



## **Service Instructions SSR10 Control**

IV. Trouble Shooting

A. Malfunctions in Automatic operation only:

<u>Malfunction</u>	<u>Possible Cause</u>	<u>Remedy</u>
1. Controller fails to start automatically but operates semi-automatically.	(a) Clock or Calendar Micro Switch (S4/S5) is out of <u>adjustment.</u>	Adjust Switch closer to Clock or Calendar Pins.
	(b) Clock or Calendar Micro Switch (S4/S5) is defective.	Replace defective Switch
	(c) Clock Motor (M1) is defective.	Replace Motor
2. Controller starts automatically but will not advance from stations.	(a) Power Micro Switch (S7) <u>is out of adjustment.</u>	Adjust Switch closer to Selector Cam
	(b) Component on Circuit Board is defective.	Return Circuit Board for exchange
	(c) Power Micro Switch (S7) is defective.	Replace Switch
3. Controller starts automatically but cycles past all stations, even though some stations have watering time set on them, and returns to off ('O') position.	(a) SCR (CR3) on Circuit Board is defective.	Replace SCR or return Circuit Board for exchange.
4. Controller fails to stop at stations with watering time set on them and indexes past off ('O') position. Continuously cycling.	(a) SCR (CR3) on Circuit Board is defective.	Replace SCR or return Circuit Board for exchange.
5. Controller completes its watering program, indexes past off ('O') position and immediately starts another watering cycle.	(a) Transfer Micro Switch (S6) is out of <u>adjustment.</u>	Adjust Switch slightly closer to Selector Cam.
	(b) Transfer Micro Switch (S6) is defective.	Replace Switch

<u>Malfunction</u>	<u>Possible Cause</u>	<u>Remedy</u>
6. Clock loses time and system comes on hours later than programmed.	(a) Clock Motor (M1) is defective.	Replace Motor
7. One or more stations time erratically while others time properly.	(a) Dirt or foreign matter on contacts of Station Timing Switch (S10-1/S10-10), Selector Time Wafer (S11A) or Selector Valve Wafer (S11B).	Clean contacts with quality non-conducting cleaner, (Similar to G. C. Electronics #8666-16 Spra Kleen).
	(b) Cold solder joint on Circuit Board.	Return Circuit Board for exchange.
8. Timing erratic on all stations and all time settings.	(a) Component on Circuit Board is defective.	Return Circuit Board for exchange.
9. Timing erratic on all long or all short time settings.	(a) Component on Circuit Board is defective.	Return Circuit Board for exchange.
10. Valves on Dual Program (optional) do not omit as programmed.	(a) Dual Program Calendar Pins are not set properly.	Check Operation Instructions and reset Pins.
	(b) Dual Program Calendar Micro Switch (S5A) is out of adjustment.	Adjust Switch slightly closer to Calendar Pin.
	(c) Dual Program Lead (Brown wire from TB2 to Mode Switch) is not connected or is broken.	Repair or replace Lead.
	(d) Dual Program Calendar Micro Switch (S5A) is defective.	Replace Switch
	(e) Dual Program Relay (K2) is defective.	Replace Relay
11. Valves on Dual Program (optional) omit when not programmed.	(a) Dual Program Calendar Pins are not set properly.	Check Operation Instructions and reset Pins.
	(b) Dual Program Calendar Micro Switch (S5A) is defective.	Replace Switch
	(c) Dual Program Relay (K2) is defective.	Replace Relay

B. Malfunctions in both Automatic and Manual operations:

<u>Malfunction</u>	<u>Possible Cause</u>	<u>Remedy</u>
1. Controller fails to stop at stations with watering time set on them and indexes past off ('O') position. Continuous cycling.	(a) Cycle Micro Switch (S8) is out of adjustment.	Adjust Switch slightly away from Selector Cam.
	(b) Cycle Micro Switch (S8) is defective.	Replace Switch
2. All stations fail to operate on one particular time setting.	(a) Land (metal strip) on Station P. C. Board for that particular time setting is broken.	Replace Station P. C. Board
	(b) Timing Resistor (R1 thru R10) is defective.	Replace Resistor with one of equal rating
	(c) Cold solder joint at Timing Resistor (R1 thru R10).	Check and repair
3. Control operates properly but valves do not open.	(a) Valve Solenoid is defective and opening Circuit Breaker (CBI).	Replace Solenoid and reset Circuit Breaker
	(b) Rain Stat (optional) is actuated and has valve circuit shut off.	Check by omitting Rain Stat with Rain Stat Switch
	(c) Circuit Breaker (CBI) is defective.	Replace Circuit Breaker
	(d) Rain Stat Switch (S2) is defective.	Replace Switch
	(e) Rain Stat Micro Switch (optional) is defective.	Replace Switch
	(f) Valve circuit common wire is misconnected or broken.	Trace and repair defect
	(g) Selector Valve Wafer (S11B) is defective.	Replace Wafer
	(h) Transformer (T1) is defective.	Replace Transformer
4. Valves open and close erratically.	(a) Dirt or foreign matter on contacts of Selector Valve Wafer (S11B).	Clean contacts with quality non-conducting cleaner, (similar to G. C. Electronics #8666-16 Spra Kleen).
	(b) Malfunction is in the valve circuit.	See Valve Service Manual

<u>Malfunction</u>	<u>Possible Cause</u>	<u>Remedy</u>
5. Pump (optional) does not operate.	(a) Power supply to pumps is shut off.	Check power supply
	(b) Pump Circuit Relay (K3) is defective. (Remove pump leads at P1/P2 and check continuity P1/P2).	Replace Relay
	(c) See 3 a, b, c, d, e, g and h.	
6. Pump (optional) will not shut off when Rain Stat (optional) is engaged and has valve circuit shut off.	(a) Pump Circuit Relay (K3) is defective. See 5 b.	Replace Relay

C. Malfunctions in Manual operation only:

<u>Malfunction</u>	<u>Possible Cause</u>	<u>Remedy</u>
1. Controller will not index in manual position.	(a) Defective Index Switch (S3).	Replace Switch

D. Malfunctions in all modes of operation:

1. Controller will not index in Automatic, Manual or Dry Index positions.	(a) No power to the Controller.	Check power supply at L1/L2
	(b) Power Switch (S1) is in 'off' position.	Check position of Switch
	(c) Defective Power Switch (S1).	Replace Switch
	(d) Defective Index Switch (S9).	Replace Switch
	(e) Selector Motor (M2) is defective.	Replace Motor

E. Service Notes:

1. Always turn the power to the Controller off with the Power Switch before attempting to service the unit.
2. Should the automatic phase be malfunctioning, after the installation is completed, check to make certain the three plug-in transistors are properly seated in their respective sockets on the Circuit Board. The three transistors are Q1, Q2 and CR3. If they have fallen out of the socket while in transit, please note the pattern of the transistor's legs and socket so that it will be reinstalled properly.

3. The Circuit Board functions with the Automatic phase only. Should the Circuit Board require servicing, it can be removed and the Controller can still be operated in the manual phase.
4. When a malfunction has been located, a check should be made on the wiring and solder joints for bad connections before replacing the part.
5. The Q1 and Q2 Transistors should not be changed in the field. Such a change could interrupt the timing accuracy of the Controller. When these parts require changing we recommend exchanging the complete Circuit Board.
6. The R18 should not be adjusted in the field. This will affect the timing accuracy on all stations.
7. When a micro switch is thought to be out of adjustment, the analysis can be confirmed by engaging the micro switch with a pencil (or similar object) to determine if it corrects the malfunction.
8. The Dual Program Relay (K2) (optional) has one extra set of contacts and the Pump Circuit Relay (K3) (optional) has two extra sets. Should the contacts in service ever become damaged the wires can be jumped to a spare set to save immediately replacing the relay.

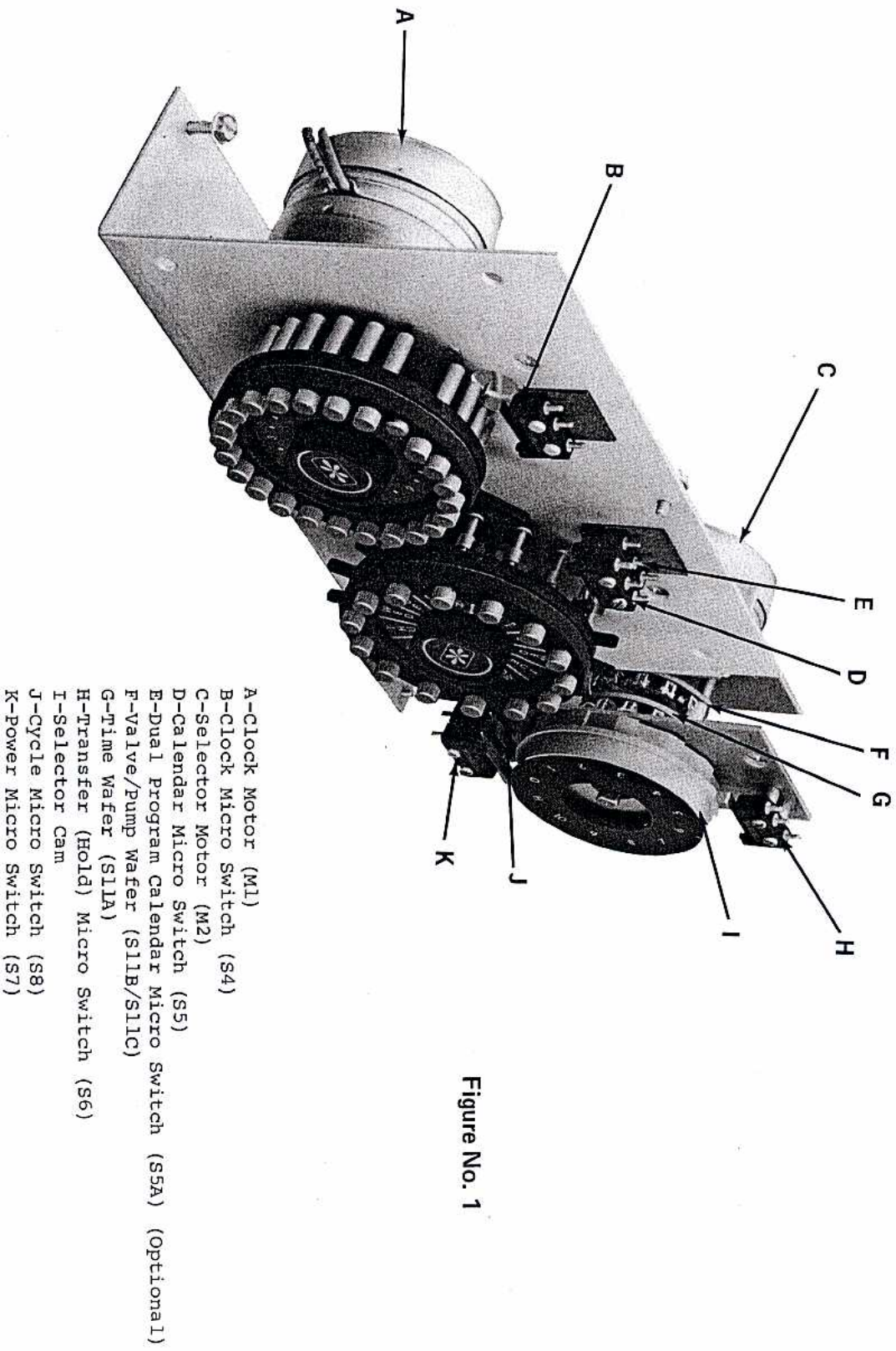


Figure No. 1

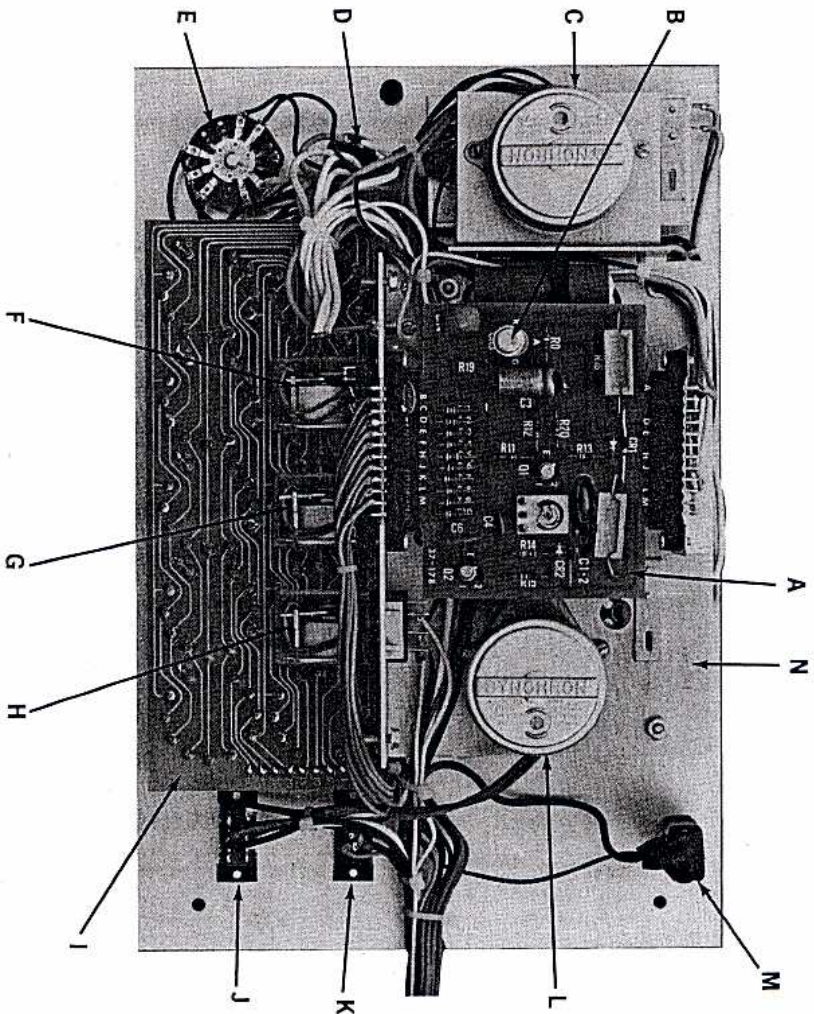


Figure No. 2

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|--------------------------|----------------------------------------------------|-------------------------------|
| A-Circuit Board Assembly | F-Cycle Relay (K1)                                 | K-Rain Stat Switch (S2)       |
| B-SCR (CR3)              | G-Dual Program Relay (K2) (Optional)               | L-Clock Motor (M1)            |
| C-Selector Motor (M2)    | H-Pump Circuit Relay (K3) (Optional)               | M-Circuit Breaker (CB1)       |
| D-Index Switch (S3)      | I-Station P.C. Board Assembly (S10-1 thru (S10-10) | N-Serial Number of Controller |
| E-Mode Switch (S9)       | J-Power Switch (S1)                                |                               |