CONAIR
www.conairnet.com

USERGUIDE

Form 527 4/83

Selectronic 2 Systems

Information included at end of manual for:

Vacuum Pellet Loader
Autocolor Loader
Gemini Powder Loader
Vacuum Pump

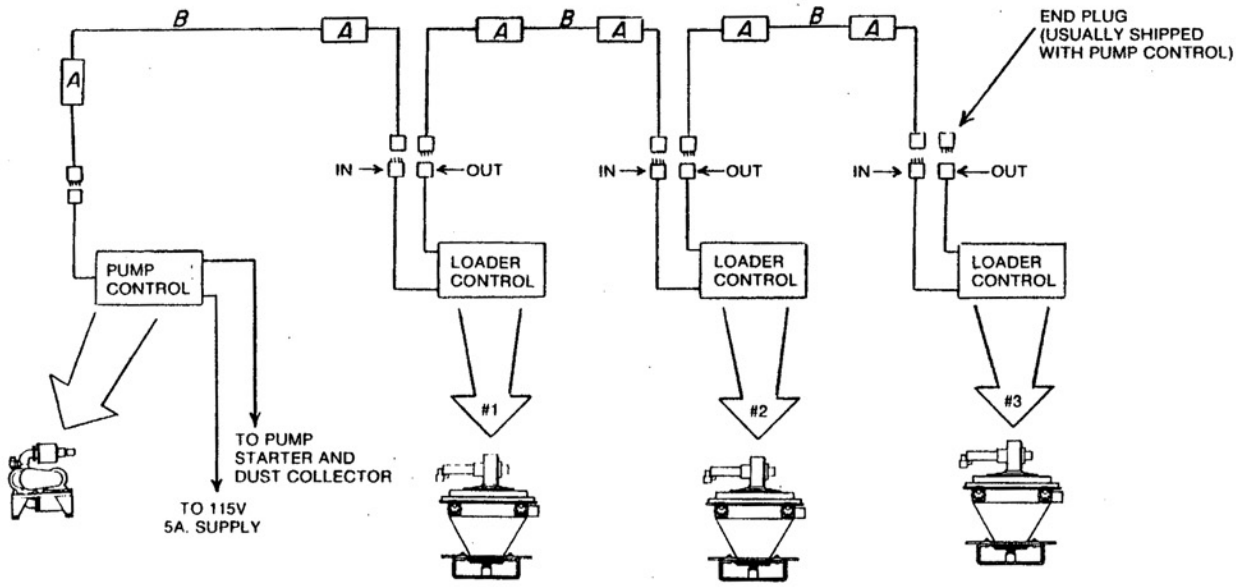
⚠ **WARNING - Reliance on this Manual Could Result in Severe Bodily Injury or Death!**

This manual is out-of-date and is provided only for its technical information, data and capacities. Portions of this manual detailing procedures or precautions in the operation, inspection, maintenance and repair of the product forming the subject matter of this manual may be inadequate, inaccurate, and/or incomplete and cannot be used, followed, or relied upon. Contact Conair at info@conairgroup.com or 1-800-654-6661 for more current information, warnings, and materials about more recent product manuals containing warnings, information, precautions, and procedures that may be more adequate than those contained in this out-of-date manual.

"SELECTRONIC 2" CONTROL INSTRUCTIONS

GENERAL SYSTEM DESCRIPTIONS -INTRODUCTION

The "Selectronic 2" Conveying System has one pump which provides vacuum conveying power to a number of loading stations in the system. Each loader in the system has an individual control box to provide the proper loading cycle and to sense when material is needed at the station. These individual control boxes are wired together in a "series" configuration to allow loading of one unit at a time -- in sequence. The pump control enclosure is the first in the series and directs power to the individual station control enclosure. (See Figure 1.) Please refer to the manual for the particular type(s) of loader in your system.



A JUNCTION BOX (TO BE PROVIDED BY CUSTOMER) CONAIR #108-820 OR EQUIV.

B 18 GA. 7 COND. WIRE (TO BE PROVIDED BY CUSTOMER) CONAIR #108-340-02 OR EQUIV. INSTALLED ALONG VACUUM LINE, OR PULLED THROUGH CONDUIT PER LOCAL ELECTRICAL CODES.

Figure 1

A Selectronic 2 System can include several different types of loaders (single tube loader, ratio loader, Autocolor, powder loader, etc.). The loader controls are installed using plug and socket assemblies for connecting the controls to the control cable. Loaders may be interchanged or removed from the system with no modifications to the wiring. Also, stations may be added to the system with no system modifications (the maximum number of units on one vacuum pump is determined by conveying rate requirements).

GENERAL CONTROL DESCRIPTION

The system is composed of the following control components:

--Power/Unload Control (located at vacuum pump)
--Single Tube Pellet Loader Control for paddle switch operation
--Single Tube Pellet Loader Control for low-voltage cone switch operation
--Ratio Pellet Loader Control for paddle switch operation (early style with line valve)
--Unit Control Adaptor for use with electro-mechanical Autocolor control
--Twin-Cyclone Gemini Loader Control
--Optional Remote Control Terminal Boxes
--Connector Sets

These components are electrically shown in the wiring diagram at the end of this manual (Drawing #108-817). It should be noted that all possible components of a Conair Selectronic 2 System are shown on this wiring diagram. These different controls are shown tied together in the Selectronic Series-wired string utilizing the seven conductor cable sets that come with each component. In reading this diagram, simply pick out the components that your particular system employs, which will be the 108-812 unload enclosure and any other control(s) or combinations and consider them as connected together with the cable sets. The connection color coding is identical for each component, regardless of position in system. Simply disregard components on this diagram that your system does not employ.

Power/Unload Control #108-812

The Power/Unload Control Enclosure performs several functions: 115 volt power for the system enters and passes through this enclosure, circuit board protection is provided by feeding all other controls through a 1 amp fuse. The pump starter circuit and the "conic valve" discharge circuit, (if included at any station) are protected by a separate 5 amp fuse.

The control includes a timer which determines the unload time, a master switch, a relay which automatically starts a new load sequence after the unload cycle has taken place, and a relay which controls the pump starter. The Power/Unload Control is usually mounted at the vacuum pump.

Single-Tube Loader Control for Pellet Loaders #108-814 (early style; with paddle switch)

This unit provides the load time adjustment for the loader, station stand-by/operate, "loading" indication, conic valve activating signal and/or common material line valve signal when required. This enclosure is normally mounted on the loader flange but may be remotely mounted.

Ratio Loader Control for Pellet Loaders #108-813 (early style; with line valve and paddle switch)

This unit provides timing adjustments for "virgin load" and "regrind load" functions, "loading" indication, station stand-by/operate switch, and signal to actuate a conic discharge valve and/or common material line valve as required. This enclosure is normally mounted on the loader flange, but may be remotely mounted.

Single-Tube Loader Control for Pellet Loaders #108-907-01 (with low-voltage cone switch)

This unit performs the same functions as the early style unit. Provisions have been added to accommodate the low-voltage, in-cone level switch. Ratio loading is possible through an add-on control box described in the ratio valve instructions.

Gemini Powder Loader Control #108-868

This unit provides a pre-set load timer that allows the loading function to operate for a given period, and automatically pass the Selectronic signal to the next loading station when the pre-set load time is not satisfied by the material level in the loading hopper. This control also has a built-in secondary load timer for a two-material load system (virgin load time adjustment). Unload time is set at the power/unload control.

Unit Control Adaptor #108-815

Adapts specialized loading units, such as the Autocolor, to operate within a "Selectronic 2" System.

Remote Terminal Enclosure (optional)

The single-tube and ratio loader controls may be moved off the loader and mounted at another location for ease of setting controls, or removing the control box from high temperature areas. When remote mounting is specified for the station controls, a Remote Terminal Enclosure is mounted on the loader to complete the control connection.

Connector Sets

These devices interconnect the individual controls in the system with either 7-conductor cable or separate wires in conduit. The last control in the series string uses an "end-line plug" which completes the circuit. Connections are done with any acceptable means on a color-to-color basis. (See electrical system installation).

ELECTRICAL SYSTEM INSTALLATION

The Selectronic 2 System includes a central vacuum source coupled to a number of loaders. The entire system is controlled by the control unit at each loader, and at the pump. As shown in Figure 1, each loader control is connected to the series wiring using the connector sets.

Correct mounting of loading hoppers, Autocolor, powder loader hoppers, etc. is described in the individual unit instructions included with these Control Instructions. The unit instructions also include maintenance guides and descriptions of individual unit operations. Each unit within a Selectronic 2 System can be considered an independent loading station, sharing only the vacuum power and initial electrical signal that starts unit operation.

As shown in Figure 1, junction boxes and customer supplied cable connect loading stations in the system to each other with 7-conductor cable or with seven wires pulled in a conduit. Control wires are #18 minimum. Wiring must be per all electrical codes and ordinances that apply at the installation location. The first station in the string (Loader 1 in Figure 1) is connected to the power/unload box at the vacuum pump using male/female connector sets. An end plug is connected to the last loader control.

Power to the system is connected at the vacuum pump. Two types of power are needed. The control power fed to the power/unload box is 110 volt, 60 HZ, single-phase (hot, neutral and ground). Be sure the polarity of the control power source is correct (the "hot" leg must pass through the fuse). The pump voltage and current determine the wire size for the pump motor power 3-phase (plus ground) connection.

After wiring installation is completed, the loader control units are connected to the system by plugging the connectors on the unit into their mating connectors on the system wiring.

TUBING INSTALLATION

Vacuum Tubing Installation

Typical Selectronic installations utilize overhead supports to run vacuum lines from the vacuum pump to the loaders in the system. Flex hose is recommended for the connection to the vacuum pump to permit the removal of the pump protection filter housing for maintenance. When a central Dust Collector is used, flex hose should also be utilized for lines in and out of it to facilitate maintenance of the internal filter. (See separate Dust Collector instructions) "Mitered Tees" are used at the individual loading stations to tap off of the main vacuum header to each popper valve. Flex hose, as well as the configuration shown in Figure 2 are recommended for these individual connections.

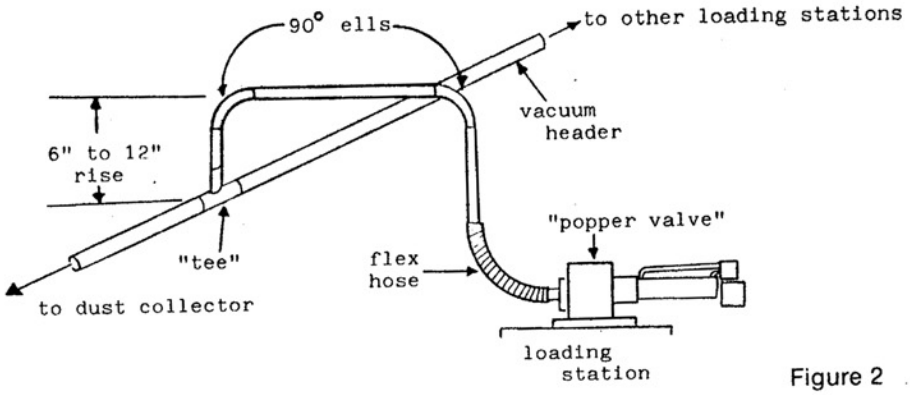


Figure 2

This configuration will prevent the return of dust to the loaders once the dust is in the vacuum header. The connection of flex hose from the solid vacuum tubing will facilitate maintenance on the loader, by allowing the popper valve and lid to be swung out of the way, or easily removed.

Material Line Installation

Simple beside-the-press loading is set up by connecting the included flex hose and feed tube to the material inlet of the loader and placing the feed tube in a material container. Smooth material flow is controlled by opening up or closing off the air holes at the top of the feed tube with the flex hose. Refer to the specific loader instructions for more details on actual loader set-up and conveying tips.

For more elaborate common material line set ups that draw material from central storage facilities to a number of machines using the same material; the following guidelines should be followed for the connection of the individual loading stations to this common material line header.

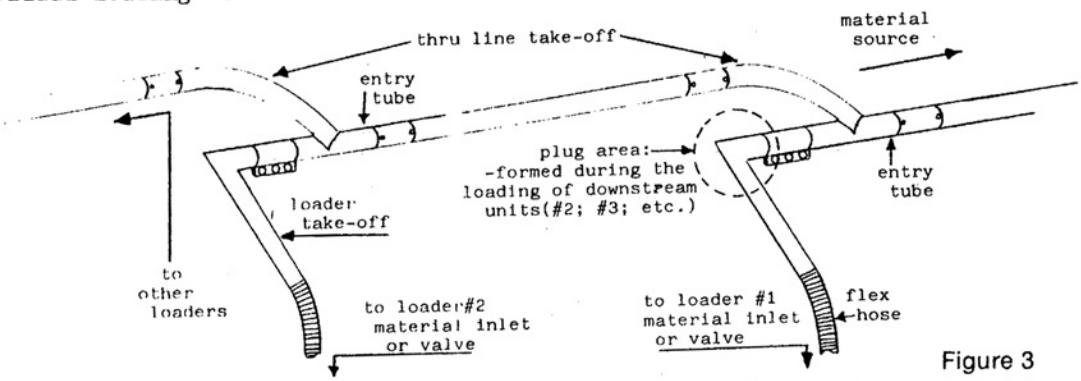


Figure 3

Proper operation depends on the forming of a small plug in the material lines as shown in Figure 3. The distance from the "Y" to the plug area should be kept as short as possible to prevent an immovable plug from forming. The thru-line take off should be installed above the level of the entry tube, or at the same level. The loader take off line should be installed horizontally, or tilted upward to prevent the entire material line, from the header to the loader, from filling and creating a large plug. This configuration will work best if the loader closest to the material source is the first to load; the second closest next, and so on.

START UP, MOTOR ROTATION, STATION OPERATION CHECK

A. The vacuum pump is shipped with oil but should be checked prior to running (spare can is provided). Also, check to see if vacuum hopper filters and pump protection filter are in place. With 3-phase pump power off and at least one loading station turned on and calling for material, turn on the power switch at the power/unload box. The "power on" light should come on, and the pump starter should be observed to pull in.

Disconnect the vacuum line at the pump and temporarily close the 3-phase switch to start the pump and check the rotation. If air flow is observed to be out of the vacuum connection, direction is backwards. Change any two legs of 3-phase. Restart pump. Air flow should now be into filter. Reconnect vacuum line. Unit is ready to run.

B. First test all single-tube loaders in the system. Turn on the power/unload control and set the unload timer to "5". Turn on the switch on the first single-tube loader and be sure it is "calling" for material. (No material in receiving hopper) Set the timer to "max". The popper valve should open and the pump should start running. All other vacuum valves in the system should be closed. After 60-90 seconds, the valve should close on this loader. The unload timer in the power/unload enclosure should time out in about 30 seconds and restart the loader. Repeat this check at all single-tube loaders, adjusting timers to conform with the time intervals described.

C. Next check the ratio loader stations, if any. This procedure is the same as the single-tube units except that the Selectronic Control will send a signal to the Ratio Control Enclosure to cycle the mixing valve. (See spearate instruction).

D. Next, check those stations using the unit control adaptors and a unit control (such as an Autocolor). These units are also checked to be sure the pump turns on when the unit calls for material and the vacuum valve on the unit functions. Refer to the individual instructions of the units for proper functioning.

E. Lastly, refer to the Gemini powder loading instructions and check the function of these units regarding pump and popper valve operation.

F. After these checks are made, turn on all units. Set all timers at 2-1/2 on single-tube and ratio units. Let all units step through the sequence (1-2-3-etc. to last unit-pause-1-2-etc.). Check to be sure pump shuts down during the unload sequence. On units with pneumatically operated conic discharge valves, (like the Gemini System) the valves should open during the unload sequence.

When these checks are complete, provide material to each unit and test load each station to check the level sensing switches. This completes the start-up phase.

CONTROL SYSTEM OPERATION

Station Controls - The type of control and loader at each station will vary, depending on the loading requirements. If the unit control adaptor is used, the station operation procedure will be determined by the unit control used.

If the station is a single-tube loader, the amount of "vacuum on" time needed is set on the "LOAD TIME" dial and is determined by trial and error. The markings on the dial are for reference only -- the total maximum time for these units is about 75 seconds. When the unit is loading, the "LOAD" light will be on. If the switch is set to "STAND BY" or does not need material, it will skip its turn to load.

The Gemini operation is basically the same, except a level switch in the loader hopper determines load time. If this switch is not satisfied, the override timer passes the signal to the next station and lights the alarm light. The alarm is automatically reset each unload cycle.

Pump Control - The power/unload enclosure timer controls unload time for all units in the system. The "POWER" switch provides control power to all loader control boxes. Pilot lamps for "power on" and "pump run" are included.

The pump will run when any loader control calls for material. During the unload sequence, the pump will shut down.

The unload timer must be set to provide enough time to unload the slowest-dumping loader in the system.

TROUBLESHOOTING - QUICK REFERENCE CHART
FOR "SELECTRONIC 2" SYSTEMS

SYMPTOM	PROBABLE CAUSE	REMEDY
No action when power switch turned on.	No power to unit.	Turn on power.
	Pilot light burned out or bad connection to light.	Check bulb, lampholder, wiring to light and connections.
	Open foil on P.C. Board	Check 1 amp fuse; check foil on P.C. Board; be sure hot leg of 115V supply passes through the fuse.
"Power On" light on Power-unload box lights. No other action.	No loaders turned on and "calling" for material.	Turn on loader(s); check if material is needed.
	Wiring between units is "open".	Check wiring and plugs.
	Bad level switch on one or more loaders.	Check level switches and associated wiring.
	1 amp fuse blown.	Check both fuses; replace if blown. Check wiring.
Load cycle begins, pump starts, vacuum valve doesn't open.	Continuity of red wire broken.	Find break and repair.
	Bad connection to vacuum solenoid valve on loader.	Repair connection.
	Bad solenoid valve.	Replace valve.
	No air pressure to cylinder on valve.	Turn on air.
	Sticking air cylinder.	May be caused by contaminants in plant air supply. Clean or replace.
System will go thru one cycle; will not start another cycle until power is turned off and back on.	Break in signal from red wire to blue wire at last station. (End plug not installed).	Refer to diagram 108-817 and system installation section. Install end plug.
Pump does not stop	1 CR in power-unload box faulty.	Check relay; replace if necessary.

SYMPTOM	PROBABLE CAUSE	REMEDY
Pump stops at end of cycle will not restart	1 TM or 2 CR in power-unload box faulty.	Check; replace relay if necessary. If timer appears faulty, refer service to qualified electrician & replace timer.
Conic valves fail to open; other operation OK.	Conic valve signal is on brown wire. Continuity may be bad.	Check brown wire for "open" condition & repair.
Loader loads but will not "time out".	Faulty relay(s) on loader circuit board, or loose relays.	Replace relay(s); re-install relay(s) correctly.
(NOTE: If problem can't be found within a reasonable time, the unit may be removed from the system by "jumping" the plugs together at the faulty station.	Faulty timer(s) in loader control box.	Refer to qualified electrician and replace timer.
	Board has "open" foil or bad connections.	Refer to qualified electrician and repair foil.
Station "skips" even when turned on and "calling" for material.	Faulty level switch wiring.	Check and repair level switch and wiring as needed.
	Short or open circuit on board.	Refer problem to qualified personnel.
	Autocolors only - low voltage or insufficient surge capacity in line feeding control box. Motor surge can drop out control relay, bypassing station.	Refer to Conair Service Dept. if better electrical source cannot be installed.
Loader calls for material; pump doesn't run.	1 TM faulty; 3 CR faulty; 5 amp fuse blown (pump unload control).	Replace components.
System starts, immediately shuts off.	Level Bindicator stalling, then pulling through material.	Adjust switch tension.
	Level switch faulty.	Adjust or replace.

NOTE: For problems not covered in this chart, please refer to individual component instructions.

We're Here to Help

Conair has made the largest investment in customer support in the plastics industry. Our service experts are available to help with any problem you might have installing and operating your equipment. Your Conair sales representative also can help analyze the nature of your problem, assuring that it did not result from misapplication or improper use.

How to Contact Customer Service

To contact Customer Service personnel, call:

From outside the United States, call: 814-437-6861

You can commission Conair service personnel to provide on-site service by contacting the Customer Service Department. Standard rates include an on-site hourly rate, with a one-day minimum plus expenses.

Before You Call ...

If you do have a problem, please complete the following checklist before calling Conair:

- ❒ Make sure you have all model, serial and parts list numbers for your particular equipment. Service personnel will need this information to assist you.
- ❒ Make sure power is supplied to the equipment.
- ❒ Make sure that all connectors and wires within and between loading control and related components have been installed correctly.
- ❒ Check the troubleshooting guide of this manual for a solution.
- ❒ Thoroughly examine the instruction manual(s) for associated equipment, especially controls. Each manual may have its own troubleshooting guide to help you.
- ❒ Check that the equipment has been operated as described in this manual.
- ❒ Check accompanying schematic drawings for information on special considerations.

Additional manuals and prints for your Conair equipment may be ordered through the Customer Service or Parts Departments for a nominal fee.

EQUIPMENT GUARANTEE

Conair guarantees the machinery and equipment on this order, for a period as defined in the quotation from date of shipment, against defects in material and workmanship under the normal use and service for which it was recommended (except for parts that are typically replaced after normal usage, such as filters, liner plates, etc.). Conair's guarantee is limited to replacing, at our option, the part or parts determined by us to be defective after examination. The customer assumes the cost of transportation of the part or parts to and from the factory.

PERFORMANCE WARRANTY

Conair warrants that this equipment will perform at or above the ratings stated in specific quotations covering the equipment or as detailed in engineering specifications, provided the equipment is applied, installed, operated and maintained in the recommended manner as outlined in our quotation or specifications.

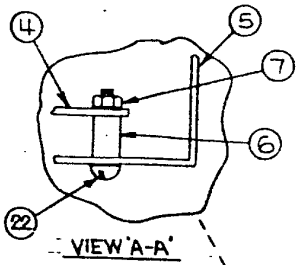
Should performance not meet warranted levels, Conair at its discretion will exercise one of the following options:

- Inspect the equipment and perform alterations or adjustments to satisfy performance claims. (Charges for such inspections and corrections will be waived unless failure to meet warranty is due to misapplication, improper installation, poor maintenance practices or improper operation.)
- Replace the original equipment with other Conair equipment that will meet original performance claims at no extra cost to the customer.
- Refund the invoiced cost to the customer. Credit is subject to prior notice by the customer at which time a Return Goods Authorization Number (RGA) will be issued by Conair's Service Department. Returned equipment must be well crated and in proper operating condition, including all parts. Returns must be prepaid.

Purchaser must notify Conair in writing of any claim and provide a customer receipt and other evidence that a claim is being made.

WARRANTY LIMITATIONS

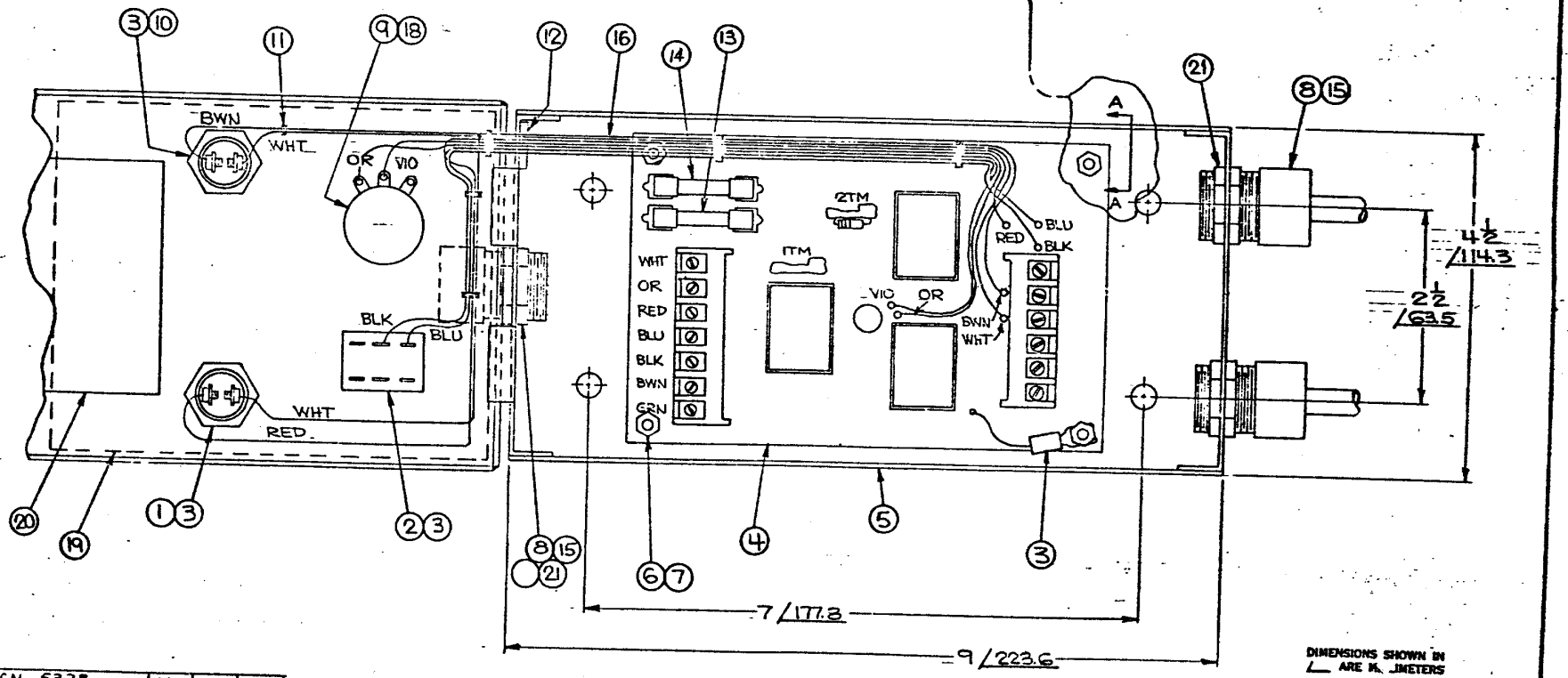
Except for the Equipment Guarantee and Performance Warranty stated above, Conair disclaims all other warranties with respect to the equipment, express or implied, arising by operation of law, course of dealing, usage of trade or otherwise, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.



VIEW 'A-A'

ITEM NO.	NO. REQ.	PART NO.	DESCRIPTION
11	7	209-035-01	WIRE TIES
12	1	207-035-	WIRE TIE ANCHOR
13	1	108-145-05	FUSE (5AMP) LITTELFUSE #314005
14	1	108-145-01	FUSE (1AMP) LITTELFUSE #314001
15	3	209-154-01	SEALING LOCKNUT
16	1	108-583-09	WIRING HARNESS
17	1	108-820-03	END LINE JUMPER PLUG (NOT SHOWN)
18	1	206-005-19	POTENTIOMETER
19	1	108-762	LABEL
20	1	297-008-69-03	LABEL (INSIDE LID)
21	3	209-001-01	LOCKNUT
22	4	20-023-02	#8-32NC X 5/8LG. RD.HD. MACH. SCR.

ITEM NO.	NO. REQ.	PART NO.	DESCRIPTION
1	1	204-002-03	LIGHT (RED)
2	1	203-001-05	TOGGLE SWITCH
3	7	209-030-01	SPADE LUGS
4	1	108-732	PC BOARD ASS'Y (REV. G)
5	1	103-516	ENCLOSURE
6	4	209-024-05	SPACER 3/8
7	4	221-001-02	8-32 NUT
8	3	207-001-05	CORD CONNECTOR
9	1	209-035-04	KNOB
10	1	204-002-05	LIGHT (AMBER)



DIMENSIONS SHOWN IN ARE MILLIMETERS

REV	DATE	REVISION	BY	CKD.	APP.
H	10-6-80	SEE ECN 5328	JAS		
G	9-18-80	SEE ECN 5306	JAS		
F	9-21-79	SEE ECN #4723	EJ		
E	8-10-78	SEE ECR 4007	EJ		
D	11-8-77	SEE ECR #3615	EJ		
C	11-22-76	SEE ECR #2678	EJ		
B	11-8-76	SEE ECR #2625	EJ		
A	7/30/76	Released			

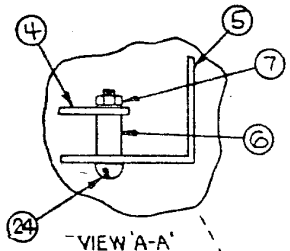
NOTES: 1. FOR SCHEMATIC SEE 108-817
2. WIRES TO CONNECTOR ARE SOLDERED AFTER MOUNTING IN ENCLOSURE
3. ITEM 17 SHIPS WITH CABLES

CONAIR, INC.
FRANKLIN, PENNSYLVANIA 16323

POWER, UNLOAD CONT. ASSEM. ELECTRONIC II

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONAL ± 1/64 DECIMAL ± .002 ANGULAR ± 1°

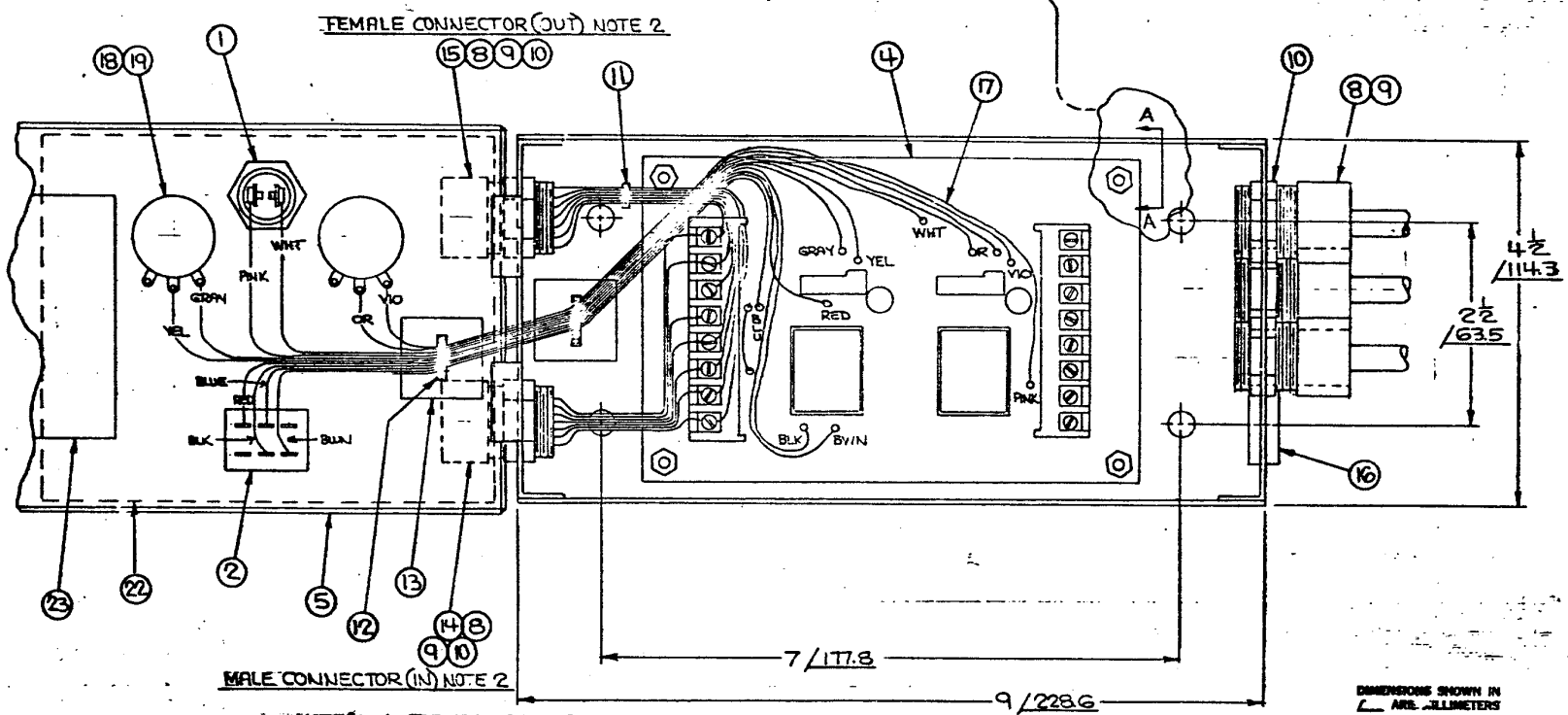
DWN. FREER | CKD. | SCALE --FULL--
DATE 10-1-78 | APP.
DO NOT SCALE DWG. | DWG. NO. 108-812 | H



VIEW 'A-A'

ITEM NO.	NO. REQ.	PART NO	DESCRIPTION
13	2	209-035-05	WIRE TIE ANCHOR
14	1	108-821-01	MALE AMPHENOL CONNECTOR
15	1	108-821-02	FEMALE AMPHENOL CONNECTOR
16	1	209-010-07	HOLE PLUG
17	1	108-588-10	WIRING HARNESS
18	2	206-005-19	POTENTIOMETER (2MEG)
19	2	209-035-04	KNOB
20	1	108-820-01	MALE CONNECTOR SET (NOTE 4)
21	1	108-820-02	FEMALE CONNECTOR SET (NOTE 4)
22	1	108-761	LABEL
23	1	209-008-69-01	LABEL (INSIDE LID)
24	4	210-023-02	#8-32NC X 5/8LG. RD HD MACH. SCR

ITEM NO.	NO. REQ.	PART NO.	DESCRIPTION
1	1	204-002-03	PILOT LIGHT (RED)
2	1	203-001-05	TOGGLE SWITCH (DPDT)
3	7	209-080-01	SPADE LUGS
4	1	108-750	RATIO P.C. BOARD ASS'Y
5	1	103-517	ENCLOSURE
6	4	209-024-03	SPACER 3/8
7	4	221-001 02	8-32 NUT
8	5	207-001-05	CORD CONNECTOR
9	5	209-001-01	LOCKNUT
10	5	209-154-01	SEALING LOCKNUT
11	12"	209-114-01	SPIROWRAP
12	6	209-085-01	WIRE TIE



NOTES:
1. FOR 120V-60HZ SCHEMATIC SEE 108-817
   FOR 240V-50HZ SCHEMATIC SEE 40-846-01
2. ON PLUG CONNECTIONS USE COLOR CODE AND SOCKET LETTER CODE SILK SCREENED ON P.C. BOARD. FOR CONNECTIONS TO SOCKET PIN 'C' OBSERVE WHICH IS 'IN' SOCKET AND WHICH IS "OUT" SOCKET
3. DOOR WIRING HARNESS MUST NOT INTERFERE WITH DOOR CLOSURE AND RELAYS.
4. ITEMS 20, 21 SHIPPED LOOSE. REFER TO MANUAL FOR USE.

DIMENSIONS SHOWN IN [ ] ARE MILLIMETERS

NO.	DATE	REVISIONS	BY	CKD.	APP.
G	6/080	REVISED NOTE 1	E.F.		JHL
F	8-27-79	SEE ECN# 4723	EF.		
E	11-8-77	SEE ECR# 3615	EF.		
D	11-4-77	SEE ECR# 2746	EF.		
C	11-22-76	SEE ECR# 2678	EF.		
B	11-9-76	SEE ECR# 2625	EF.		
A	11/3/76	Released			JHL

CONAIR, INC.
FRANKLIN, PENNSYLVANIA 16323

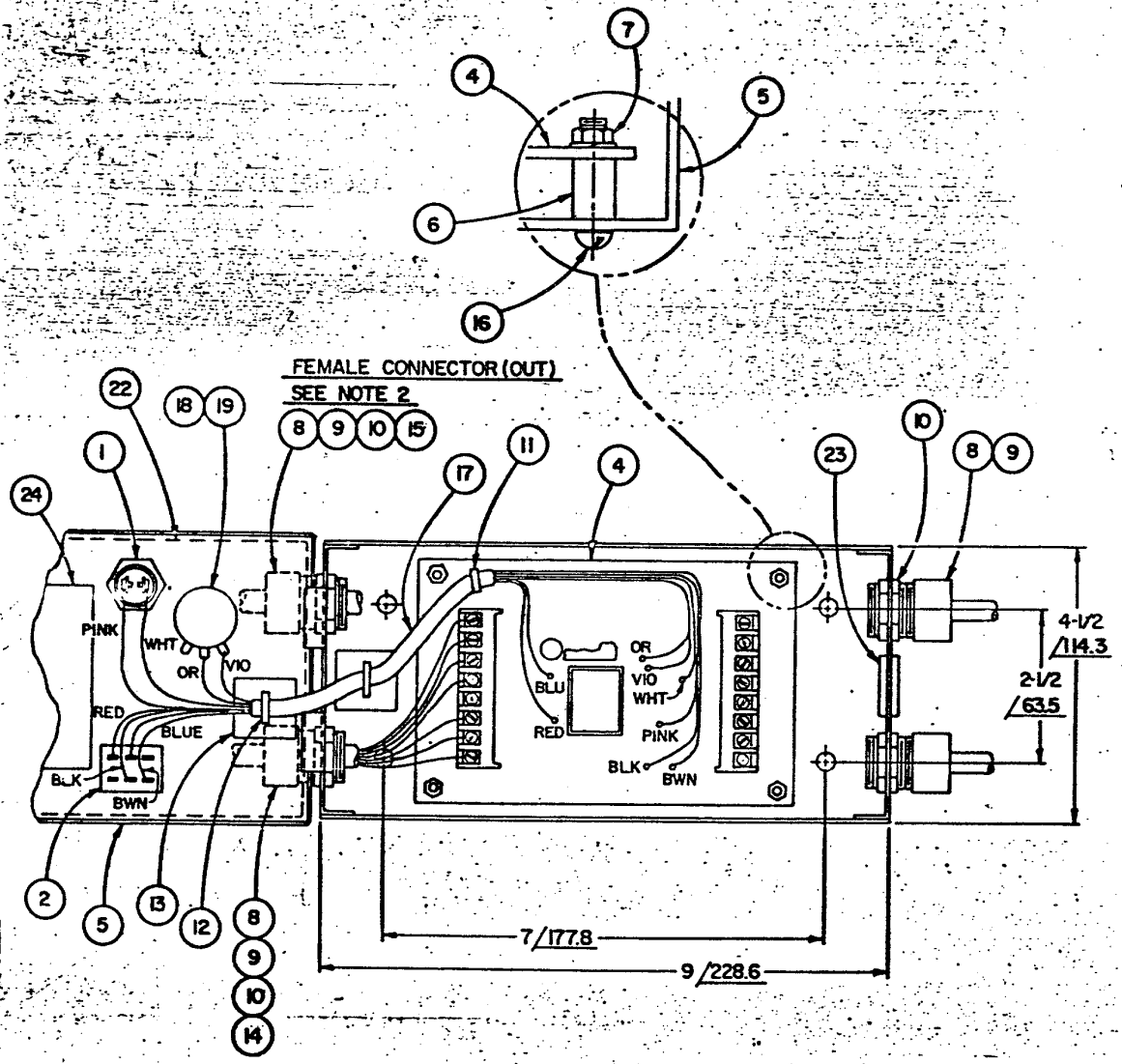
ELECTRONIC II RATIO CONTROL ASSEMBLY

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONAL ± 1/64 DECIMAL ± .002 ANGULAR ± 1°

DWN. E. FRYE CKD. JHL
DATE 10-13-75 APP. JHL
SCALE - FULL -

DO NOT SCALE DWG. DWG. NO. 108-813 G

4C



ITEM NO.	NO. REQ.	PART NO.	DESCRIPTION
1	1	204-002-03	PILOT LIGHT (RED) DIALCO #95-1363-0951-112
2	1	203-001-05	TOGGLE SWITCH (DPDT) C.H. #7564K7
3	7	209-080-01	SPADE LUGS
4	1	108-751	SINGLE TUBE P.C. BOARD ASSEMBLY
5	1	103-515	ENCLOSURE
6	4	209-024-05	3/8 SPACER
7	4	221-001-02	8-32 NUT
8	4	207-001-05	CORD CONNECTOR
9	4	209-001-01	1/2 LOCKNUT
10	4	209-154-01	SEALING LOCKNUT
11	12"	209-114-01	SPIROWRAP
12	6	209-085-01	WIRE TIE
13	2	209-085-05	WIRE TIE ANCHOR
14	1	108-821-01	MALE AMPHENOL CONNECTOR
15	1	108-821-02	FEMALE AMPHENOL CONNECTOR
16	4	210-023-02	8-32 NC x 5/8 LG. RD. HD. MACH. SCREW
17	1	108-588-11	WIRING HARNESS
18	1	206-005-19	POTENTIOMETER (2 MEG.)
19	1	209-035-04	KNOB
20	1	108-820-01	MALE CONNECTOR SET (NOTE 4)
21	1	108-820-02	FEMALE CONNECTOR SET (NOTE 4)
22	1	108-760	LABEL
23	1	209-010-07	1/2 HOLE PLUG
24	1	299-008-69-02	LABEL (INSIDE LID)
25			

NOTES:
1. FOR 120V - 60 HZ SCHEMATIC, SEE 108-817. FOR 240V - 50 HZ SCHEMATIC, SEE 410-846-01.
2. NOTE DIFFERENCE IN SOCKET & PLUG. THE FEMALE IS "OUT". THE MALE IS "IN". THIS APPLIES WHILE WIRING PLUG & SOCKET PIN "C".
3. WIRE SOCKETS PER COLOR CODE SILK SCREENED ON BOARD.
4. ITEMS 20 & 21 TO BE SHIPPED LOOSE. SEE MANUAL FOR USE.

DIMENSIONS SHOWN IN /__ ARE MILLIMETERS

NO.	DATE	REVISIONS	BY	CKD.	APP.
J	6-0-80	REVISED NOTE 1	E.F.		
H	8-24-79	SEE ECN # 4723	E.F.		
G	11-2-78	RESTORED	E.F.		

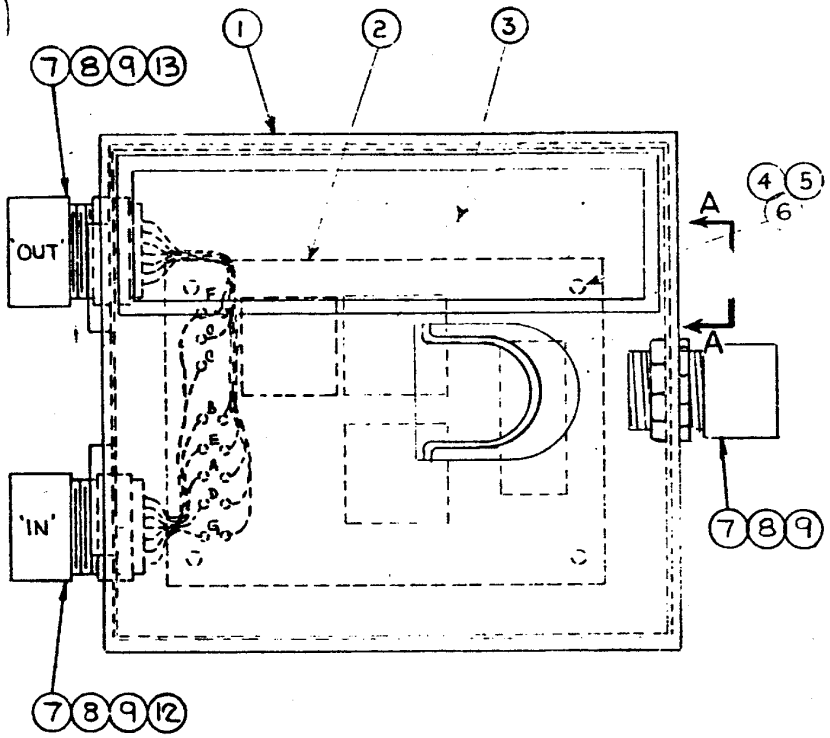
CONAIR, INC.
FRANKLIN, PENNSYLVANIA 16323

SELECT. II SINGLE TUBE CONT. ASSEM.

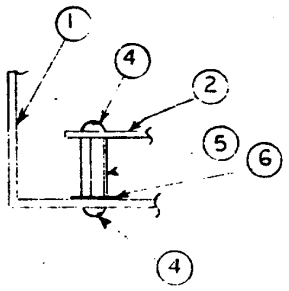
TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONAL ± 1/64 DECIMAL ± .002 ANGULAR ± 1°

DWN. E. FREER	CKD.	SCALE
DATE 11-1-78	APP.	NONE

DO NOT SCALE DWG. DWG. NO. 108-814 J



ITEM NO.	NO. REQ.	PART NO.	DESCRIPTION
1	1	103-531	ENCLOSURE
2	1	108-770	P.C. ASSEMBLY
3	1	108-769	LABEL
4	8	210-003-02	MACHINE SCREW 6-32 × 1/4
5	4	209-027-06-05	7/16" HEX SPACER
6	4	227-100-06	SHAKEPROOF LOCKWASHER
7	3	206-013-01	CORD CONNECTOR KILLARK
8	3	209-001-01	LOCKNUT
9	3	209-154-01	SEALING LOCKNUT
10			
11			
12	1	108-821-01	MALE AMPHENOL CONNECTOR ASSEM.
13	1	108-821-02	FEMALE AMPHENOL CONNECTOR ASSEM.
14	1	108-820-01	MALE CONNECTOR SET
15	1	108-820-02	FEMALE CONNECTOR SET



VIEW A-A

NOTE: ITEMS 14 & 15 TO BE SHIPPED SEPARATE WITH REMAINDER OF PLUGS & CABLES.

NO.	DATE	REVISIONS	BY
B	12 6 79	ITEM 5 WAS, 206 027-06-05	JEFF
A	10-14-76	SEE ECR # 2526	E.T.

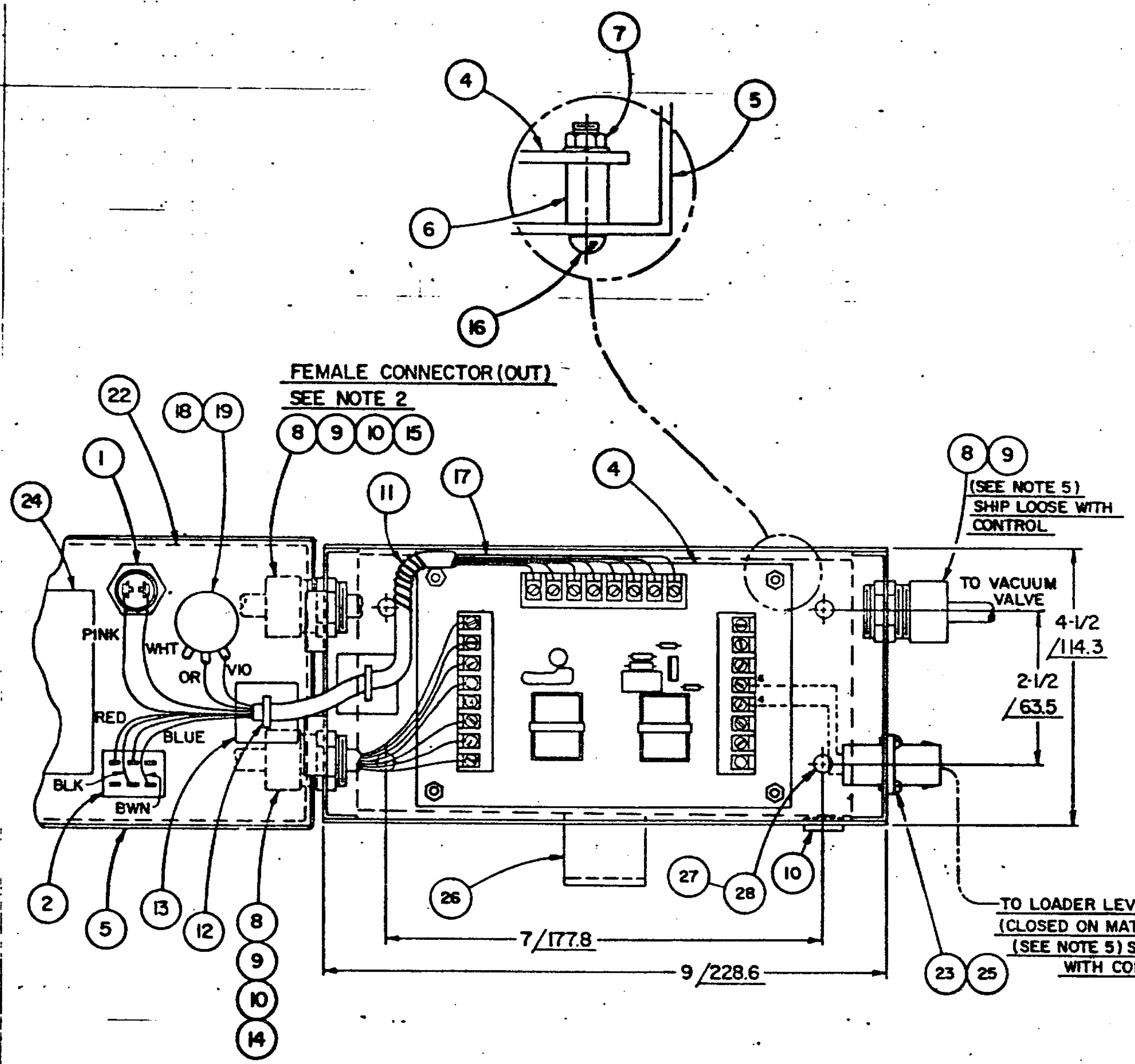
TWS

CONAIR, INC.
FRANKLIN, PENNSYLVANIA 16323

CONTROL BOX - SELECTRONIC ADAPTER

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONAL ± 1/64 DECIMAL ± .002 ANGULAR ± 1°

DWN. KARG	CKD. WTL	SCALE FULL
DATE 1-20-76	APP. WP	
MATERIAL		DWG. NO. 109-815 8



ITEM NO.	NO. REQ.	PART NO.	DESCRIPTION
1	1	204-002-03	PILOT LIGHT (RED) DIALCO #95-1363-0931-112
2	1	203-001-05	TOGGLE SWITCH (DPDT) C.H. #7564K7
3	7	209-080-01	SPADE LUGS
4	1	108-911-01	SINGLE TUBE P.C. BOARD ASSEMBLY
5	1	104-217-01	ENCLOSURE
6	4	209-027-05-05	3/8 SPACER
7	4	221-001-02	8-32 NUT
8	4	207-001-05	CORD CONNECTOR
9	4	209-001-01	1/2 LOCKNUT
10	1	209-010-09	HOLE PLUG (5/8)
11	12"	209-114-01	SPIROWRAP
12	6	209-085-01	WIRE TIE
13	2	209-085-05	WIRE TIE ANCHOR
14	1	108-821-01	MALE AMPHENOL CONNECTOR
15	1	108-821-02	FEMALE AMPHENOL CONNECTOR
16	4	210-023-02	8-32 NC x 5/8-LG. RD. HD. MACH. SCREW
17	1	108-588-11	WIRING HARNESS
18	1	206-005-19	POTENTIOMETER (2 MEG.)
19	1	209-035-04	KNOB
20	1	108-820-01	MALE CONNECTOR SET (NOTE 4)
21	1	108-820-02	FEMALE CONNECTOR SET (NOTE 4)
22	1	108-760	LABEL
23	1	108-919-01	SOCKET ASSEM. (SEE NOTE 5)
24	1	299-153-14-01	LABEL (INSIDE LID)
25	4	210-148-02	4-40NC X 1/4LG. RD.HD.MACH.SCR.
26	1	102-485-01	MOUNTING BRACKET
27	2	210-086-02	1/4-20NC X 3/4LG. RD.HD.MACH.SCR.
28	2	221-006-02	1/4-20NC. HEX NUT

NOTES:
1. FOR 120V.-60HZ SCHEMATIC SEE DRWG. 108-817.
2. NOTE DIFFERENCE IN SOCKET & PLUG. THE FEMALE IS "OUT". THE MALE IS "IN". THIS APPLIES WHILE WIRING PLUG & SOCKET PIN "C".
3. WIRE SOCKETS PER COLOR CODE SILK SCREENED ON BOARD.
4. ITEMS 20 & 21 TO BE SHIPPED LOOSE. SEE MANUAL FOR USE.
5. SHIP LOOSE TO ASSEMBLY. WHEN THIS CONTROL IS USED WITH (108-916-01) REMOTING KIT, PLUG HOLE WITH 104-224 COVER PLATE AND ADD ITEMS 23,8,9 TO REMOTING KIT. IF NOT REM..TED, INSTALL THESE ITEMS AS SHOWN ON THIS DRAWING.
6. ALL STRESS RELIEF HOLES ARE 7/8"DIA., FOR 1/2"NPT CONDUIT SIZE.

C.P.N. — 108-907-01

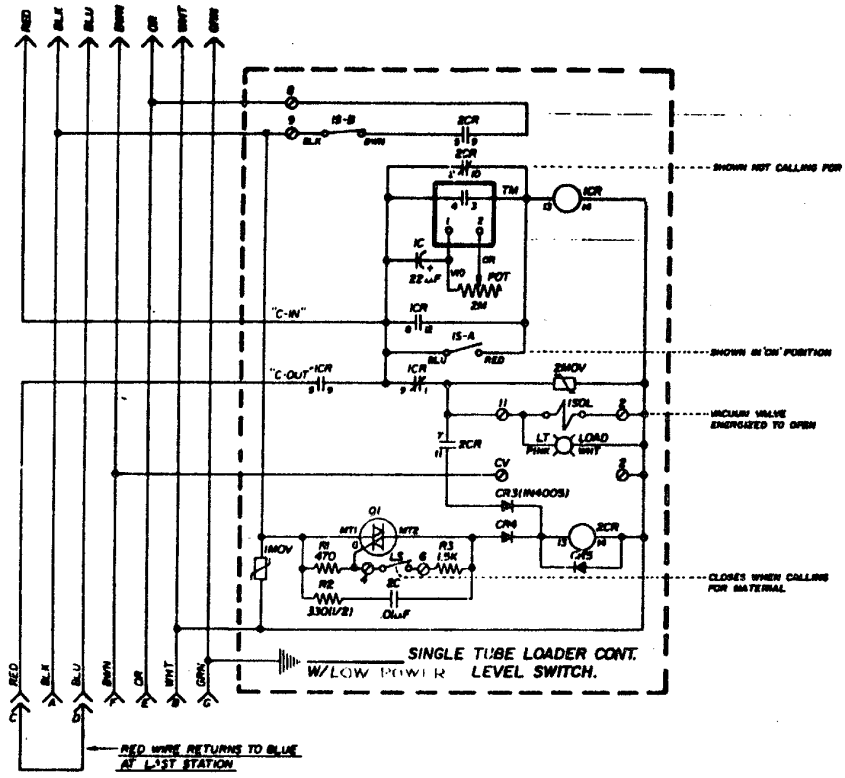
NO.	DATE	REVISIONS	BY	CKD.	APP.
B	3-6-81	SEE ECN # 5594	E.F.		
A	[illegible]	[illegible]	E.F.	[illegible]	

CONAIR, INC.
FRANKLIN, PENNSYLVANIA 16323

SELECT II, SINGLE TUBE CONT. ASSEM. W/REED MAGNETIC LEVEL SWITCH.

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONAL ± 1/64 DECIMAL ± .002 ANGULAR ± 1°

DWN. E. FREER
DATE 2-10-81
SCALE ----NONE----
DO NOT SCALE DWG.
108-907-00 B



ITEM NO	NO REQD	PART NO	DESCRIPTION
LS	1	209-425-01	REED LEVEL SWITCH
IS	1	203-001-05	TOGGLE SWITCH
ITM	1	209-163	TIMER - OMNETICS @ MJS115A8N30
ICR	1	200-013	RELAY (DPDT)
IPOT	1	206-005-19	POTENTIOMETER - 2MEG.
ILT	1	204-002-03	LIGHT (RED)
IC	1	206-004-09-11-56	CAPACITOR - 22MF @ 25V.DC.
1,2MOV	2	209-341-04	METAL OXIDE VARISTOR - GE @ V150LA2
Q1	1	206-044-01	TRIAC - RCA @ 128500
470	1	206-002-11-471	RESISTOR - 470 OHM - 1/4W. - 5%
1.5K	1	206-002-11-152	RESISTOR - 1500 OHM - 1/4W. - 5%
330	1	206-002-21-331	RESISTOR - 330 OHM - 1/2W. - 5%
.01uF	1	206-004-09-14-31	CAPACITOR - .01 MICROFARAD, 400V. POLYESTER
2CR	1	200-013-01	RELAY (4PDT)
CR3-5	3	206-007-01	DIODE (IN4005)

108-907-01
CONTROL

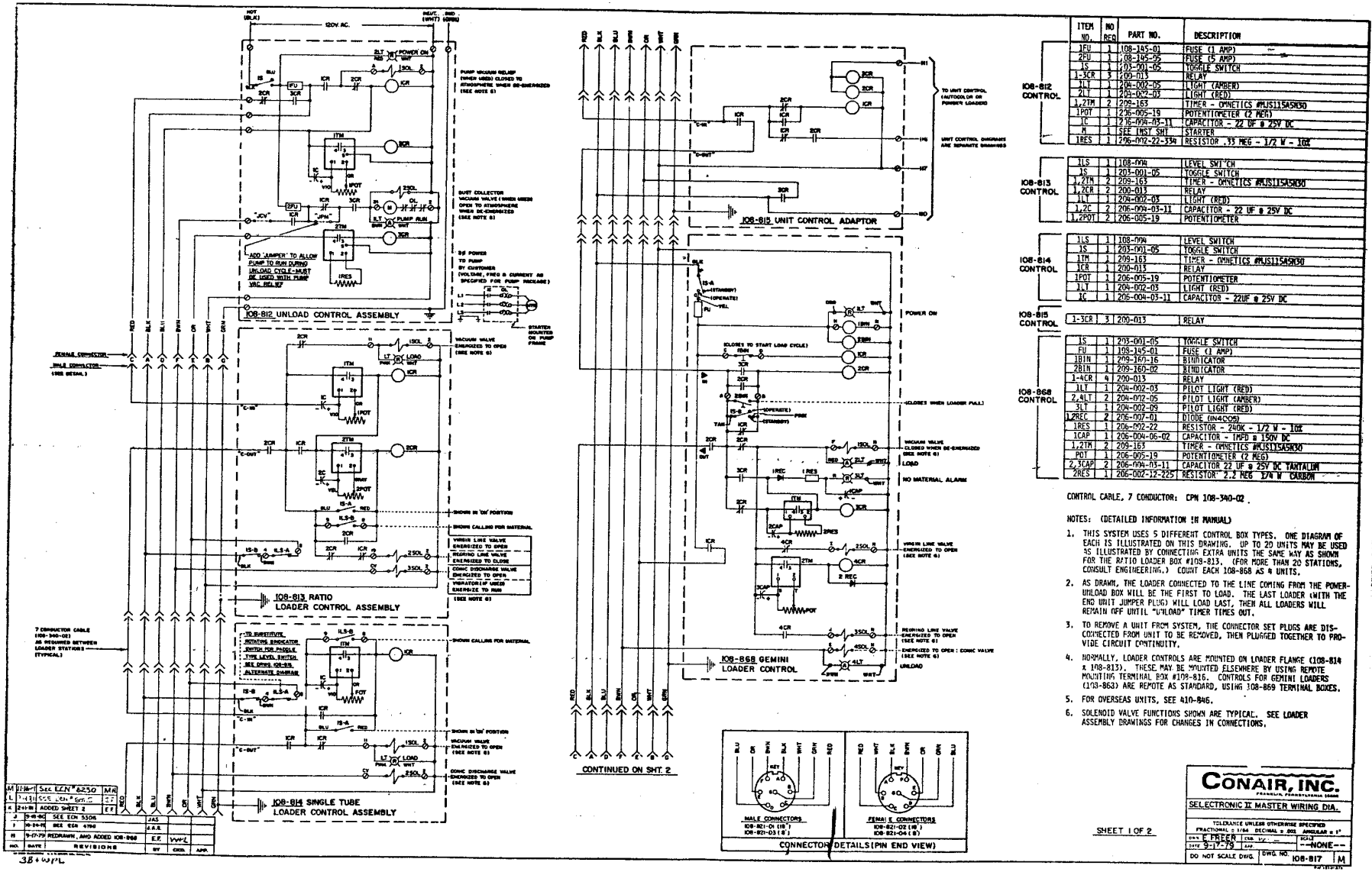
M	11-16-81	SEE SHT 1 OF 2	M.H.		
L	11-4-81	SCS ECN # 6025	E.F.	[illegible]	
NO	DATE	REVISIONS	BY	CKD	APP

conair
FRANKLIN PENNSYLVANIA 16323

SELECTRONIC II MASTER WIRING DIAGRAM

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONAL ± DECIMAL ± .005 ANGULAR ±
DIMENSIONS SHOWN IN [illegible] ARE IN MILLIMETERS

DRN E. FREER	CKD [illegible]	SCALE ----NONE---
DATE 9-4-81	APP	
SHT 2 OF 2 SHTS	108-817	M



ITEM NO.	NO REQ	PART NO.	DESCRIPTION
108-812 CONTROL			
1FU	1	108-145-01	FUSE (1 AMP)
2FU	1	108-145-05	FUSE (5 AMP)
1S	1	203-001-05	TOGGLE SWITCH
1-3CR	5	200-013	RELAY
1LT	1	204-002-05	LIGHT (AMBER)
2LT	1	204-002-03	LIGHT (RED)
1,2TM	2	209-163	TIMER - OMNETICS #MJS1154SM30
1POT	1	206-005-19	POTENTIOMETER (2 MEG)
1C	1	216-004-03-11	CAPACITOR - 22 UF @ 25V DC
M	1	SEE INST SHT	STARTER
1RES	1	206-002-22-334	RESISTOR .33 MEG - 1/2 W - 10%
108-813 CONTROL			
1LS	1	108-094	LEVEL SWITCH
1S	1	203-001-05	TOGGLE SWITCH
1,2TM	2	209-163	TIMER - OMNETICS #MJS1154SM30
1,2CR	2	200-013	RELAY
1LT	1	204-002-03	LIGHT (RED)
1,2C	2	206-004-03-11	CAPACITOR - 22 UF @ 25V DC
1,2POT	2	206-005-19	POTENTIOMETER
108-814 CONTROL			
1LS	1	108-094	LEVEL SWITCH
1S	1	203-001-05	TOGGLE SWITCH
1TM	1	209-163	TIMER - OMNETICS #MJS1154SM30
1CR	1	200-013	RELAY
1POT	1	206-005-19	POTENTIOMETER
1LT	1	204-002-03	LIGHT (RED)
1C	1	206-004-03-11	CAPACITOR - 22UF @ 25V DC
108-815 CONTROL			
1-3CR	3	200-013	RELAY
108-868 CONTROL			
1S	1	203-001-05	TOGGLE SWITCH
FU	1	108-145-01	FUSE (1 AMP)
1BIN	1	209-160-16	BINDICATOR
2BIN	1	209-160-02	BINDICATOR
1-4CR	4	200-013	RELAY
1LT	1	204-002-03	PILOT LIGHT (RED)
2,4LT	2	204-002-05	PILOT LIGHT (AMBER)
3LT	1	204-002-09	PILOT LIGHT (RED)
1,2REC	2	206-002-01	DIODE (IN4005)
1RES	1	206-002-22	RESISTOR - 240K - 1/2 W - 10%
1CAP	1	206-004-06-02	CAPACITOR - TMPD @ 150V DC
1,2TM	2	209-163	TIMER - OMNETICS #MJS1154SM30
POT	1	206-005-19	POTENTIOMETER (2 MEG)
2,3CAP	2	206-004-03-11	CAPACITOR 22 UF @ 25V DC TANTALUM
2RES	1	206-002-12-225	RESISTOR 2.2 MEG 1/4 W CARBON

CONTROL CABLE, 7 CONDUCTOR: CPN 108-340-02.

NOTES: (DETAILED INFORMATION IN MANUAL)

1. THIS SYSTEM USES 5 DIFFERENT CONTROL BOX TYPES. ONE DIAGRAM OF EACH IS ILLUSTRATED ON THIS DRAWING. UP TO 20 UNITS MAY BE USED AS ILLUSTRATED BY CONNECTING EXTRA UNITS THE SAME WAY AS SHOWN FOR THE RATIO LOADER BOX #108-813. (FOR MORE THAN 20 STATIONS, CONSULT ENGINEERING.) COUNT EACH 108-868 AS 4 UNITS.
2. AS DRAWN, THE LOADER CONNECTED TO THE LINE COMING FROM THE POWER-UNLOAD BOX WILL BE THE FIRST TO LOAD. THE LAST LOADER (WITH THE END UNIT JUMPER PLUG) WILL LOAD LAST, THEN ALL LOADERS WILL REMAIN OFF UNTIL "UNLOAD" TIMER TIMES OUT.
3. TO REMOVE A UNIT FROM SYSTEM, THE CONNECTOR SET PLUGS ARE DISCONNECTED FROM UNIT TO BE REMOVED, THEN PLUGGED TOGETHER TO PROVIDE CIRCUIT CONTINUITY.
4. NORMALLY, LOADER CONTROLS ARE MOUNTED ON LOADER FLANGE (108-814 x 108-813). THESE MAY BE MOUNTED ELSEWHERE BY USING REMOTE MOUNTING TERMINAL BOX #108-816. CONTROLS FOR GEMINI LOADERS (108-863) ARE REMOTE AS STANDARD, USING 108-869 TERMINAL BOXES.
5. FOR OVERSEAS UNITS, SEE 410-846.
6. SOLENOID VALVE FUNCTIONS SHOWN ARE TYPICAL. SEE LOADER ASSEMBLY DRAWINGS FOR CHANGES IN CONNECTIONS.

NO.	DATE	REVISIONS	BY	CKD.	APP.
M	12-16-81	SEE ECN # 6230	MR		
L	7-1-81	SEE ECN # 6217	EF		
K	2-11-81	ADDED SHEET 2	EF		
J	9-18-80	SEE ECN 5506	JAS		
I	10-24-79	SEE ECN 4798	A.A.R.		
H	9-17-79	REDRAWN, AMD ADDED 108-868	E.F.	WWL	

SHEET 1 OF 2

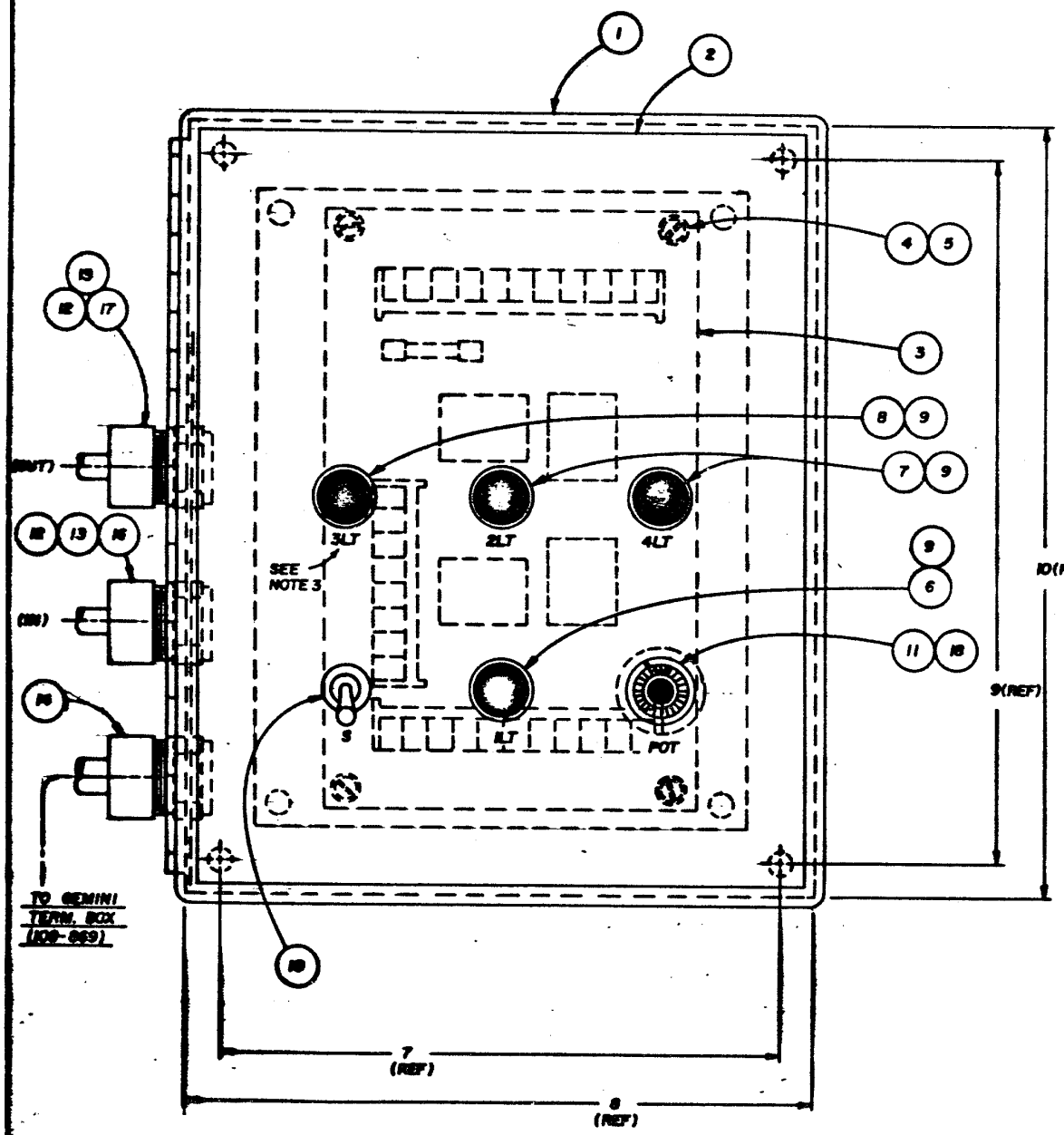
CONAIR, INC.
FRANKLIN, PENNSYLVANIA 16323

SELECTRONIC II MASTER WIRING DIA.

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONAL ± 1/64 DECIMAL ± .002 ANGULAR ± 1°

DWN E. FREER | CHK. | SCALE --NONE--
DATE 9-7-79 | APP.

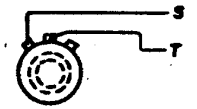
DO NOT SCALE DWG. | DWG. NO. 108-817 | M



ITEM NO.	NO. REQD	PART NO.	DESCRIPTION
1	1	103-940	ENCLOSURE
2	1	108-862	LABEL
3	1	108-863	CIRCUIT BOARD ASSEM.
4	4	209-027-07-06	HEX SPACER X 1/2 LG. (8-32 N.C. THDS)
5	8	210-018-02	8-32 N.C. X 1/4 LG. RD. HD. MACH. SCR.
6	1	204-002-03	PILOT LIGHT (RED) DIALCO #95-1363-0931-112
7	2	204-002-05	PILOT LIGHT (AMBER) DIALCO #95-1363-0933-112
8	1	204-002-07	PILOT LIGHT (RED) DIALCO #95-1310-0933-102
9	4	204-001-01	NEON BULB (NE51H)
10	1	203-001-05	TOGGLE SWITCH (DPDT) C.H. #7564K7
11	1	206-005-19	POTENTIOMETER - 2MEG
12	2	207-001-05	CORD GRIP
13	3	209-001-01	CONDUIT LOCKNUT
14	1	207-001-06	CORD GRIP
15	1	108-821-01	MALE CONNECTOR
17	1	108-821-02	FEMALE CONNECTOR
18	1	209-035-04	KNOB
19			
20			

NOTES: 1. FOR WIRING DIAGRAM SEE DRWG. 108-817, REV. H OR HIGHER.

2. REAR VIEW OF WIRING FOR ITEM 11



3. FLASHER CIRCUIT FOR 3LT (NO MATERIAL ALARM LIGHT) IS ON CIRCUIT BOARD. BE SURE TO USE PROPER LAMPHOLDER.

NO.	DATE	REVISIONS	BY	CKD.	APP.
B	12/19/83	SEE ECN 7045	REJ		
A	10/15/79	RELEASED	DWPL	—	—

conair — FRANKLIN, PENNSYLVANIA 16323

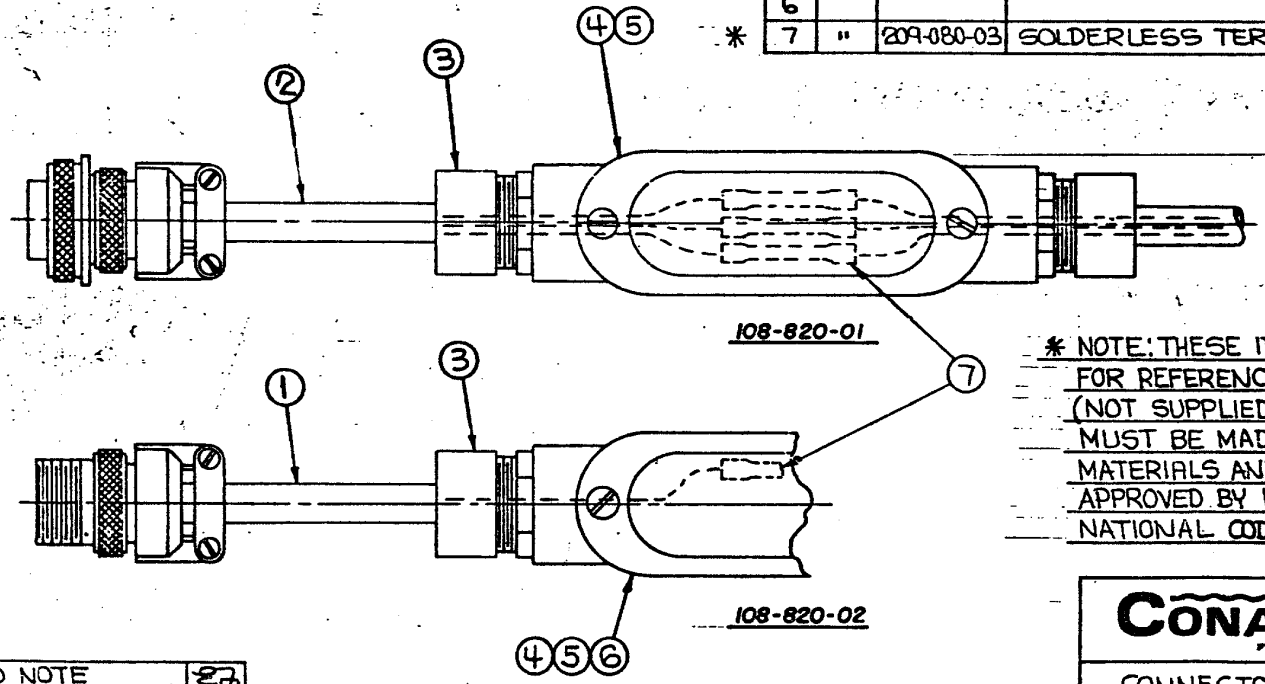
GEMINI LOADER CONTROL

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONAL ± DECIMAL ±.005 ANGULAR ±
DIMENSIONS SHOWN IN ∠ ARE IN MILLIMETERS

DWN. E. FREER | CKD. DWPL | SCALE ---FULL---
DATE 9-14-79 | APP.

SHT. ___ OF ___ SHTS. | 108-868 | B

ITEM NO.	NO. REQ.	PART NO.	DESCRIPTION
1	1	108-821-04	CONNECTOR CABLE
2	1	108-821-03	CONNECTOR CABLE
* 3	REF.	207-001-05	CORD GRIP
* 4	"	207-004-07	ELECTROLET
* 5	"	207-005-01	ELECTROLET COVER
6			
* 7	"	209-080-03	SOLDERLESS TERMINALS



108-820-01

108-820-02

* NOTE: THESE ITEMS ARE SHOWN FOR REFERENCE ONLY. (NOT SUPPLIED). CONNECTIONS MUST BE MADE USING MATERIALS AND METHODS APPROVED BY LOCAL AND NATIONAL CODES.

NO.	DATE	REVISIONS	BY
E	10-24-78	ADDED NOTE	EJ.
D	2-24-77	SEE ECR* 2893	EJ.
C	2-10-77	SEE ECR* 2855	EJ.
B	11-9-76	SEE ECR* 2625	EJ.
A	9/8/76	Released	HPL

CONAIR, INC.
FRANKLIN, PENNSYLVANIA 16323

CONNECTOR SET

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONAL ± 1/64 DECIMAL ± .002 ANGULAR ± 1°

DWN. E. FREER | CKD. | SCALE --FULL--
DATE 10-13-76 | APP. | MATERIAL | DWG. NO. 108-820

E

CONAIR, INC. / FRANKLIN, PA 16323 / PHONE: (814) 437-6861

conair

Parts List

TO ORDER PARTS (ONLY) CALL TOLL-FREE
800-458-1960
(Pennsylvania Customers Call: (814) 437 6861)

No. 108-817 For Selectronic 2 Controls

ISSUED April 19 83 Sheet 1 of 2

	PART NO	QTY.	DESCRIPTION
		108-814	SINGLE TUBE CONTROL
1.	203-001-05	1	Toggle Switch
2.	209-163	1	Timer-Omnetics MJS 115A5N30
3.	200-013	1	Relay
4.	206-005-19	1	Potentiometer
5.	204-002-03	1	Light (Red)
6.	206-004-03-11-56	1	Capacitor - 22 UF @ 25 V. DC.
7.	108-821-02	1	Connector Set Female
8.	108-821-01	1	Connector Set Male
9.	108-751	1	P.C. Board Assembly
		108-813	RATIO CONTROL
1.	203-001-05	1	Toggle Switch
2.	209-163	2	Timer-Omnetics MJS 15A5N30
3.	200-013	2	Relay
4.	204-002-03	1	Light (Red)
5.	206-004-03-11-56	2	Capacitor - 22 UF @ 25 V. DC.
6.	206-005-19	2	Potentiometers
7.	108-821-01	1	Connector Set Male
8.	108-821-02	1	Socket Connector Set Female
9.	108-750	1	P.C. Board Assembly
		108-815	CONTROL ADAPTOR
1.	200-013	3	Relay
2.	108-821-02	1	Connector Set Female
3.	108-821-01	1	Connector Set Male
4.	108-770	1	P.C. Board Assembly
		108-812	UNLOAD CONTROL
1.	108-145-01	1	Fuse (1 amp)
2.	108-145-05	1	Fuse (5 amps)
3.	203-001-05	1	Toggle Switch
4.	200-013	3	Relay
5.	204-002-05	1	Light (Amber)
6.	204-002-03	1	Light (Red)
7.	209-163	2	Timer-Omnetics MJS 115A3N30
8.	206-005-19	1	Potentiometer (2 MEG)
9.	206-004-03-11-56	1	Capacitor - 22 UF @ 25 V. DC.
10.	206-002-22-334	1	Resistor 33 MEG - V2W-10%
11.	108-752	1	P.C. Board Assembly

MINIMUM ORDER: $50.00 (due to cost of handling)

Sheet 2 on reverse side

	Part No.	Qty.	Description
		108-868	GEMINI LOADER CONTROL
1.	203-001-05	1	Toggle Switch
2.	108-145-01	1	Fuse (1 amp)
3.	200-013	4	Relay
4.	204-002-03	1	Pilot Light (Red)
5.	204-002-05	2	Pilot Light (Amber)
6.	204-002-07	1	Pilot Light (Red)
7.	206-007-01	2	Diode (IN540)
8.	206-068-21-244	1	Resistor - 240K - 1/2 W - 10%
9.	206-004-06-02	1	Capacitor - IMFD @ 150V DC
10.	209-163	2	Timer-Omnetics MJS 115A5N30
11.	206-005-19	1	Potentiometer (2MEG)
12.	206-004-03-11-56	2	Capacitor 22 UF @ 25V DC Tantalum
13.	206-068-11-225	1	Resistor 2.2 MEG 1/4W Carbon
		108-907-01	LC SELECTRONIC LOADER CONTROL
1.	203-001-05	1	Toggle Switch
2.	209-163	1	Timer
3.	200-013	2	Relay
4.	206-005-19	1	Potentiometer
5.	204-002-03	1	Light (Red)
6.	206-004-03-11-56	1	Capacitor
7.	209-341-04	1	Meta Oxide Varistor
8.	206-044-01	1	Triac
9.	206-068-11-471	1	Resistor 470 OHM
10.	206-068-11-152	1	Resistor 1500 OHM
11.	206-002-21-331	1	Resistor 330 OHM
12.	206-004-09-14-31	1	Capacitor

MINIMUM ORDER: $50.00 (Due to cost of handling)