will not fall out. Turn the cam adjustment knob (24), observing whether the reflector moves freely. Movement of the reflector changes the amount of heat being reflected to the thermostat blade (47). For light toast the angle of the reflector is such that a maximum amount of heat is reflected from the thermostat heating element (5) to the thermostat blade (47). This causes thermostat to snap off sooner.
- 3-F. Ejector Pawl and Ejector Release Pawl (58). Two pawls are assembled on the same stud in the element frame assembly (1). The lower pawl is operated by the ejector cam (22) which is turned by the control knob (24D). A tension spring (29) fits about the pivoting stud and applies pressure on both pawls. Make certain that this spring fits properly into recesses in the pawls.
- 3-G. Upper and Lower Shaft Assemblies (9 & 10) and Rack Assembly (56). The upper and lower shafts and the rack assembly (56) should be assembled at the same time. Insert the bread-carrying racks carefully through the lower ends of the slots at the bottom of the element frame (1) from the reflector end of the element frame assembly. The upper parallel bars should be swung over the top of the toaster and sprung apart where necessary to bring them to their approximate location at the ejector end of the toaster. The lower parallel bars are easily located after the rack is in its position in the toasting chamber. The end of the upper shaft assembly (9) is inserted through the openings in the side of the element frame, which serve as bearings for the shaft. The ejector lever (35) is placed so that it can engage with the ejector pawl (58). The switch roller assembly is raised, so that the bracket engages the rack assembly in the correct manner. The cushioning cylinder (56A) is fitted over the

piston (63) which is attached to the bottom mounting plate (11). When the parts are aligned, in the proper manner, insert the shoulder screws (10A) and lock washers (10B) through the upper parallel bars into the upper shaft assembly (9).

The lower shaft assembly (10) is mounted underneath the upper shaft assembly through two extruded holes in the element frame assembly (1). The movable switch contacts (36B) face toward the stationary contact points (2). The lower parallel bars are raised directly opposite the lower shaft ends and the shoulder screws (10A) and lock washers (10B) inserted. When all four shoulder screws are in position, raise and. lower the rack assembly (56) to see that it operates freely.

It may be necessary to adjust relation between pawls (58) and upper rack (56) if, when rack is lowered, ejector lever (35) does not move the correct distance to engage in pawl. (58). It should never be necessary to file these parts and ejector lever (35) should not be bent. If pawl support is found bent, it may be straightened so that it forms a right angle with element frame. Raise or lower the round rod on which cushioning cylinder is mounted to increase or decrease throw of ejector lever (35) and switch bracket (34). Using long-nose pliers, grasp flat metal of upper rack near point where it is riveted to ends of round rod and twist slightly in direction required to move round rod up or down. Twist each end the same amount to keep rod level. It will be found that a slight upward twist near each end of the rod will increase the throw of lever (35) considerably.

- 3-H. Switch Spring (23) and Ejector Spring (21). The switch spring is fitted between the notched projections on switch lever (36) and slot in the element frame (1) directly behind the upper shaft. The ejector spring (21) is fitted between the adjusting screw (32) projecting through a slot in the bottom mounting plate (11) and the top of ejector lever (35). To fit this spring, remove the adjustment nut (21A) from adjusting screw (32) and loop the end of the spring (21) through the screw. Lower this through the slot in the mounting plate and fit adjustment nut (21A). With the end of a small screwdriver, raise the other end of the spring to the hole in the ejector lever (35).
- 3-I. Switch Locking Lever (33). The switch-locking lever (33) may be replaced as follows: Torsion spring (33A) should be fitted about pivoting pin so that the switch lever (33) moves downward inside switch arm (36A). Insert the pivoting pin of the lever into its proper location on the underside of the bottom mounting plate. Bend the lugs with the bearing holes up to normal position to locate the locking lever. When the plastic base (16) has been put on the mounting plate, examine the switch-locking lever for clearance with the thermostat blade (47) at the reflector end of the toaster. It is important that the switch-locking lever be from 3/64 to 3/32 inch above the top of the casting upon which the thermostat blade is mounted. This is checked after fitting plastic base (16) by inserting gauge T20491-1 in position where thermostat bracket (50) fits. The end of the lever should enter but not pass the step in the gauge. The test should be made with movable handle (15) lowered.
- 3-J. Cut-Out Rod (17). When the cutout rod is in place, check its effect on the switch-locking lever (33) by raising and lowering rack assembly (56). As the rack assembly moves upward, the cutout rod will operate switch-locking lever (33) and open the circuit.

3-K. Check of "Pop-Up" Mechanism. At this stage of assembly check the "pop-up" feature of the toaster. Turn the control knob (24D) to the right (Keeps toast warm) as far as it will go; this action permits torsion spring (29) to move a pawl into engagement with the ejector lever (35) when the toaster rack (56) is lowered. When the toaster rack is raised again to its starting position, the lever remains in engagement with the pawl. When the control knob (24D) is turned to the left (pops toast up) the ejector lever is released by the ejector release pawl (58). The extension spring (21) which has been placed under tension on first lowering the rack assembly (56), operates on the ejector lever (35) through shaft to raise the rack. During the toasting operation, control is effected from the thermostat through the switch locking lever assembly (33), switch arm (36A), and ejector pawl (58) which controls movement of the ejector lever (35). Be sure that the torsion spring (29) fitting about ejector pawl stud (58) applies tension to both the ejector pawl and ejector release pawl.

To check operation of the toaster when the control knob (24D) is in the "popup" position, lay the toaster on its side so as to take the weight off the switch-locking lever (33). Lower the rack assembly (56). The switch arm (36A) should engage the switch-locking lever (33). Lift the end of the switch-locking lever, which makes contact with the thermostat. The rack assembly should move up on the release of the switch arm (36A) and ejector lever (35). The movement is dampened by cushioning cylinder and piston (63) and rack should not slap against top of slots in element frame (1).

3-L. Front, Center and Rear Sections of Body (52, 40, 51). When assembling the body to the toaster, the front and rear covers should be put on first, taking care that the front section with glass signal disc (52A) is located in front of the signal element (57). Use screws (41) in fastening the bodies to the toaster. The stationary handle (39) is attached to the center section by two screws (39A). The center section (40) may now be slipped into place over the top of the toaster, with the projecting arm for the movable handle through the slot in the center body. The movable handle (15) is attached by setscrew (15A) to lever projecting from the side of the toaster.

3-M. Attachment of plastic base (16) and cord (14). The cord is held in position on the base by two cord clamps (54), screws (66) and nuts (67). The plastic base is fastened to the mounting plate with six screws (16A & 16B). Electrical connections are established at terminal studs (30) by hexagon nuts (30D).

3-N. Bottom Cover and Thermostat Assembly (50). The bottom cover and thermostat assembly is fastened to the toaster base with four Gulmite screws (60A). It should be carefully guided into position so that the end of locking lever (33) slips under main thermostat blade (47).

3-N1. Adjustment of Thermostat. The thermostat may be adjusted for correct toasting with the two calibrating weights (Tool No. 2 & No. 3). All thermostat adjustments should be conducted in a room at temperature of 75 to 80 degrees Fahrenheit. The bottom cover and thermostat bracket assembly (50) is placed on a flat table. Be sure that all thermostat parts are at room temperature. Place the rubber bumper of small weight (Tool No. 3 - 1.85 Lbs.) upon the center of thermostat blade (47) directly opposite thermostat stop (43), but be sure that the stop does not interfere. With a finger, depress the thermostat

blade to its down position as the smaller weight will be insufficient to cause the blade to snap down. With Tool No. 4, turn setscrew for auxiliary thermostat adjustment (55) to the right against the lip on thermostat blade (47). Then carefully balance the smaller weight so that it rests in a perpendicular position on the center of blade. Hold weight by means of sliding collar on rod. Continue to tighten setscrew (55) until the thermostat blade (47) acquires just enough tension to force the blade up with the small weight resting in the middle. If the weight should rise without the setscrew (55) touching end of main thermostat blade, replace the main thermostat blade (47). This setting may be accurately determined by sliding the collar sliding down should suffice to keep the blade down, but the weight minus the friction from collar sliding up should allow the thermostat to snap up. A few trials will soon give the operator the proper "feel" for handling weight Tool No. 3.

- 3-N2. After adjusting auxiliary thermostat adjustment screw (55) as explained above, the Tool No. 2 heavier weight (2 lbs) is placed on the rod on top of the smaller weights. Both weights are then placed in the center of main thermostat blade (47) and the tension increased in adjusting spring (48) by turning spanner nut (49A) until the blade just has sufficient tension to support the larger weight when the blade is up in its curved position. Movement of sliding collar up should allow blade to remain up, and movement of collar down should force the blade down. At this point, recheck the auxiliary thermostat adjustment as in paragraph 3-N1 and then check the main thermostat spring again as in this paragraph.
- 3-N3. After adjusting thermostats, make 3 or 4 slices of toast. If dark or light, turn the adjustment nut (49A) for spring (48) in accordance with instructions on the bottom of the casting. If the setscrew (55) has been set correctly as outlined in 3-N1, the auxiliary thermostat should require no further adjustment to produce uniform toast.

REPAIRS

4. First establish where repairs are to be made. Check the performance of the toaster as in Section 1. If any or all of the heating elements fail to light, check the electrical circuit as directed in Section 4A below. For other departures from normal operation, check toaster in accordance with instructions given in Section 4-B to 4-G.
- 4-A. If toasting elements do not heat when handle (15) is pulled down (testing electrical connections): - Place toaster upon its side and open the crumb plate (53). On the front side of toaster, examine the connections at the two terminal studs (30), which are protected by terminal insulators (61). To check cord and plug assembly (14), remove insulators (61), place one tip of tester set on one terminal stud and the other tip on one prong of the attachment plug and then the other (any circuit continuity test lamp may be used to make this test). The test lamp should light for one of the Connections. Repeat for the other terminal stud (30) and if lamp fails to light for either of the terminals, replace cord set (14). The 3 toasting elements, the signal element and the thermostat heater should also be examined and tested for open circuit by placing the tips of the tester set on the terminals

of the elements. In like manner, check the other parts of the electrical circuit, following diagram on Page 1 of this bulletin. Replace burned out elements as in Section 2-0.

- 4-A1. Closing of switch contact points (36B & 2). The switch arm (36A) is held in closed position by locking lever (33). Examine flat spring holding contact points (36B) and make sure there is sufficient tension on points to keep them closed during operation.
- 4-B. If toast is too light or too dark at Medium setting of control knob: When the toaster leaves the factory it is set to give medium toast when using fresh white bread with an average voltage of 115, for operation on 110-120 volts and with the control knob (24) adjusted about at middle between "Light" and "Dark". While this model toaster is very efficient in voltage compensation; that is, a minimum variation of the degree of "brownness" for different voltages at a given setting of the adjustment knob; for large voltage variations, adjustments must be made on the thermostat. Instructions for voltage adjustment are cast on the bottom of the thermostat bracket with arrows pointing in the direction which the spanner nut (49A) should be turned. This should be done without removing the bottom cover and thermostat (50) from the toaster. A Nail or small screwdriver may be inserted in the opening to turn the spanner nut (49A). The nut should not be turned by more than one complete turn, or the color of successive slices will change. A red dot is painted on edge of nut as a guide for turning. The table below indicates the voltage possibilities and. changes that should be made:

Current Voltage

Alterations

115 volts (110-120V)..No changes should be necessary other than a small movement on outside control knob (24).

Below 110 Volts.....Toast will tend to be dark and tension on thermostat blade must be relieved by loosening spanner nut (49A) by not more than one turn in direction of arrow pointing towards inside of toaster and crumb plate.

Above 110 volts.....Toast will tend to be light and tension on thermostat blade must be increased by tightening spanner nut by not more than one turn in direction of arrow pointing towards outside edge of toaster.

If the current voltage at the outlet where toaster is attached differs from the rated toaster voltage (as marked on toaster name plate) so much as to require turning the spanner nut (49A) more than one turn, measure the current voltage on the line with the toaster in operation. Make a record of this voltage and return it with the toaster to the factory for servicing. At the factory, special adjustments for low or high voltage within reasonable limits will be made. If the slices of toast are too dark in spite of above adjustment, examine thermostat blade (47) and adjust as in Section 3-N1 and 3-N2.

- 4-B1. If toaster operates normally when tested in repair shop, but user reports that toast burns or gets too dark even with control turned all the way to "LIGHT", or that toaster does not shut off automatically (see also Section 4-E), test

should be made to determine whether the voltage is low at the electric outlet where toaster is used in the home, with the toaster in operation. House wiring (including any extension cords in use) may be incapable of carrying 1100 watts and maintaining the rated voltage. In such cases, a different electric outlet should be used or correction of the house wiring arranged with electric power company. In some homes if other appliances are used on the same circuit at the same time as the toaster, the electric circuit will be overloaded and a temporary drop in voltage will result. Under these conditions no adjustment on the toaster will be required — user should avoid use of other appliances on same circuit while toaster is in use or should present the problem to his electric power company for solution.

- 4-B2. The upper surface of the main thermostat blade (47) is coated with a special dull black paint to prevent reflection and aid absorption of heat. If this paint is found scaled off, the thermostat action will be delayed and toast will burn. Remove blade (47) as in Section 2-A1 and replace. Reset thermostat as in Sections 3-N1, 3-N2 and 3-N3.
- 4-B3. Occasionally, users misunderstand our instructions on setting control knob (24) and believe that it has only two positions, Light and Dark. Actually an infinite number of settings are available between these extremes. A normal toaster used with normal voltage will scarcely color the bread when turned all the way to Light and will burn it when all the way to Dark. The complete range between Light and Dark is provided to take care of variations in voltage, kind and condition of bread, etc. Instruct users how to find correct setting between these two extremes. Correct position will usually be half way between extremes (arrow on knob straight up) and a very slight movement on the knob will have a noticeable effect on the toast.
- 4-C. If too much time elapses between the two thermostat "clicks" at end of toasting operation: When the toaster is operating normally, the time between thermostat "clicks" is 2 to 3 seconds for a cold toaster and about 10 seconds for a very hot toaster after it has toasted many slices. If more than 10 seconds elapse between clicks the thermostat should be removed as in Section 2-A and examined for crumbs under thermostat blade (47). This is not likely to happen as the thermostat is mounted off to one side of the toasting chamber. Depress thermostat blade by pressing at its center and look through between blade and casting. It should touch only at center. If it touches all along its length, replace blade (47). Examine the auxiliary spring (45) of the thermostat assembly for clearance with the side of the thermostat bracket. Any parts tending to bind or restrict motion of thermostat should be corrected.
- 4-D. If successive slices of toast differ in degree of brownness. When the toaster leaves the factory the thermostatic control is adjusted so that for fresh white bread the successive slices of bread will all be toasted uniformly for a given setting of the control knob (24). There will, however, be a difference between dry and fresh bread and rye, whole wheat or white bread for the same setting on the toaster.
- 4-D1. If successive slices become lighter, the setscrew (55) at the end of auxiliary thermostat (46) is adjusted in too far. Loosen setscrew (55) 1/2 turn, and to compensate for this, tighten up on spanner nut (49A), increasing thermostat spring tension. Examine reflector (3) and see that it is moving in a proper arc on turning the control knob (24). If the inside of the

reflector appears dirty or stained in any way, it may have to be replaced as in Section 2-J.

- 4-D2. If successive slices become darker: The setscrew (55) at the end of the auxiliary thermostat (46) is adjusted to give greater tension by turning it about 1/2 a turn. Remove thermostat as in section 2-A and make sure that the setscrew (55) contacts the lower lip of the main thermostat (47). It is important that the setscrew bear against main thermostat blade and is adjusted as in Section 3-N1.
- 4-D3. Check of operation: The one positive check of operation is to toast 3 or 4 slices of bread in succession, observing changes in color or degree of brownness, if any. Slices of bread of same size, color and. degree of freshness should be used.
- 4-D4. If very slight variations in position of thermostat control knob (24) produce radical changes in toast, look for a bent or damaged reflector (3). If badly bent, replace. A slight bend may be straightened. Opening between bottom edges of reflector should be one-half of an inch.
- 4-E. If toaster does not shut off: The switch locking lever (33) is not operated by the thermostat blade (47) if there is insufficient projection of the lever (33) above base on which thermostat snaps down and hence insufficient travel to operate switch. Remove bottom cover and thermostat assembly as in Section 2-A, and using gauge Tool No. 5, check the height of the switch locking lever (see Section 3-1).
- 4-F. If toast does not "pop-up": When the control knob (24D) is turned to the "pop-up" position, the toast should be lifted up through the top of the toaster automatically at the end of the toasting period. The rack assembly (56) will start rising rapidly and will then slow down and come to a gentle stop. If the toaster fails to "pop-up", lower the crumb plate (53) and examine the ejector spring (21) and its adjustment nut (21A) to make certain that they are operating satisfactorily. Move the handle (15) up and down several times to ascertain whether there is freedom of movement on the shoulder screws (10A) of the parallel bars and rack assembly (56). If friction limits the movement of these parts, eliminate cause of friction and apply the special graphite oil listed on parts list. In no case should the rack assembly (56) rise rapidly and slap against the top of the element frame (1), as the motion is dampened by the cylinder (56A) and piston (63).
- The operation of the automatic "Pop-up" may be checked by lowering the crumb plate and depressing the switch locking lever (33) by hand. The switch arm (36) and ejector lever (35) will be released and the rack moved upwards by the ejector spring (see Section 3-K).
- 4-G. If toaster is noisy in operation: The toaster should be perfectly quiet during operation and at the end of its toasting cycle, a click will be heard as the thermostat blade (47) snaps down on the thermostat bracket. This is normal and should be expected. However, if it is accompanied by a "ringing" noise, remove the two Gulmite screws (60A) holding cover for the thermostat bracket (60) and take off cover. A short piece of asbestos string (62) should be found wrapped around spring (48) to dampen the sound.

Should the rack assembly (56) move up violently after the toasting, so that it strikes the element frame (1), the piston (63) and cushioning cylinder (56) may be broken or badly worn and require replacement.

- 4-H. If toast rack (56) is found bent downward, it should be replaced and should not be repaired or bent back into its original position (it cannot be properly straightened). The rack is stiffened by a U-Shaped depression which on some of the first toasters manufactured was 1/16" deep. Since March, 1940, this part has a U-shaped depression 5/32" deep at one end and tapers to 1/16" at the other. When replacing a bent rack, be sure that a new one with the 5/32" deep tapered depression is used. (it is most unlikely that these latter racks will be found bent). To remove bent rack (56), see Section 2-D, --to fit new rack and reassemble, see Section 3-G.

* * * * *

- 4-J. If switch arm (36A) will not engage in step on switch locking lever (33) when movable handle (15) is depressed, examine all parts for possible binding, especially the sides of slot in switch arm (36A) and the pivoting pin at center of lever (33). Test tension in torsion spring (33A) by depressing lever (33) by hand. If it appears weak, it may be removed and stretched to restore tension, or replaced. Do not try to compensate for incorrect adjustment of parts by increasing tension of spring unduly, or an overload will be put on the thermostat blade. If step near end of lever (33) at point where 36A engages is worn or out of shape, replace lever (33) - see Section 3-1.

If arm (36A) does not move far enough to pass step in 33 when handle is depressed, it may be bent slightly toward the center of Toaster by grasping with long-nose pliers beyond slotted end. Do not attempt to bend slotted part of this arm as it is hardened and may break. Contact points (36B & 2) should touch just as front edge of arm (36A) reaches step and arm should then continue over step in lever (33) until step is cleared. Clearance between slot and step at moment of extreme movement of arm should be about 1/32". If more than this, bend arm (36A) as explained above, but in opposite directions, for if arm (36A) moves too far over step in lever (33), it returns so rapidly that it may over-ride edge of step. Position of switch points may be adjusted by bending slightly with the fingertips springs on which they are mounted (see Section 4-A1.) If there is too much tension on switch point mounting springs, they may force arm (36A) back over step.

* * * * *

THE SPECIAL & STANDARD TOOLS REFERRED TO IN THIS BULLETIN ARE:

- No. 1 T20963 Wrench for Gulmite Screws (212)
- No. 2 T21293-2 Adjusting weight 2 pounds for main Thermostat adjustment
- No. 3 T21293-1 Adjusting weight 1.8 pounds for auxiliary Thermostat adjustment
- No. 4 Wrench Allen Head size 5/64"
- No. 5 T20491-1 Gauge for switch locking lever

SUNBEAM CORPORATION
5600 West Roosevelt Road
Chicago, Illinois - U.S.A.

SUNBEAM APPLIANCE PARTS LIST

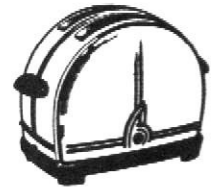
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Date of Manufacture
July, 1939

November 14, 1950

SUNBEAM TOASTER

Model T9



CAUTION: Order only by PART NUMBER in second column below. That will help us supply the correct part and give you quick, accurate service on your orders.

Key No.	Part No.	Description of Part	Price
1	*C94AP	Element Frame Complete	1.95
1A	43AQ	Bus-Bar	.10
1B	44AQ	Bus-Bar	.10
2	----	Contact Points (not furnished separately)	---
3	C95AP	Reflector Assembly for Thermostat Heater	.35
4	36AQ	Reflector Pin	.04
5	----	*Thermostat Heater Element, 110-130 volts	
		Grade 3 C96AP-3	.50
		Grade 4 C96AP-4	.50
		NOTE: Toasters were made with elements graded 1 thru 5. Only grades 3 & 4 are available for replacement. Use grade 3 for elements graded 1 thru 3, and grade 4 for elements graded 4 and 5.	
5A	34AQ	Mica Washer (2 Used)	.04 ea.
5B	35AQ	Mica Washer (4 Used)	.04 ea.
6	----	*Front Toasting Element Complete with Signal Element, 110-130 volts	
		See note Key No. 5	
		Grade 3 C97AP-3	2.05
		Grade 4 C97AP-4	2.05
7	----	*Center Toasting Element Assembly, 110-130 volts	
		See Note Key No. 5	
		Grade 3 C98AP-3	2.55
		Grade 4 C98AP-4	2.55

* See schedule of parts for other voltage Toasters shown at end of list.

All prices subject to change without notice

SUNBEAM APPLIANCE PARTS LIST

Key No.	Part No.	Description of Part	Price
8	----	*Rear Toasting Element Assembly 110-130 volts See Note Key No. 5 Grade 3 C99AP-3 1.95 Grade 4 C99AP-4 1.95	
9	C1AQ	Upper Shaft Assembly with Switch Roller Bracket and Ejector lever 1.70	
10	C2AQ	Lower Shaft and Switch Assembled 1.70	
10A	18AQ	Shoulder Screw for Rack Assembly (4 Used) 10 ea.	
10B	26AT	Lock Washer for Shoulder Screw (4 Used) 04 ea.	
10C	50T	Pawl Spring 10	
11	C4AQ	Bottom Mounting Plate Assembly 95	
12	*C6AQ	Bottom Cover and Thermostat Bracket 110-120 volts 1.70	
13	C7AQ	Heat Adjustment Cam 20	
14	C45BY	Cord Set 1.45	
14A	G23Q	Wall Plug 20	
15	10AQ	Movable Handle 45	
15A	61AQ	Set Screw for Movable Handle 10	
16	11AQ-1	Molded Plastic Base 1.60	
16A	12AQ	Base Fastening Stud (4 Used) 20 ea.	
16B	P1466	Base Fastening Screw (2 Used) 04 ea.	
17	13AQ	Cut Out Rod 10	
18	14AQ	Top for Element Frame 50	
		NOTE: If lugs should be broken in removing this part, it may be reassembled by using P9381 Screws and P9560 Nuts. See Key Nos. 39A and 67.	
19	15AQ	Guide Wire, long (Length 7 1/8") (8 Used) 20 ea.	
20	16AQ	Guide Wire, short (Length 5 3/4") (8 Used) 20 ea.	
21	17AQ	Extension Spring for Ejector 35	
21A	28T-1	Adjustment Nut 10	
22	19AQ	Ejector Cam 10	
23	21AQ	Switch Spring 20	
24	C22AQ	Thermostat Control Knob 35	
24A	P9560	Hexagon Nut for Control Knobs (2 Used) 04 ea.	
24B	98V	Lock Washer for Control Knobs (2 Used) 04 ea.	
24C	20AQ	Spring Washer for Control Knobs (2 Used) 04 ea.	
24D	C22AQ	Ejector Control Knob 35	
25	24AQ	Bus-Bar, 110 volts 20	
26	25AQ	Bus-Bar, 110 volts 10	

* See schedule of parts for other voltage Toasters shown at end of list.

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SUNBEAM APPLIANCE PARTS LIST

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Key No.	Part No.	Description of Part	Price
27	26AQ	Bus-Bar, all voltages (Connects rear and center element)	.10
28	*27AQ	Bus-Bar, 110 volts	.10
28A	56AV	Attachment Screw (4 Used)	.04 ea.
29	28AQ	Torsion Spring	.10
30	30AQ	Terminal Stud (2 Used)	.20 ea.
30A	31AQ	Mica Washer for Terminal Studs (4 Used)	.04 ea.
30B	32AQ	Mica Washer for Terminal Studs (2 Used)	.04 ea.
30C	26AR	Mica Insulator for Terminal Studs	.10
30D	P9560	Hexagon Nut for Terminal Studs (4 Used)	.04 ea.
30E	98P	Brass Terminal Washer (2 Used)	.04 ea.
32	45AQ	Adjusting Screw for Extension Spring	.10
33	C54AQ	Switch Locking Lever Assembly	.45
33A	38AQ	Torsion Spring for Locking Lever	.10
34	----	Switch Roller Bracket Assembly (not furnished separately - See Key No. 9)	---
35	----	Ejector Lever Assembly (not furnished separately - See Key No. 9)	---
36	----	Switch Assembly (not furnished separately - See Key No. 10)	---
36A	----	Switch Arm (not furnished separately - See Key No. 10)	---
36B	----	Contact Point Assembly (not furnished separately - See Key No. 10)	---
37	86AQ	Shoulder Stud (4 Used)	.10 ea.
38	----	Cut Out Lever (not furnished separately - See Key No. 11)	---
39	97AQ	Stationary Handle	.50
39A	P9381	Screw for Stationary Handle (2 Used)	.04 ea.
40	98AQ	Body, Center Section	4.45
41	2AR	Body Mounting Screw (8 Used)	.10 ea.
42	C4AR	Knob for Bottom Cover	.20
42A	3AR	Bottom Cover Spring	.10
43	6AR	Thermostat Stop	.10
43A	21V	Gulmite Screw for Thermostat Stop	.04
44	7AR	Shoulder Screw for Auxiliary Thermostat	.10
44A	P26	Hexagon Nut for Shoulder Screw	.03
45	8AR	Auxiliary Spring	.20
46	9AR	Auxiliary Thermostat Blade	.65
47	10AR	Main Thermostat Blade	1.10
48	11AR	Adjusting Spring for Thermostat	.20
49	12AR	Screw for Adjusting Thermostat Spring	.10
49A	28T-1	Spanner Nut for Adjusting Screw	.10

* See schedule of parts for other voltage Toasters shown at end of list.

All prices subject to change without notice

SUNBEAM APPLIANCE PARTS LIST

<u>Key No.</u>	<u>Part No.</u>	<u>Description of Part</u>	<u>Price</u>
51	19AR	Body, Rear Section	2.85
52	C20AR	Body, Front Section with Signal Disc	3.45
52A	79S	Glass Signal Disc	.20
54	25AR	Cord Clamp (2 Used)	.10 ea.
55	30AR	Allen Set Screw	.20
56	C34AR	Rack Assembly Complete with Cushioning Cylinder	1.95
56A	----	Cushioning Cylinder (not furnished separately - See Key No. 56)	---
56B	----	Upper Parallel Bar Assembly (not furnished separately - See Key No. 56)	---
57	*35AR	Signal Element, 110-220 volts	.20
58	----	Pawl Assembly (not furnished separately - See Key No. 1	---
59	99AS	Element Insulator, upper (2 Used)	.10 ea.
60	1AT	Cover for Thermostat Bracket	.10
60A	21V	Gulmite Screw (4 Used)	.04 ea.
61	92AU	Molded Terminal Insulator (2 Used)	.20 ea.
62	3AV	Asbestos Damper for Thermostat Spring	.04
63	G4AV	Piston Assembly for Cushioning Cylinder	.65
64	5AV	Shield for Auxiliary Thermostat	.20
65	14V	Element Insulator, lower (4 Used)	.10 ea.
66	P1466	Cord Clamp Screw (2 Used)	.04 ea.
67	P9560	Hexagon Nut for Cord Clamp Screw (2 Used)	.04 ea.
68	90P	Split Washer for Piston	.04
69	P1724	Signal Element Screw (2 Used)	.03 ea.
70	P9342	Lock Washer for Signal Element Screw (2 Used)...	.04 ea.
71	P9560	Nut for Signal Element Screw (2 Used)	.04 ea.
72	P9381	Element Connection Screw (4 Used)	.04 ea.
73	P9381	Thermostat Heater Element Connection Screw (2 Used)	.04 ea.
	78BA	Special Graphite Oil, 4 oz. can (not illustrated) ...	.65

*See schedule of parts for other voltage Toasters shown below.

PARTS FOR OTHER VOLTAGE TOASTERS

1	C80AT	Element Frame Complete, 220 volts and 230-250 volts	1.95
5	----	Thermostat Heater Element	
		<u>220 Volts</u> <u>230-250 Volts</u>	
		Grade 3 C83AT-3 Grade 3 C89AV-3	1.25
		Grade 4 C83AT-4 Grade 4 C89AV-4	1.25
		<u>NOTE:</u> See Note Key No. 5 Page F-7	

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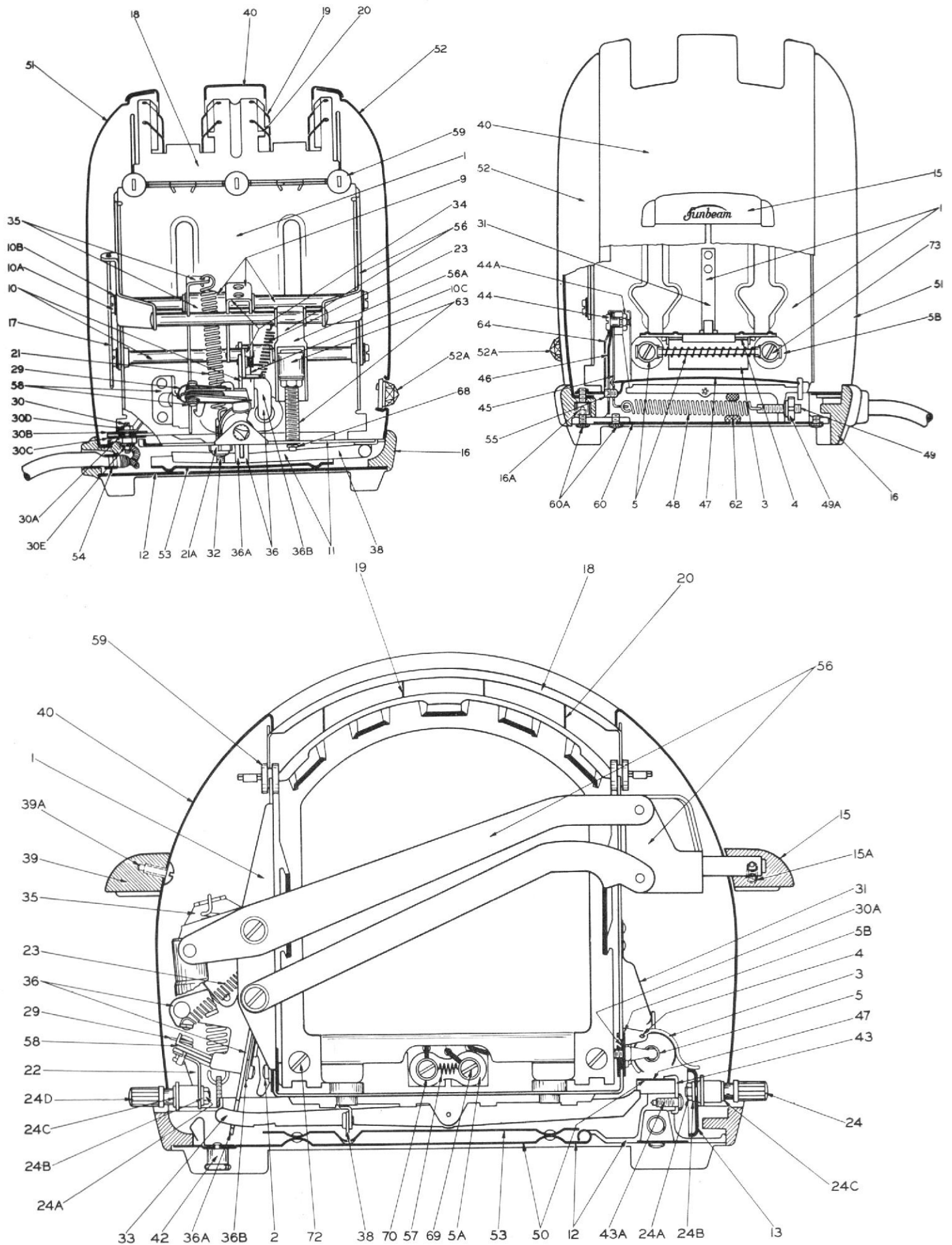
SUNBEAM APPLIANCE PARTS LIST

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<u>Key No.</u>	<u>Part No.</u>	<u>Description of Part</u>	<u>Price</u>
6	----	Front Toasting Element Complete with Signal Element <u>220 Volts</u> <u>230-250 Volts</u> Grade 3 C87AT-3 Grade 3 C91AV-3 2.35 Grade 4 C87AT-4 Grade 4 C91AV-4 2.35 <u>NOTE:</u> See Note Key No. 5 Page F-7	
7	----	Center Toasting Element Assembly <u>220 Volts</u> <u>230-250 Volts</u> Grade 3 C89AT-3 Grade 3 C93AV-3 2.85 Grade 4 C89AT-4 Grade 4 C93AV-4 2.85 <u>NOTE:</u> See Note Key No. 5 Page F-7	
8	----	Rear Toasting Element Assembly <u>220 Volts</u> <u>230-250 Volts</u> Grade 3 C90AT-3 Grade 3 C94AV-3 2.20 Grade 4 C90AT-4 Grade 4 C94AV-4 2.20 <u>NOTE:</u> See Note Key No. 5 Page F-7	
12	C43AT	Bottom Cover and Thermostat Bracket, 220 Volts 1.70	
12	C96AV	Bottom Cover and Thermostat Bracket, 230-250 Volts 1.70	
28	81AT	Bus-Bar (not illustrated) for 220 and 230-250 Volts 10	
	77AT	Bus-Bar (not illustrated) for 220 and 230-250 Volts 10	
	79AT	Bus-Bar (not illustrated) for 220 and 230-250 Volts 10	
	78AT	Bus-Bar (not illustrated) for 220 and 230-250 Volts 10	
57	C92AV	Signal Element, 230-250 Volts 20	

All prices subject to change without notice

CAUTION: Numbers shown are
Diagram Numbers only. Order
Parts by PART NUMBER shown
on Parts List.



PARTS DIAGRAM
Sunbeam Toaster
Model T9

