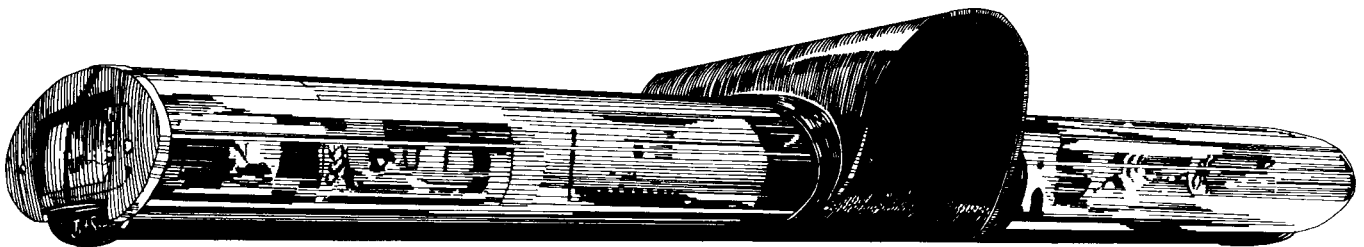


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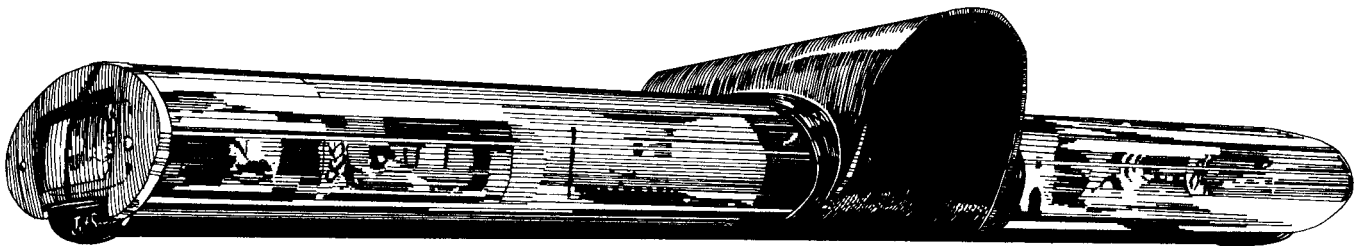


MAINTENANCE AND REPAIR MANUAL



SIGNAL DIVISION
Federal Signal Corporation

JetSonic™



MAINTENANCE AND REPAIR MANUAL

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SECTION I

GENERAL DESCRIPTION

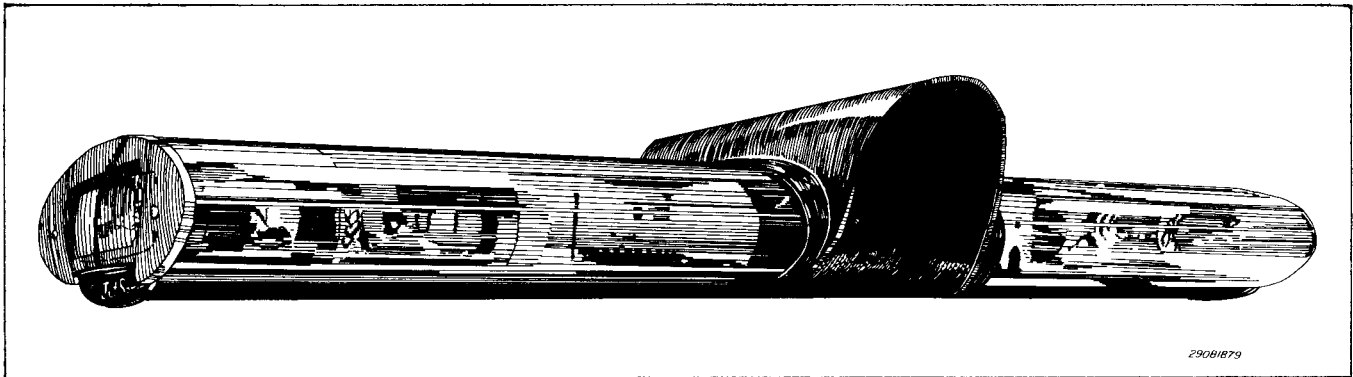


Figure 1-1. Federal JetSonic Warning System.

1-1. SCOPE.

This manual covers the repair and maintenance of the Federal JetSonic Light/Sound System (with siren), Federal JetSonic Light System (without siren), and Control Center. For installation and operating procedures, refer to the instructions packed with each light bar.

NOTE

Before proceeding, insure that you know the options installed in your unit and how they operate. Also, insure that the unit is properly installed.

1-2. GENERAL.

The Federal JetSonic Light/Sound System (with siren) is an emergency vehicle light bar with built-in siren amplifier. The Federal JetSonic Light System (light only) consists of a light bar without any siren functions. This unit requires a user-supplied control head to operate the light functions. All standard and optional lighting features are the same for both units. In this manual, the Federal JetSonic System with siren will be discussed. Should differences occur between units, both models will be described.

The unit is designed to operate from a nominal 12-volt DC negative ground electrical system. Its slim, aerodynamic profile provides less wind drag which translates to better vehicle fuel

economy and top speed. Components are mounted on a heavy-duty extruded aluminum base and protected by two clear impact resistant polycarbonate domes. Colored inserts (supplied) satisfy all dome color requirements. A corrosion-resistant polymer speaker-housing is located in the center of the bar.

All standard light and siren functions are controlled by the Control Center, via the siren assembly (see figure 1-2). The siren assembly decodes data transmitted from the Control Center and activates the siren PC board and/or applicable emergency light functions. Other control units are not compatible with the Federal JetSonic Light/Sound System.

Two cables connected to the light bar contain all the conductors necessary for control of all basic and optional Federal JetSonic functions.

1-3. LIGHTING SYSTEM.

A. General

The Federal JetSonic provides 360° visual warning from a combination of four 50-watt halogen lamps with parabolic reflectors and mirror surfaces.

In the primary mode, a high torque, permanent magnet motor drives the reflectors; via worm reduction. Flashes are synchronized via a timing chain.

In the secondary mode, rotation stops and the lights flash.

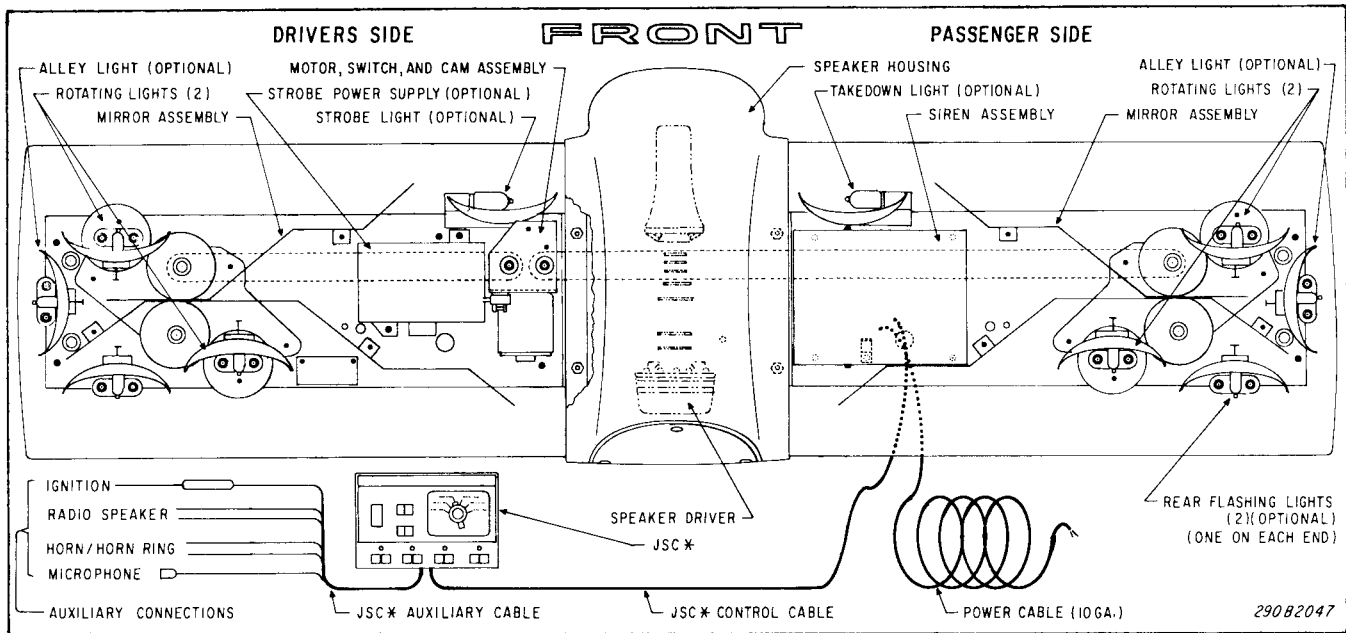


Figure 1-2. Major Assembly Location Diagram.

B. Takedown Lights (Optional)

Forward facing takedown lights can be located at either or both sides, towards the inside of the light bar (see figure 1-2). High intensity 50-watt halogen lamps illuminate a stopped vehicle ahead.

C. Directional Strobes (Optional)

Directional strobes can be installed towards the inside (facing forward) of the light bar (see figure 1-2). They are especially useful in helping to clear the right-of-way. Each strobe light produces 70 high intensity flashes per minute. They are powered and synchronized to flash alternately by the Model J20 strobe power supply (not customer repairable).

D. Alley Lights.

Alley lights can be installed at both ends of the light bar (see figure 1-2) and are especially useful when illuminating an alley, storefront, etc. The alley lights consist of 50-watt halogen lamps with parabolic reflectors.

1-4. SOUND SYSTEM.

A. General.

The system provides three distinct siren sounds (wail, yelp, hi-lo) plus public address, radio rebroadcast, manual siren (peak-and-hold), air horn and automatic horn ring transfer.

All JetSonic light and sound functions are controlled by the Control Center. The Control Center also acts as an audio pre-amplifier for PA and radio rebroadcasts. An MNCT microphone is optional.

The encoded signals, originating in the Control Center, are decoded in the siren assembly and used to driver the siren circuitry and light functions.

B. Speakers.

The Federal JetSonic speaker needs only a single 100-watt compression driver to delivery the performance of a conventional 200-watt speaker when mounted in a light bar. The JetSonic speaker meets or exceeds CHP and AAMVA Class A requirements with a single driver.

SECTION II

SPECIFICATIONS

NOTE

The following specifications assume input voltage to be 14Vdc.

2-1. POWER REQUIREMENTS.

Input Voltage	10Vdc to 16Vdc, negative ground only. (16Vdc operation limited to 15 minutes).
Primary (Rotating) Visual System	17 amps. continuous
Secondary (Flashing) Visual System	10 amps. (6 amps with front cutoff)
Siren Operating Current (Yelp Mode)	8 amps.
Directional Strobe	5 amps.
Alley Lights	4 amps. (each)
Takedown Lights	4 amps. (each).

2-2. SIREN.

Operating Current (Yelp Mode)	8 amps.
Voltage Output (approx.)	58V p-p
Frequency Range	Wail - 550 to 1500Hz Yelp - 550 to 1500Hz Hi-Lo - 800 to 1000Hz
Cycle Rate	Wail - 10/min. Yelp - 180/min. Hi-Lo - 60/min.

2-3. AUDIO.

Frequency Range	300 to 10,000Hz
Harmonic Distortion	10% max. at all power levels from 0.5 to 38 watts.
Input voltage required to obtain 20 Vrms across speaker load	0.50 Vrms

2-4. LIGHT BAR.

Construction

Base	Heavy-duty extruded aluminum
Domes	Clear impact-resistant polycarbonate
Speaker Housing	Corrosion-resistant polymer
Inserts	Polycarbonate (red, blue, green, amber, clear)

Dimensions

Length	47-1/4" (120.02 cm)
Width (at dome)	11-3/16" (28.42 cm)
Width (at speaker housing)	14-1/4" (36.20 cm)
Height (at dome)	4-11/16" (11.91 cm)
Height (at speaker housing)	6-5/8" (16.83 cm)

Weight

Light Bar	29 pounds (13.2 kg)
Light Bar (with speaker and amplifier)	40 pounds (18.1 kg)

2-5. CONTROL CENTER.

Standby Current	300mA
Operating Temperature	-30°C to +70°C
Dimensions	2-3/4" x 4-7/8" x 2-3/8" 70mm x 124mm x 60mm
Weight (approx.)	1 lb., 2 oz. (510g)

2-6. SWITCH MODULE.

Operating Temperature	-30°C to +70°C
Dimensions (HWD)	1-1/4" x 4-1/2" x 2-3/4" 32mm x 114mm x 70mm
Weight (approx.)	3 oz. (85g)

2-7. SIREN MODULE.

Standby Current	170mA
Operating Temperature Range	-40°C to +120C
Dimensions (HWD)	3-1/4" x 6-1/4" x 5" 83mm x 159mm x 127mm
Weight (approx.)	3 lb., 6 oz. (1530.9g)

SECTION III

CIRCUIT DESCRIPTION

3-1. BLOCK DIAGRAM.

Refer to figure 3-1 while reading this paragraph. Circuitry shown on the left side of figure 3-1 is located in the Control Head. The right side of figure 3-1 is devoted to components located in the light bar.

The Control Head consists of three interconnected printed circuit boards. All the light and siren functions are controlled by the Control Head.

A counter in the multiplex board is used to generate 16 hexi-decimal addresses. Two 8-channel data selectors use the addresses to individually select each functions data. An encoder converts the addresses and data from a parallel to a serial format. The serial data output is inverted and sent to the Siren Assembly.

The Siren Assembly consists of five interconnected printed circuit boards: mother board, relay board, and amplifier board. Serial data from the Control Head is converted to parallel on the interface board. Data pertaining

to siren functions (wail, yelp, etc.) are sent through the mother board to the tone generation board. Light function data is sent to light logic circuitry on the interface board.

After logical decoding, light functions are sent from the interface board through the mother board to the relay board. Circuitry in the relay board switches power to the appropriate lamp (left alley, strobe, etc.).

Siren functions are decoded by tone generation board circuitry. The signals generated are applied to the amplifier board where they are amplified and sent to the speaker.

3-2. CONTROL HEAD.

Refer to figure 4-6 while reading the following circuit description.

A. General.

The Control Head consists of three interconnected PC boards (multiplex, analog, and switch). It is capable of controlling the following functions: push-to-talk, PA, radio, manual siren,

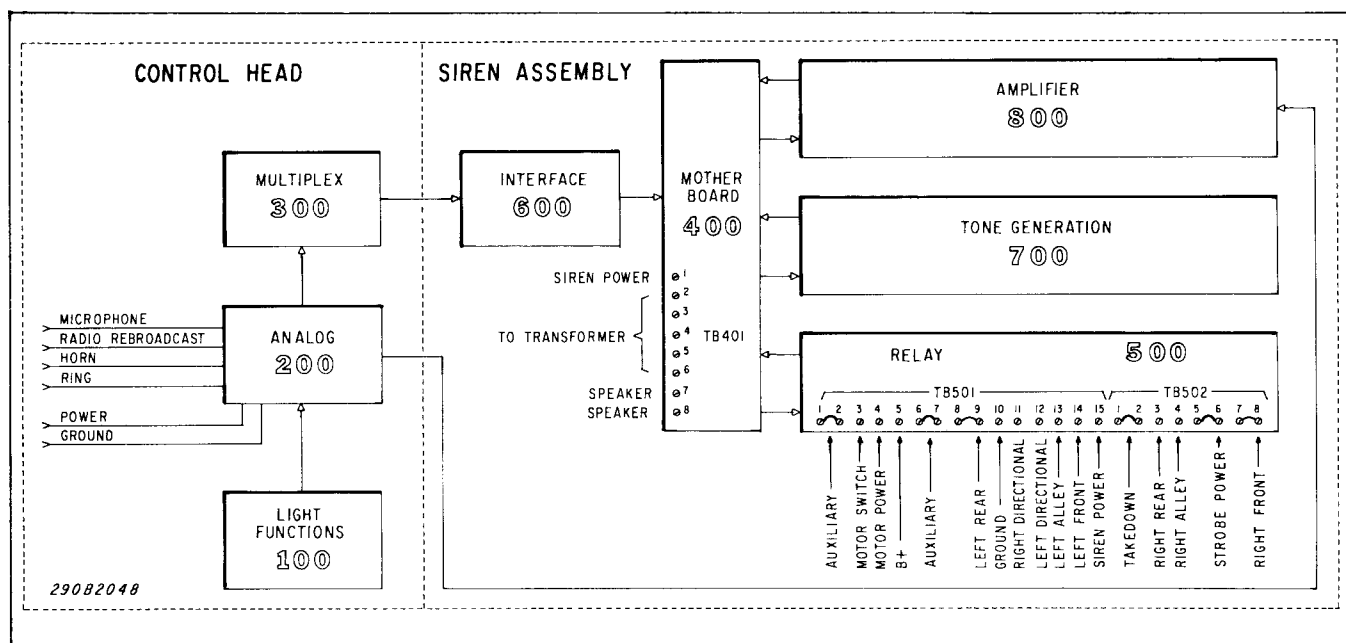


Figure 3-1. System Block Diagram.

air horn, Tap II, wail, yelp, hi-lo, strobe, left and right alley, takedown, front cut-off, primary and secondary functions.

Counter IC303 is used to generate 16 hexi-decimal addresses. Two 8-channel data selectors, IC304 and IC305, use the addresses to individually select each functions data.

The addresses and data are converted from a parallel to a serial format by encoder IC302. The serial data output of encoder IC302 is used to clock the counter IC303. It is also inverted by Q301 and applied to the interface PC board in the light bar.

B. Tap II.

The Tap II circuit is not active in the standby mode (horn will work normally). Tap II can be programmed in the secondary mode by installing JU301 (figure 4-7). In the primary mode; wail, yelp and hi-lo Tap II relay K202 will be energized allowing the horn ring to be connected to Tap II circuit IC301A and IC301B. When the horn ring input is taken to either supply or ground (when active), the IC301A output (pin 3) will go to the logic "1" (8Vdc).

C. PTT.

The push-to-talk (PTT) circuit is active low. Taking the PTT line to ground causes the output of gate IC301-D to go to logic 1.

D. Volume.

Volume control R318 controls a voltage of 0 to 8 volts. This voltage is used by VR801 (amplifier board) to control amplifier volume.

E. Radio Rebroadcast.

On activation of radio rebroadcast, K202 energizes. When K202 is energized, the radio's audio is connected to the pre-amplifier via isolation transformer T201. When not activated, microphone audio is coupled to the pre-amplifier via K201.

F. Switch Module.

Switches on the Switch Module control left and right alley lights, front cut-off, takedown and strobe lights. Activating any function causes its corresponding LED to turn on and sends a logic 1 to data selectors IC304 or IC305.

3-3. INTERFACE BOARD.

Refer to figure 4-8 while reading the following paragraphs.

A. General.

The presence of data at the input of the interface PC board causes Q602 and Q604 to supply 13.6-volts to the 8-volt regulator IC612.

The incoming serial data is inverted by Q601 before going to decoder IC606. This data is converted in IC606 from the serial format back into the original parallel format. If decoder IC606 receives two sets of identical data, it is considered valid. The valid data is latched into an 8-bit addressable latch IC608 or IC609.

B. Siren Power-Up Delay.

During turn-on, siren power is delayed approximately 0.5 second to allow tone generation and logic circuits to stabilize. This delay is set-up by the RC network consisting of R607, R608 and C605. The siren relay is activated by Q603.

C. Secondary Oscillator.

Inverter IC604A, along with RC network R609 and C606, make up the secondary oscillator. The oscillator is active (running) only when the output of IC611B is at logic 1.

D. Front Cut-Off.

IC607A and IC607B form the front cut-off latch. The latch is set when the output of IC604E goes to a logic 0. It is reset when the output of IC603 goes to a logic 0. Front cut-off is programmable in both primary and secondary by JU603 and JU604 respectively.

E. Strobe and Take-Down.

The strobe is programmable in the primary mode by JU601 and in the secondary mode by JU602. CR602 enables take-down to come on in primary. Removing CR602 disables the take-down option.

3-4. MOTHER BOARD.

Refer to figure 4-10 while reading the following paragraphs.

The mother board allows parallel communication between the relay board, interface board, tone generation board and amplifier board. The interface board receives serial data from the control head. This data is converted into single bits of logic that is used to control all light and siren functions. Light and siren functions are applied to the mother board at P402. Light functions are then applied to P401 and siren functions are applied to P403. Example: If the right alley switch is depressed, a logic 1 (8 Vdc) would be present on the data bus labeled right alley. Likewise, if the Control Head selector switch is set to WAIL, a logic 1 will be present on the data bus labeled wail.

There are three lines of communication between P403 and P404: signal out, radio or PTT, and the siren function. The siren function goes high anytime there is an audio or a siren signal. Radio or PTT lines go high when those functions are activated. The signal out line applies the siren signal to the amplifier board. Signals at P404 also drive the power output stage consisting of Q401, Q402,

C401 and C402. This output is applied to the power transformer via TB401. Power transformer and speaker leads are terminated at TB401.

3-5. RELAY BOARD (WITH SIREN).

Refer to figure 4-12 while reading the following circuit description.

The relay board consists of ten relays which are controlled by driver IC 501 and IC502. These drivers receive their inputs from the mother board via 16-pin connector J501. The relays are used to control power to the lights, motor, strobe and siren. These control voltages are applied to the applicable devices via removable terminal strips TB501 and TB502.

Each relay is controlled by part of the driver IC. For example: to energize K501, a logic 1 (8Vdc) must be applied to J501-1. This causes the coil of K501 to go to ground and transfer 12Vdc to TB502-4 which will turn-on the right alley light. Refer to Chart 3-1 for a quick reference to the function of each relay.

The right and left rear lights may also be controlled via TB501-11 and 12, respectively. By connecting these inputs to the right and left turn signal lines, the rear lights of the light bar will light in conjunction with the turn signal lights. When 12Vdc is applied to TB501-11, the coil of K508 will go to ground. This supplies 12Vdc to TB502-3 which lights the right rear light. The IC drivers have open collector outputs so that two may be connected in a wired

Chart 3-1.

<u>Pin No.</u>	<u>Relay No.</u>	<u>Terminal Block No.</u>	<u>Function</u>
J501-1	K501	TB502-4	Right Alley
J501-3	K502	TB501-15	Siren Power
J501-2	K503	TB501-9	Left Rear
J501-4	K504	TB502-5,6,7	Strobe Power
J501-7	K505	TB501-1,2	Take-Down
J501-5	K506	TB501-13	Left Alley
J501-6	K507	TB502-8	Right Front
J501-8	K508	TB502-3	Right Rear
J501-14	K509	TB501-14	Left Front
J501-15	K510	TB501-4	Motor Power

"or" configuration. In this manner, K508 is controlled via J501-8 and TB501-11. Applying 12Vdc to TB501-12 causes the coil of K503 to go to ground. This supplies 12Vdc to TB501-9 which lights the left rear light. TB501 and TB502 have extra terminals that can be used to make parallel light functions.

TB501-3,4 and 5 are associated with the dynamic braking system used in the light assembly. Motor power terminal TB501-4 supplies 12Vdc to the motor any time the lights are required to rotate. TB501-5 supplies a constant 12Vdc to one side of the Home position switch. The other side of the switch is connected to TB501-3 (motor switch) which is connected to driver IC502. Example: When the lights are in a rotating mode of operation, K510 is energized via J501-15. When the light switch is set to off, it is desirable for the lights to continue to rotate until they reach the home position. This is accomplished via B+ (TB501-5) and the Motor Switch (TB501-3). Once the lights begin rotating, the Home switch supplies power via IC502 to energize K510 until the lights "read" the Home position and extinguish.

3-6. TONE GENERATION BOARD.

Refer to figure 4-14 while reading the following paragraphs.

12Vdc is applied to the tone generation board via J701-1, which supplies operating power to the tone generation board.

The tone generation board has ten inputs and is capable of producing Wail, Yelp, Hi-Lo, Air Horn, manual siren and TAP II functions. In the STBY position, the vehicle horn operates normally. In the SEC or PRI positions, Tap II will produce a manual siren function. In the WAIL position, Tap II will produce a yelp sound. If initiated again, it will produce a wail sound. Each siren mode will go to the next siren position when Tap II is initiated. (Wail to Yelp, Yelp to Hi-Lo and Hi-Lo to Wail).

The tone generation board has three outputs: siren function, radio or PTT and signal out. The siren function

output is used to turn-on the amplifier any time there is a siren or audio signal present. Radio or PTT turns on the bias circuits in the amplifier during radio rebroadcast or public address (PA). Signal out sends the wail, yelp, hi-lo, manual or air horn signal to the amplifier board.

All ten inputs are controlled by the interface board which sends a logic 1 to control the desired siren function. The following paragraphs describe each function.

The air horn sound is produced by applying a logic one to J701-17. This signal inhibits phase-lock loop IC706-5 from producing any siren functions. A logic 1 is also applied to the siren function output line J701-6. This same logic is inverted by IC8, applying a 0 to IC701-12. This 0 allows the internal oscillator of a 14 stage ripple counter to run and generate three separate output frequencies. These three frequencies are mixed by the analog multiplexer section of IC707. The output at IC707-14 is applied to IC707-5. A logic 0 applied at control input IC707-9 allows the air horn signal to be applied to J701-4 (signal out).

Radio and PTT inputs, J701-15 and J701-16 respectively, are used to disable the air horn by applying a logic 0 to IC701-5. These inputs also disable the 555 timer IC711-4 preventing any siren functions. A logic 1 on either one of these two inputs causes the siren function line J701-6 to go high and the radio or PTT line to go high.

Siren functions wail, yelp, hi-lo and manual are produced by 555 timer IC711 which is set up in an astable oscillator configuration. Its output is applied to the phase-lock loop circuit comprised of IC706 and associated components. The rate of the 555 timer is changed by paralleling a resistor across timing resistor R717. This resistance paralleling is accomplished via IC710 an analog switch. Any time a siren function is initiated, the 555 timer IC711-4 reset terminal must be made high in order for the 555 timer to begin oscillating. Each siren function is described in the following paragraphs.

The wail signal is produced when a logic 1 is applied to J701-10. This produces logic 1 at reset pin IC711-4 which allows the 555 timer IC711 to start oscillating. A sample of the integrated voltage developed across C706 is applied to VCO input IC706-9. This produces a square wave signal at J701-4 the signal out line.

The yelp signal is produced when a logic 1 is applied to J701-12. This produces a logic 1 at reset pin IC711-4 which allows the 555 timer to start oscillating. A logic 1 is also applied to analog switch IC710-12. This switch closes and parallels R714 with R717. This action changes the rate of the 555 oscillator and produces the yelp timing rate. A sample of the integrated voltage that is developed across C706 is applied to the VCO input of IC706-9. This produces a square wave signal at J701-4 the signal out line.

A hi-lo signal is produced when a logic 1 is applied to J701-11. This produces a logic 1 at reset pin IC711-4 which allows the 555 timer to start oscillating. A logic 1 is also applied to analog switch IC710-6. This switch closes and parallels R715 with R717. This action changes the rate of the 555 oscillator and produces the hi-lo timing rate. A logic 1 is also applied to IC707-10. This allows two discrete voltages to be applied to VCO input IC706-9 which produces the upper and lower frequencies of the hi-lo tone. These two voltages are produced by using the square wave output of IC711-3 and feeding it through one-half of IC712 which is set-up as a flip-flop (50% duty cycles). This square wave changes the voltage divider network consisting of R720, R721 and R723 to produce an alternate high and low frequency square wave at J701-4 signal out.

A manual siren signal is produced by applying a logic 1 to J701-8. This produces a logic 1 at reset pin IC711-4 which allows the 555 timer to start oscillating. A logic 1 is also applied to IC710-5 which opens up the discharge path for the timing network consisting of R716, R717 and C706. Also, a logic 1 is applied to analog switch IC710-12 which closes and parallels R714 with R717. The manual siren will now peak at the yelp timing rate. A sample of the inte-

grated voltage that is developed across C706 is applied to the VCO input of IC706-9. This produces a square wave signal at J701-4 the signal out line.

The primary, secondary and Tap II inputs are associated so they will all be discussed in this paragraph. When a logic 1 is applied to J701-13 (primary) or J701-14 (secondary) and the Tap II input is brought "high", the siren will go into the manual mode as described in the previous paragraph.

When the unit is in the wail mode and the Tap II input J701-3 is brought "high", flip-flop IC712 becomes set. The "high" it produces at IC712-1 is applied to IC713-10 an analog multiplier. Inputs 10 and 9 are two-bit address inputs that will select one of four inputs of X0 through X3 and Y0 through Y3. Pin 13 is the output of the X inputs and pin 3 is the output of the Y inputs. The X output controls the yelp function and the Y output controls the hi-lo function. With a "high" applied to pin 10, the X and Y inputs are selected. A logic 1 now has been applied to the X input and logic 0 is applied to the Y input. The X output (pin 13) goes "high" causing the siren to go into the yelp mode. If Tap II is brought "high" again, IC712 will be reset and IC712-1 will go "low". This "low" will be applied to IC713-10 selecting X0 and Y0, causing the siren to go into the wail mode. Anytime the Selector switch is changed, when in a siren function, it will reset Tap II flip-flop IC712. This type of Tap II operation can be performed in the wail, yelp and hi-lo siren modes.

3-7. AMPLIFIER BOARD.

Refer to figure 4-16 while reading the following paragraphs.

The amplifier board contains a Mosfet/bipolar complementary voltage and power gain amplifier. The circuit consisting of Q804, Q805, Q802 and Q803 uses both AC and DC feedback to ensure stability and maximum linear signal swing. The overall midband voltage gain is set by the ratio of feedback resistor R809 and Q804 source resistor R814. Frequency compensation is set by the combination of R814, C804, R809 and C802.

Audio signals are coupled to the amplifier via current controlled resistor VR801. The resistance of VR801 is a function of the setting of the Control Head GAIN control. An input voltage of 250mV is required to drive the amplifier to full rated sine-wave power. This level is produced by the transistorized MNCT microphone in the PA mode or by sufficient radio input.

The amplifier enable line uses relay K801 to disable the amplifier section; when siren, radio or PA functions are not needed.

Temperature compensation and bias current for minimizing crossover distortion is supplied by thermistor RT801 and the voltage divider R812 and R813 across a diode reference. Q806 is used to switch the bias on, during radio or PA messages.

3-8. LIGHT ONLY (RELAY BOARD).

Refer to figure 4-18 while reading the following paragraphs.

The Light System (without siren) is capable of accepting seven inputs to control primary warning light(s), secondary warning light(s), front cut-off, takedown, left alley, right alley and strobe. These inputs control the lights, flashing oscillator and the motor used for rotating the lights.

Inputs for takedown, left alley, right alley and strobe lights are connected directly to the applicable lights. These inputs do not pass through any electronic

circuitry. Primary warning, secondary warning and front cut-off require some electronic interfacing to operate properly.

The primary function (lights rotating) occurs when a logic 1 is applied to TB903-7. This logic 1 turns-on Q903, which activates K905, supplying 12Vdc to TB901-4 motor power. It also disables the flasher oscillator consisting of IC901, R912, C910, CR901, R915, IC902 and associated components. With the flasher oscillator disabled; the right rear, left rear, right front and left front lights are activated via the relay drivers of IC904.

The secondary function (lights flashing) will occur when a logic 1 is applied to TB903-5. This logic 1 turns-on Q901, which enables the flasher oscillator. The output of the flasher oscillator is gated by IC903. These outputs drive the relay driver IC904 and flash the right rear, left front, left rear and right front lights.

Front cut-off will occur when a logic 1 is applied to TB903-8. This turns-on Q902 which disables IC902 (pins 5 and 6). With IC902 disabled, IC904 causes K901 and K903 to de-energize. Front cut-off will now be operational in either the primary or secondary mode.

NOTE

JU901, normally installed at the factory, allows the lights to have an alternate flash pattern. If a simultaneous flash pattern is desired, remove JU901 and install JU902.

SECTION IV

SERVICE AND MAINTENANCE

4-1. SERVICE.

Most of the electronic components used in the unit are standard parts that are available at most electronic supply outlets.

The factory can and will service your equipment or provide technical assistance with problems that cannot be handled satisfactorily and promptly locally.

If any unit is returned for adjustment or repair, it can be accepted only if we are notified by mail or telephone in advance of its arrival. Such notice should clearly indicate the service requested and give all pertinent information regarding the nature of the malfunction, and if possible, its cause.

Address all communications and shipments to:

Service Department
Federal Signal Corporation
2645 Federal Signal Drive
University Park, IL 60466

The following diagrams are provided to assist repair personnel when service to the equipment is required.

<u>Figure</u>	<u>Diagram</u>
4-6	Control Head Schematic Diagram.
4-7	Control Head Component Location Diagram.
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4-22	Exploded View, Chassis Assy.

4-2. LIGHT PROGRAMMING.

The takedown, strobe and front cut-off functions may be programmed in the secondary and primary modes of operation. The unit comes from the factory wired so that in the secondary mode; the strobe will come on, front cut-off will be operational and takedown will not come on. In the primary mode, strobe and takedown will come on and front cut-off will be operational. Refer to Table 4-1 for changes to the programming format. Cutting the appropriate component or jumper listed on Table 4-1 will disable the option. The jumpers are located on the interface P.C. board in the light bar (see Figures 4-1 and 4-9).

Table 4-1. Programming Format Changes

Option	Jumper/ Component to cut	Mode of Operation
Takedown	CR602	PRI
Strobe	JU601	PRI
Strobe	JU602	SEC
Front Cut-off	JU603	PRI
Front Cut-off	JU604	SEC
*Man. Siren	Add JU301	SEC

*If Manual Siren is desired in SEC mode, add JU301 to the control head Multiplex PC board (see Figure 4-2).

The secondary flashing mode of operation is determined by JU605 (alternate flash) or JU606 (simultaneous flash). The unit comes from the factory with the alternate flash pattern built-in (JU605 installed). To change the simultaneous flashing mode, cut JU605 and install JU606.

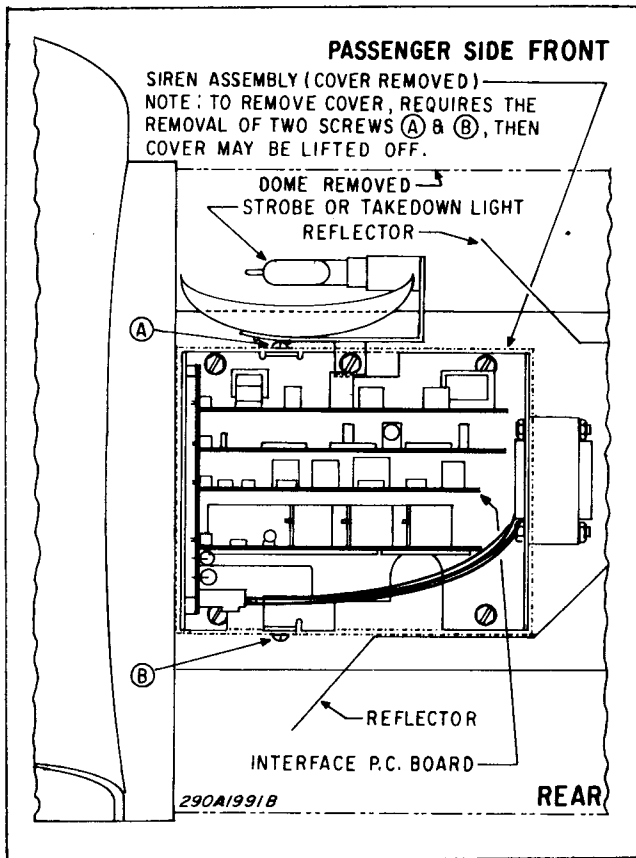


Figure 4-1. Interface PC Board Location.

4-3. BASIC MAINTENANCE.

WARNING

High voltages are present inside the Light Assembly when the strobe light option is installed. Wait at least ten (10) minutes, after shutting off power, before servicing this unit.

A. Cleaning the Plastic Domes.

Ordinary cleaning of the plastic domes can be accomplished by using mild soap and a soft rag. Should fine scratches or a haze appear on the domes, they can ordinarily be removed with Federal Dome and Chrome Cleaner (Federal Part No. 8287B349B). CAUTION: The use of other materials such as strong detergents, solvents, petroleum products, etc., can cause crazing (cracking) of the plastic domes.

B. Lamp Replacement.

CAUTION

Always allow lamps to cool before removing.

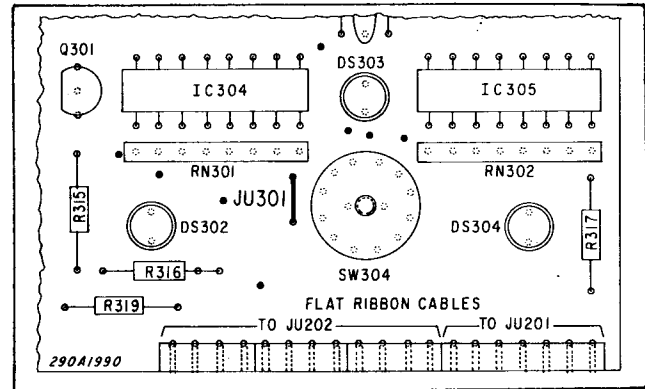


Figure 4-2. Multiplex PC Board.

1. Replace 50-watt halogen lamps with Federal Part Number 8107A 119 and 35-watt with 8548A028.

2. Replace strobe lamps with Federal part number 8108A127.

C. Lubrication.

At least once a year, lubricate the lamp shaft bearings with a drop of SAE10 oil and apply a film of light grease to the worm.

D. Cleaning Reflectors and Mirrors.

Use a soft tissue to clean the reflector and mirrors. Avoid heavy pressure and the use of caustic or petroleum base solvents which will scratch or dull the surface.

E. Strobe Power Supply Replacement.

WARNING

High voltages are present inside the Light Assembly. Wait at least ten (10) minutes, after shutting off power, before servicing this unit.

The strobe light power supply does not contain any user serviceable parts. Should a breakdown in the power supply occur, it should be returned to Federal for repair and replacement. To remove the power supply, proceed as follows:

1. Unplug the connector from the power supply.

2. Remove the two #10 screws which secure the power supply. NOTE: One of the screws secures the power supply ground wire. The other secures the strobe reflector.

3. Install the new power supply by performing the previous steps in reverse order.

F. Speaker Driver and Cone Replacement.

To replace the speaker driver and cone, proceed as follows (see Figure 4-3):

1. Remove the grille and rear cover from the speaker housing.
2. Unscrew the cone, being careful not to lose the five (5) washers.
3. Unscrew the wirenuts which connect the driver lead wires to the light assembly feed wires.
4. Remove the two (each) 1/4-20 screws, washers and lockwashers which secure the driver to the housing.
5. Remove the driver, being careful not to lose the two (2) washers.
6. Remove the leads from the old driver and connect to the new driver. 58-watt driver must be unsoldered and then re-soldered.
7. Reinstall the driver. Ensure that washers are installed correctly (see Figure 4-3). Reconnect the driver lead wires to the light assembly feed wires. Secure connections with wirenuts.
8. Reinstall cone. Ensure that washers are installed correctly (see Figure 4-3).

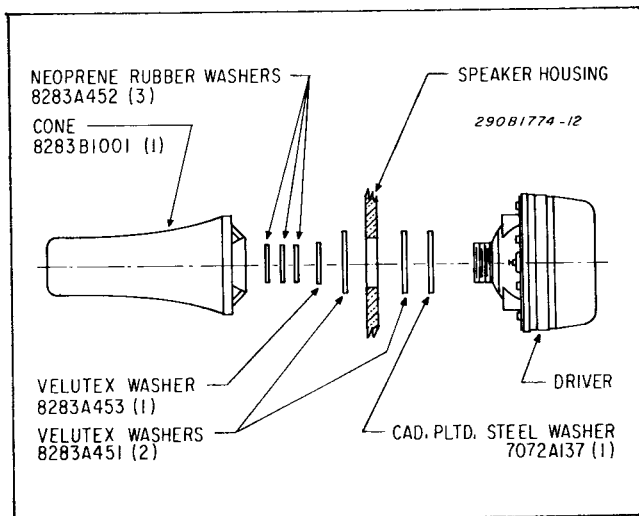


Figure 4-3. Speaker Driver and Cone Replacement.

9. Replace grille and rear cover, (removed in step 1).

4-4. ADJUSTMENTS.

A. Alley Lights.

The alley lights may be adjusted up to 7° toward the front or rear. To adjust, loosen the center screw and rotate the reflector and socket assembly to the required angle. Tighten screw after completing adjustment.

B. Flashing Lights.

In the flashing light mode, each reflector assembly should be aimed perpendicular to the front or rear edge of the light bar. In units equipped with front cut-off, the rear reflector should be aimed at the center of its end mirror. This adjustment has been made at the factory and will ordinarily require no additional adjustment. However, should an adjustment be necessary, the reflector assembly may be re-aimed by performing the following procedure:

1. Operate unit in the flashing mode, to set the reflector assemblies in the initial aiming position.
2. Turn off power. Visually check each reflector to determine if adjustment is necessary.

a. On units with no front cut-off, the reflector assemblies should be perpendicular in relation to the front and rear of the light bar (see Figure 4-4).

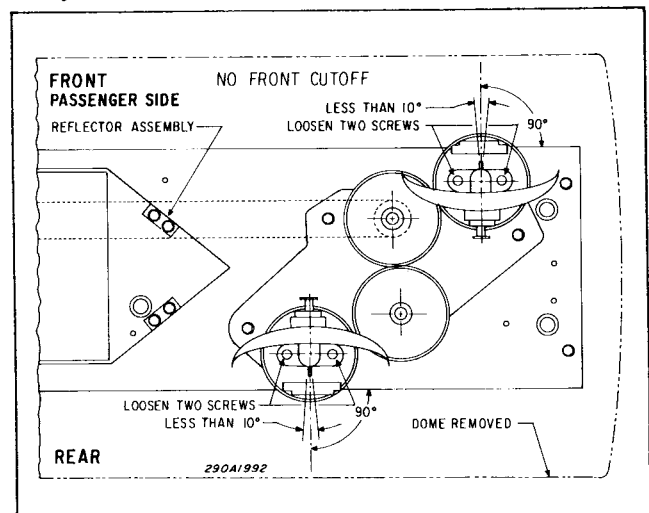


Figure 4-4. Reflector Assembly Adjustment. (No Front Cut-Off).

b. On units with front cut-off, the front reflector assembly should be perpendicular to the front of the light bar. The rear reflector should be aimed at the center of its mirror as shown in Figure 4-5.

3. If the adjustment required is 10° or less, proceed as follows:

a. Loosen the two screws which secure the reflector assembly to the gear (see Figure 4-4 or 4-5).

b. Rotate the reflector assembly to the proper position and re-tighten the screws.

4. If the adjustment required is more than 10° , proceed as follows:

a. Remove the retaining ring (see Figure 4-4 or 4-5). Lift the gear and reflector assembly to disengage the gear teeth.

b. Rotate the assembly to the correct aiming position. Engage the gear teeth and reinstall the retaining ring.

c. To complete the adjustment, repeat step 3.

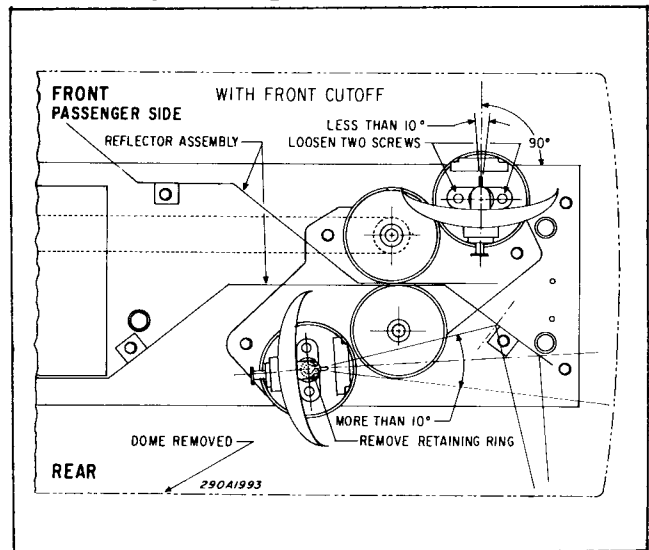


Figure 4-5. Reflector Assembly Adjustment. (Front Cut-Off).

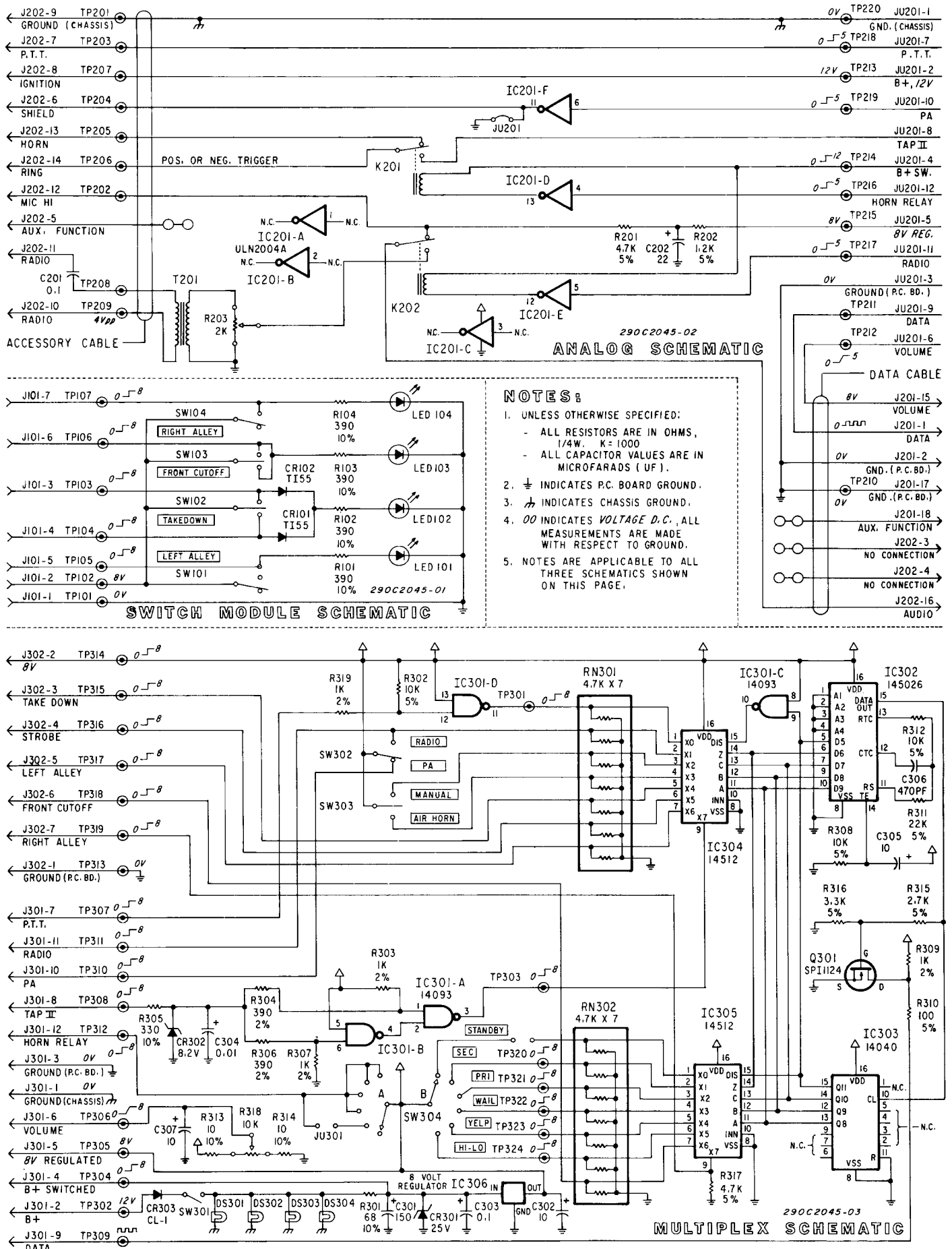


Figure 4-6. Control Head Schematic Diagram.

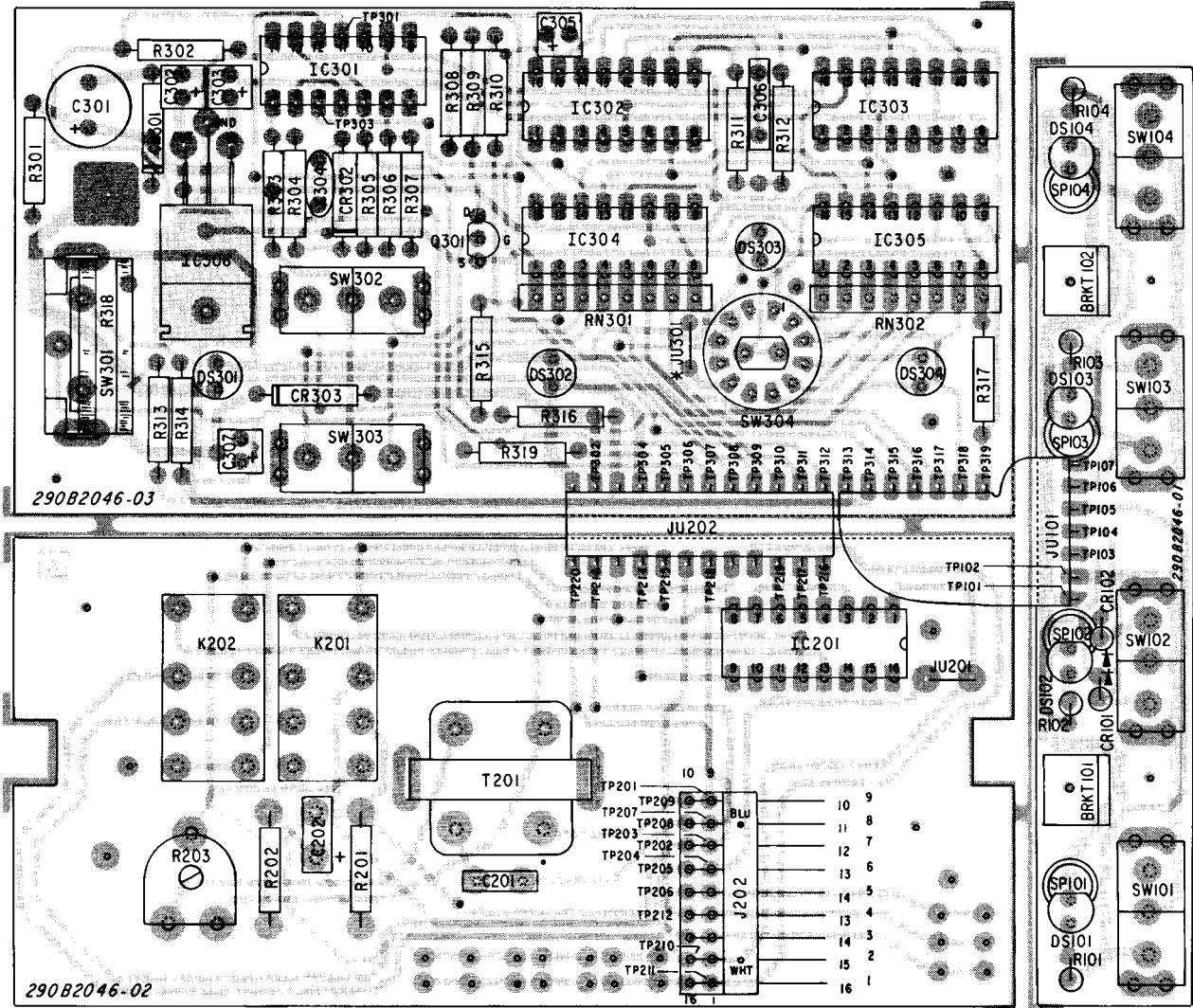


Figure 4-7. Control Head Component Location Diagram.

PARTS LIST					
Schematic Symbol	Description	Part No.	Schematic Symbol	Description	Part No.
SWITCH MODULE PC BOARD			RESISTORS (continued)		
R101,102,103,104	Resistor,390 Ohm,10%, 1/4 Watt	100A283	R315	2700 Ohm	100A256
DS101,102,103,104	LED, Red	147A113A-01	R316	3300 Ohm	100A242
CR101,102	Diode, T155	115B101	R317	4700 Ohm	100A298
SW101,104	Switch,Rocker (on-none-on)	122B192A	R318	Potentiometer,10K Ohm	104B116
SW102	Switch,Rocker (on-off-on)	122B190A	*Unless otherwise specified, all RESISTORS are carbon type,±5%, 1/4 watt.		
SW103	Switch, Rocker (on-off-on)	122B191A	CAPACITORS		
JU101	Bracket, Mounting (2) Flexible Wire Jumper	159A189 146A607	C301	150UF, 16V, Electrolytic	108A147
ANALOG PC BOARD			C302,305,307	10UF, 10V, Tantalum	107A634
R201	Resistor,4700 Ohm,5% 1/4 Watt	100A298	C303	0.1UF, 35V, Tantalum	107A1103
R202	Resistor,1200 Ohm,5%, 1/4 Watt	100A770	C304	0.01UF, 63V, Film	107A767
R203	Potentiometer, 2000 Ohm	106A203A-01	C306	470PF, Radial	107A1005
C201	Capacitor,0.1UF, Film	107A768	SEMICONDUCTORS		
C202	Capacitor,22UF,15V, Tantalum	107A677A-02	CR301	Diode, Zener, 25V, 1N5253B	115A242
IC201	IC,U1N2004A	128A090	CR302	Diode, Zener, 8.2V, 1N4738A	115A232
K201,202	Relay, DPDT, 12V	131A130A-01	CR303	Diode, CL-1	115B301
T201	Transformer, Audio	120B123	IC301	IC, CD4093BE	128B093
J201	Connector,18-position	140A205A-02	IC302	IC, MC145026	128A102
J202	Flexible Wire Jumper	146A608	IC303	IC, MC 14040B	128A103
MULTIPLEX PC BOARD			IC304,305	IC,MC14512BCP	128B078
*RESISTORS			IC306	IC, UA78M,08CKC	128A097
R301	68 Ohm, 10%	100A280	Q301	Transistor,SD1124	125A153
R302,308,312	10K Ohm	100A257	MISCELLANEOUS		
R303,307,309,319	1000 Ohm,±2%	100A712	RN301,302	Network Resistor, 7 x 4.7K	100A804
R304,306	390 Ohm,±2%	100A722	SW301	Switch (Part of R318)	104B116
R305	330 Ohm, 10%	100A201	SW302	Switch, on-off-on	122B190A
R310	100 Ohm	100A240	SW303	Switch, (on)-off-(on)	122B191A
R311	22K Ohm	100A259	SW304	Switch, Rotary	122B195A-06
R313,314	10 Ohm, 10%	100A251	DS301,302,303,304	Lamp, Subminiature	149A117
			NOTE: All three printed circuit boards 200D914 (with parts)		

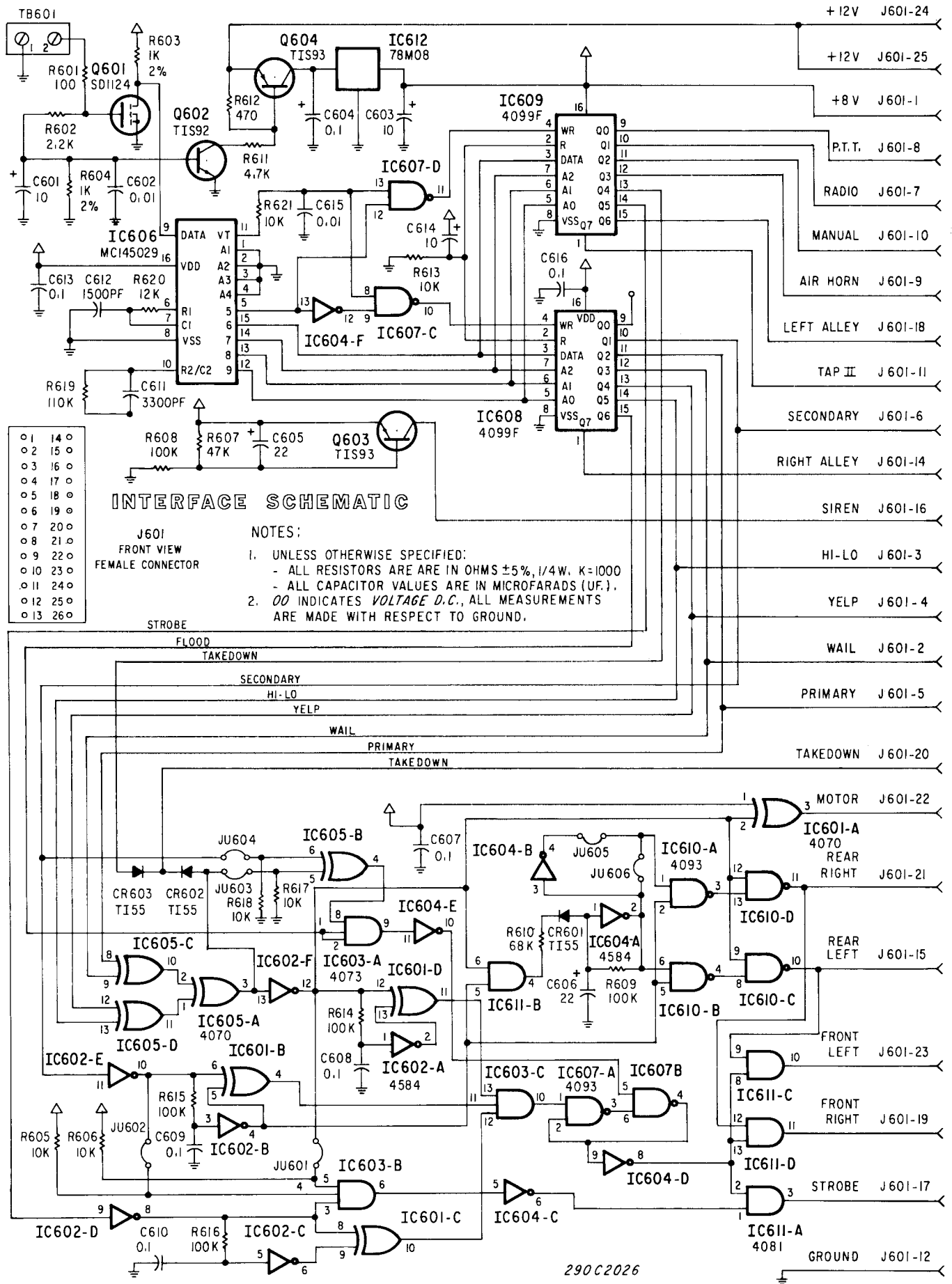
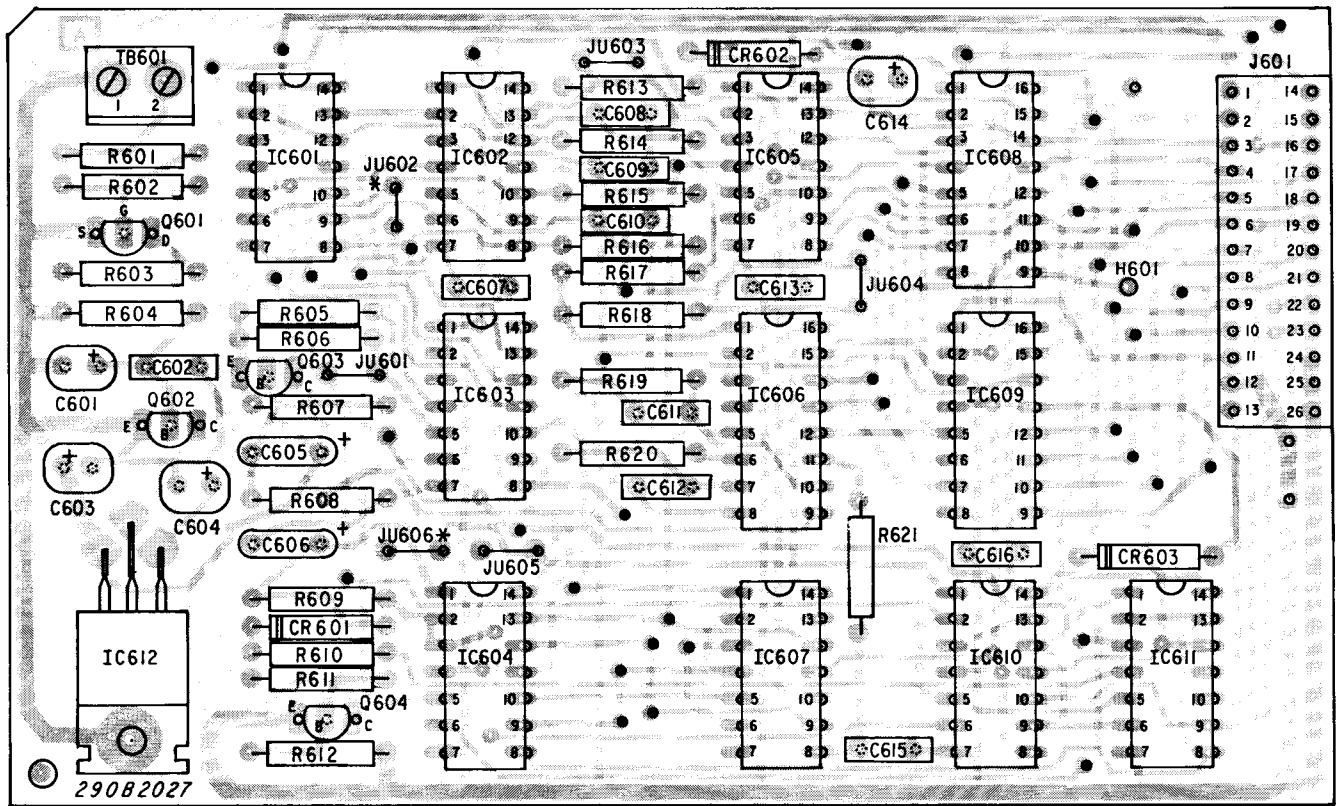


Figure 4-8. Interface Board Schematic Diagram.



* NOTE: 22 GAUGE JUMPER WIRES (JU602 AND JU606) ARE NOT INSTALLED.

Figure 4-9. Interface Board Component Location Diagram.

PARTS LIST
INTERFACE PC BOARD

Schematic Symbol	Description	Part No.	Schematic Symbol	Description	Part No.	
*RESISTORS			CAPACITORS (cont.)			
R601	100 Ohm	100A240	C607,608,609, 610,613,616	0.1UF, Film	107A768	
R602	2200 Ohm	100A225	C611	3300PF, Film	107A770	
R603,604	1000 Ohm, 2%	100A712	C612	1500PF, Film	107A769	
R605,606,613, 617,618,621	10K Ohm	100A257	SEMICONDUCTORS			
R607	47K Ohm	100A701	CR601,602,603	Diode, TI55	115B101	
R608,609,614, 615,616	100K Ohm	100A262	IC601,605	IC, 4070	128A063	
R610	68K Ohm	100A261	IC602,604	IC,MC14584B	128A059	
R611	4700 Ohm	100A298	IC603	IC4073	128A107	
R612	470 Ohm	100A248	IC606	IC,MC145029	128A101	
R619	110K Ohm	100A796	IC607,610	IC,CD4093BE	128B093	
R620	12K Ohm	100A297	IC608,609	IC,CD4099F	128A091	
*Unless otherwise specified, all RESISTORS are carbon type, ±5%, 1/4 watt.			IC611	IC,MC14081BCP	128A077	
			IC612	IC,UA78M08CKC	128A097	
			Q601	Transistor,SD1124	125A153	
			Q602	Transistor, TIS92	125B132	
CAPACITORS			Q603,604	Transistor, TIS93	125B133	
C601,603,614	10UF, 10V, Tantalum	107A634	MISCELLANEOUS			
C602,615	0.01UF, Film	107A767	J601	Receptacle	140A218	
C604	0.1UF, 35V, Tantalum	107A1103	TB601	Terminal Strip	229A169	
C605,606	22UF, 15V, Tantalum	107A677A-02	Printed Circuit Board (with parts)			200C896

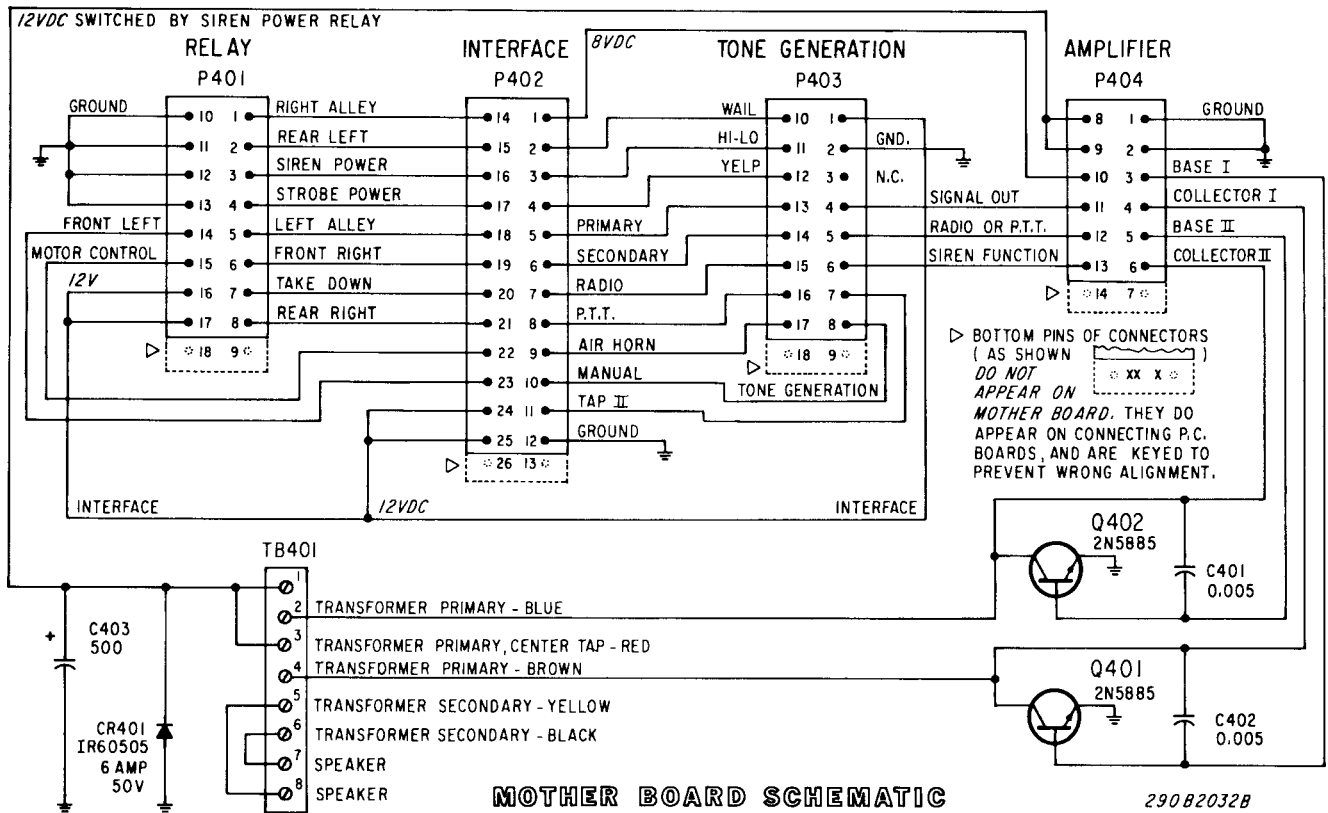


Figure 4-10. Mother Board Schematic Diagram.

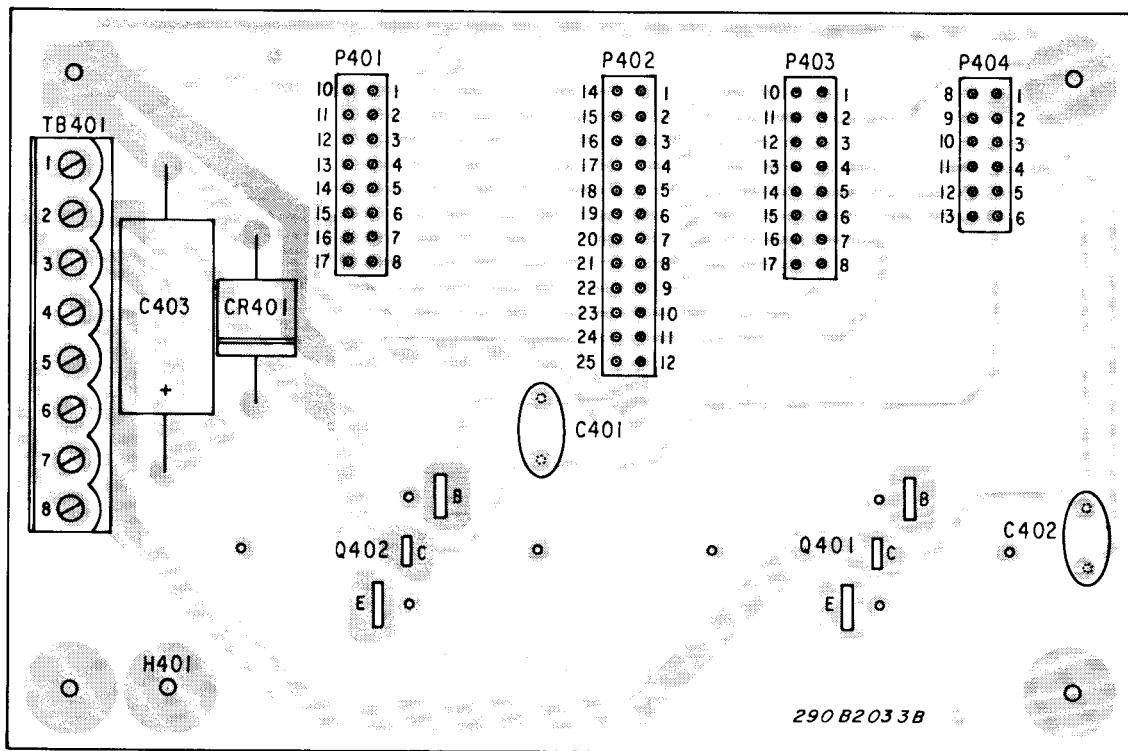


Figure 4-11. Mother Board Component Location Diagram.

PARTS LIST
MOTHER PC BOARD

Schematic Symbol	Description	Part No.
C401, 402	Capacitor, Disc, 0.005UF, 100V	107A211
C403	Capacitor, Electrolytic, 500UF, 50V	108A122
CR401	Diode, Rectifier, 6A, 50V	115A317
P401, 403	Header Breakaway	140A214
P402	Header Breakaway	140A215
P404	Header Breakaway	140A213
TB401	Terminal Strip, Plug-End	229A172
	Printed Circuit Board (with parts)	200C895

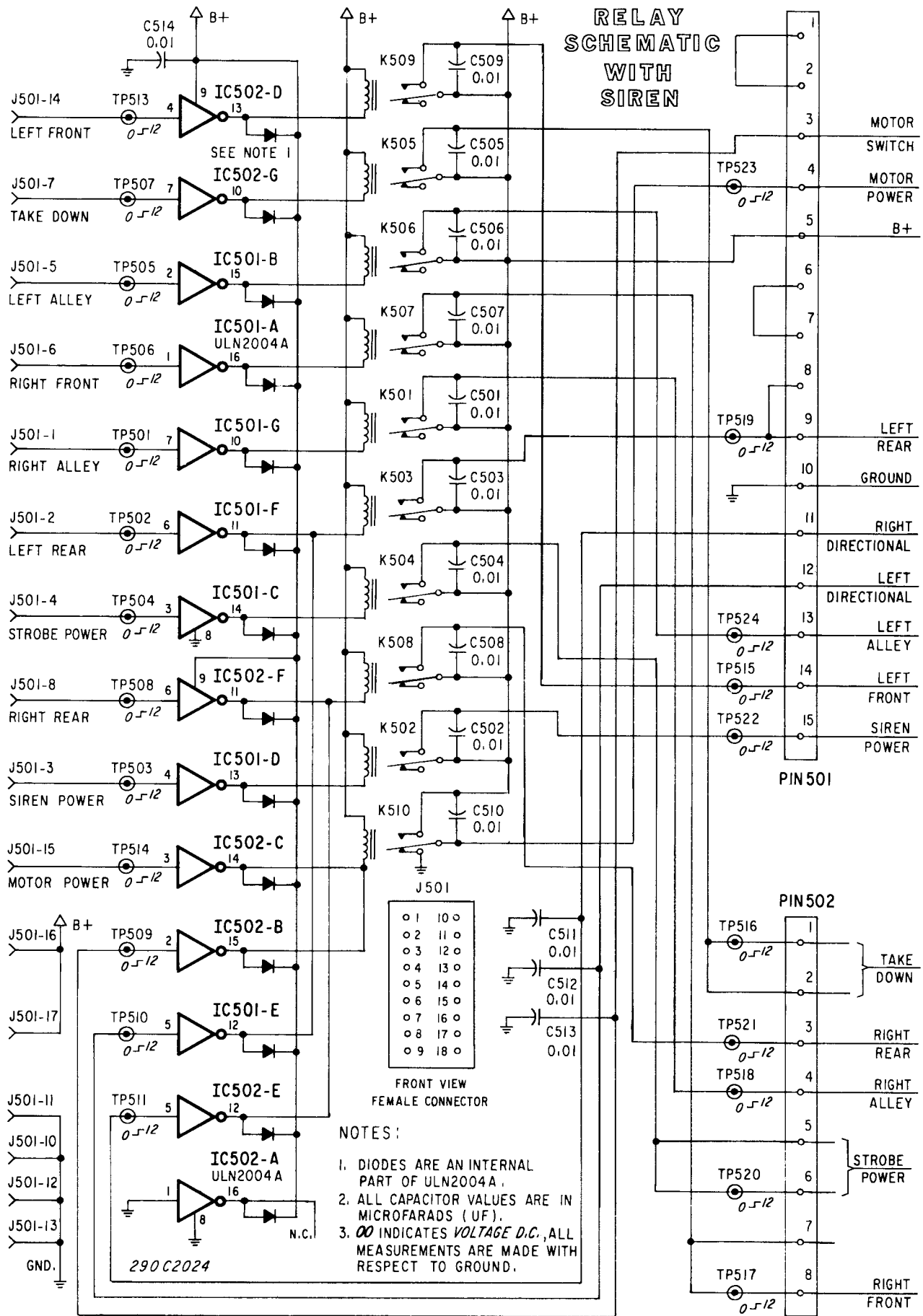
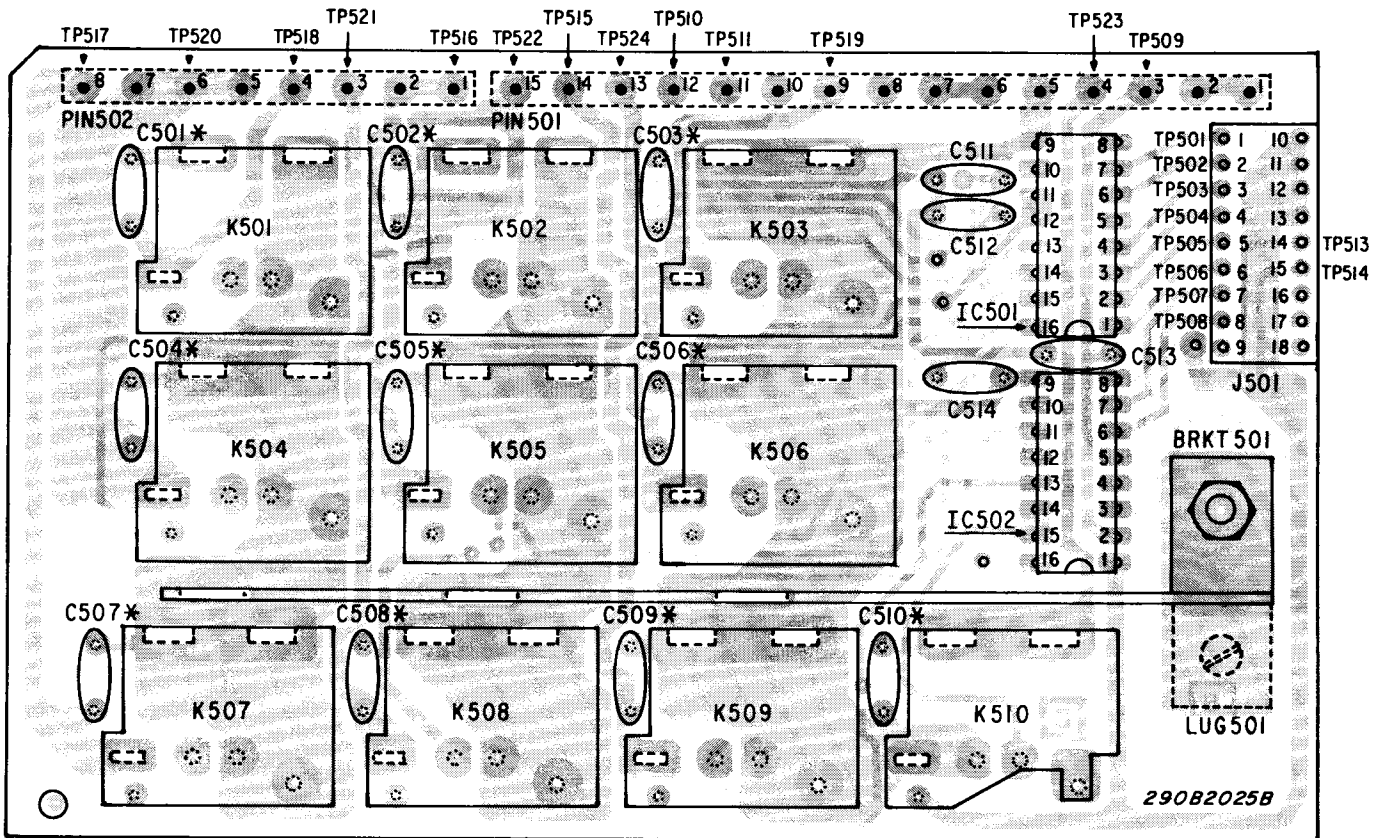


Figure 4-12. Relay Board Schematic Diagram (Light and Siren).



NOTE: TERMINAL BOARDS (TB501, & TB502) WITH TERMINAL LUG (LUG501) ARE MOUNTED ON THE BACK SIDE OF PRINTED CIRCUIT BOARD. COMPONENTS WITH AN ASTERISK (*) ARE NOT INSTALLED ON THE BOARD.

Figure 4-13. Relay Board Component Location Diagram (Light and Siren).

PARTS LIST
RELAY PC BOARD (WITH SIREN)

Schematic Symbol	Description	Part No.
C501 thru C514	Capacitor, Disc, 0.01UF, 50V	107A213
IC501,502	IC, ULN2004A	128A090
K501 thru 509	Relay, 12-volt	131A166
K510	Relay, 12-volt	8536A401A
PIN501	Terminal Pin Strip, 15-pin	229A166
PIN502	Terminal Pin Strip, 8-pin	229A165
LUG501	Connector	8474A120
J501	Header, Receptacle	140A217
	Printed Circuit Board (with parts)	200C894

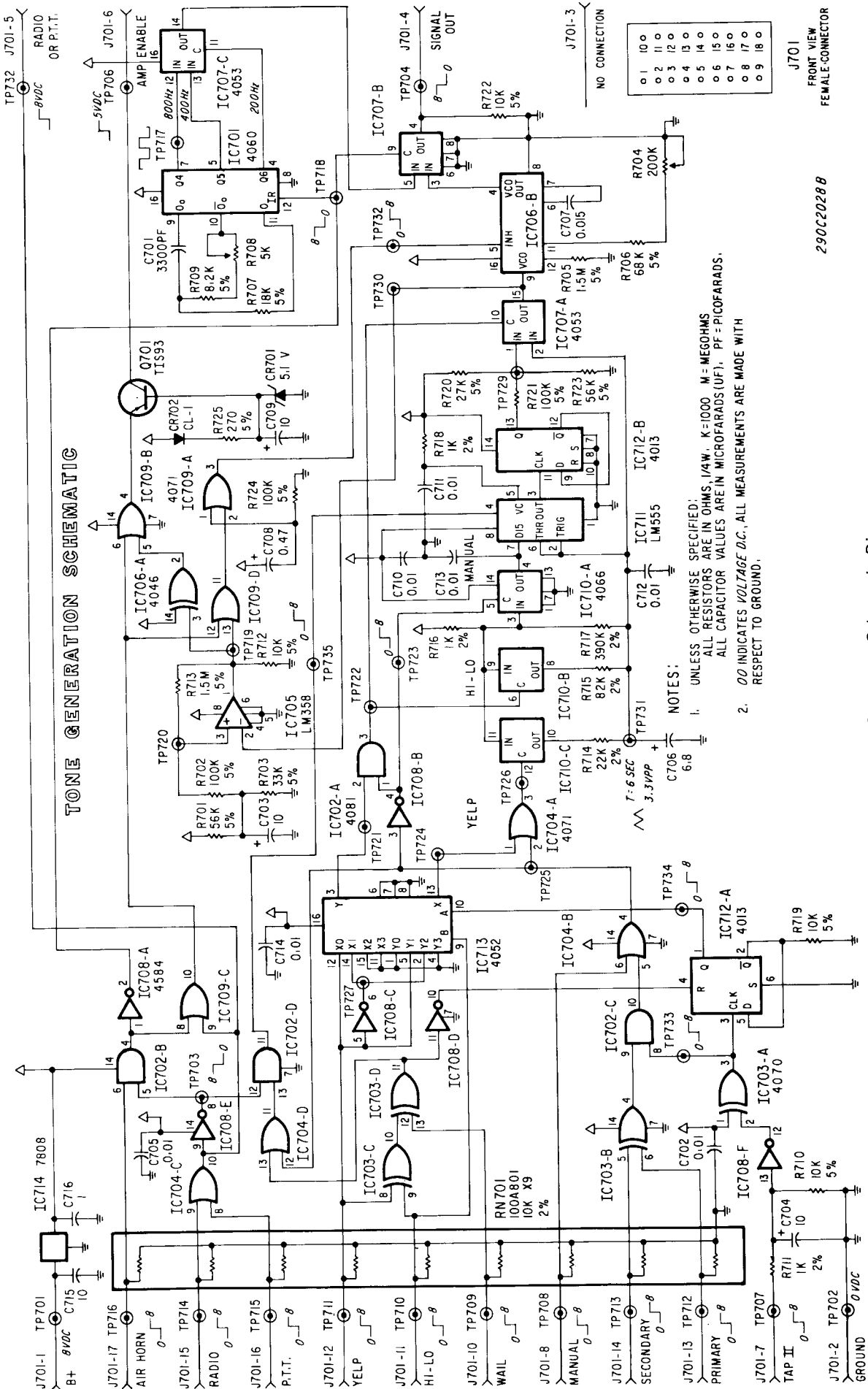


Figure 4-14. Tone Generator Schematic Diagram.

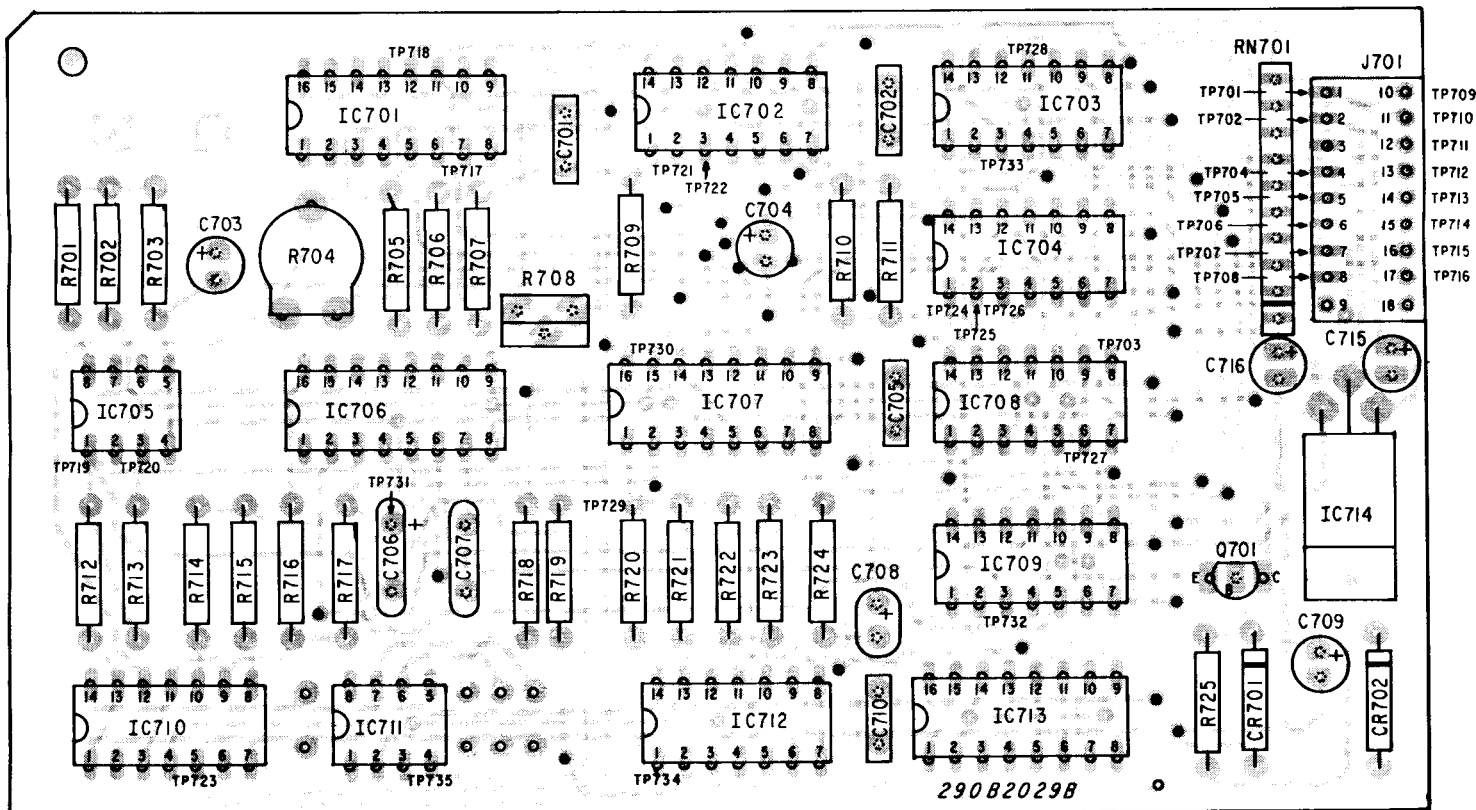


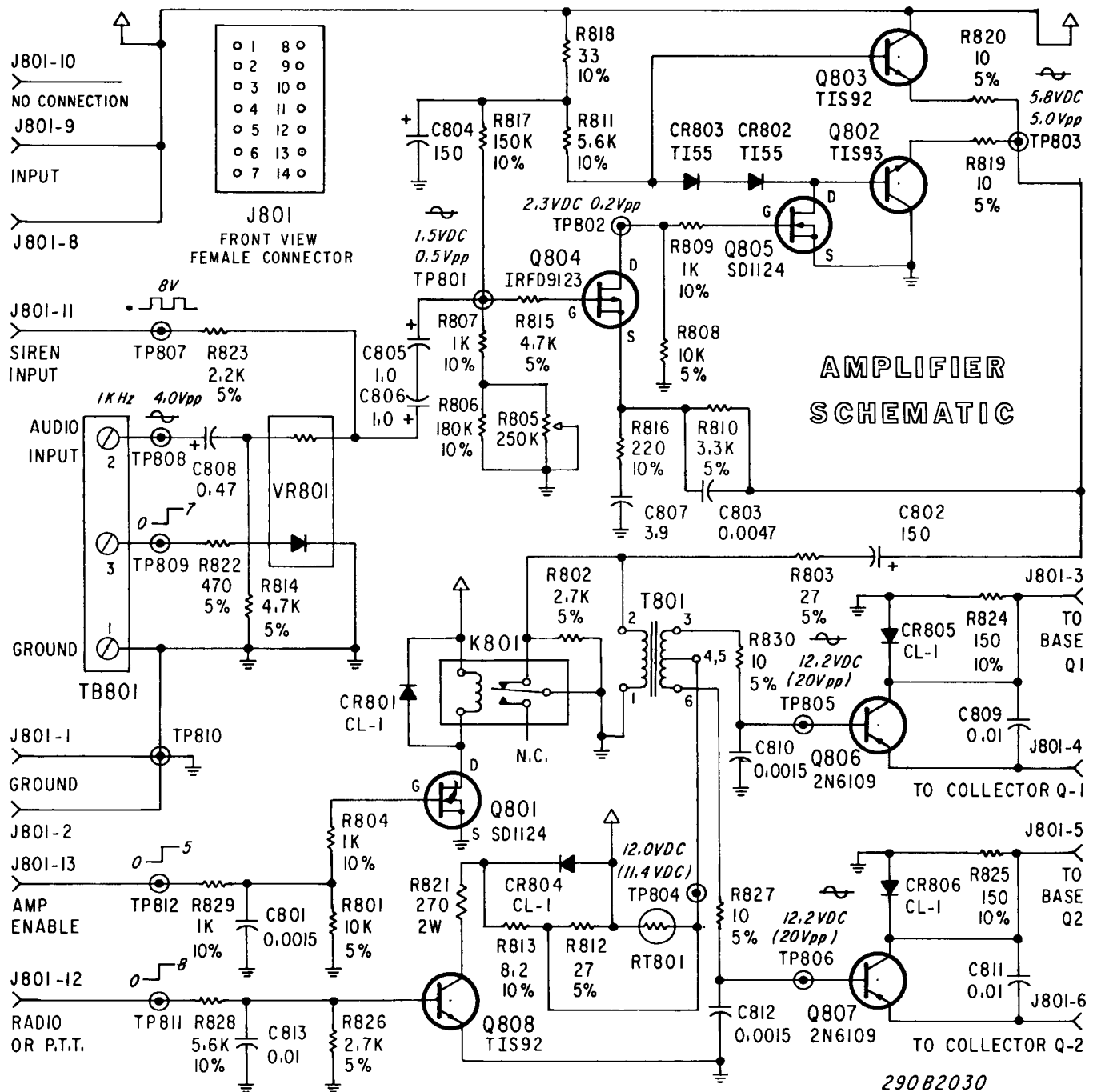
Figure 4-15. Tone Generator Component Location Diagram.

PARTS LIST

TONE GENERATION PC BOARD

Schematic Symbol	Description	Part No.	Schematic Symbol	Description	Part No.
*RESISTORS			CAPACITORS (cont.)		
R701,723	56K Ohm	100A704	C707	0.015UF, 100V, Poly	107A766
R702,721,724	100K Ohm	100A262	C708	0.47UF, 35V, Tantalum	107A645
R703	33K Ohm	100A771	C716	1.0UF, 50V, Tantalum	107A649
R704	200K Ohm, Potentiometer	106A203A-03	SEMICONDUCTORS		
R706	68K Ohm	100A261	CR701	Diode, Zener, 5.1V, 1N5231	115A251
R705,713	1.5 Megohm	100A726	CR702	Diode, CL-1	115B301
R715	82K Ohm, 2%	100A790	IC701	IC, 4060	128A104
R707	18K Ohm	100A258	IC702	IC, MC14081BCP	128A077
R708	5K Ohm, Potentiometer	105A248	IC703	IC, 4070	128A063
R709	8200 Ohm	100A223	IC704,709	IC, 14071BCP	128B082
R710,712,719,722	10K Ohm	100A257	IC705	IC, LM358	128A045
R711,716,718	1000 Ohm, 2%	100A712	IC706	IC, MC14046BCP	128B079
R714	22K Ohm, 2%	100A797	IC707	IC, MC14053BCP	128A099
R717	390K, 2%	100A760	IC708	IC, MC14584B	128A059
R720	27K Ohm	100A244	IC710	IC, MC14066BCP	128A047
R725	270 Ohm	100A246	IC711	IC, LM555C	128A043A-02
CAPACITORS			IC712	IC, 14013BCP	128B083
C701	3300 PF, Film	107A770	IC713	IC, MC14052B	128A106
C702,705,710,711,712,713,714	0.01UF, 63V, Film	107A767	IC714	IC, UA 7808UC	128A097
C703,704,709,715	10UF, 10V, Tantalum	107A634	Q701	Transistor, TIS93	125B133
C706	6.8UF, 15V, Tantalum	107A604	MISCELLANEOUS		
			RN701	Resistor Network, 9 x 10K	100A801
			J701	Connector, Receptacle Printed Circuit Board (with parts)	140A217 200C898

*Unless otherwise specified, all RESISTORS are carbon type, ±5%, 1/4 watt.



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
 - ALL RESISTORS ARE IN OHMS, 1/4 WATT. K=1000
 - ALL CAPACITOR VALUES ARE IN MICROFARADS (UF).

2. 00 INDICATES VOLTAGE D.C. ALL MEASUREMENTS ARE MADE WITH RESPECT TO GROUND.
3. VOLTAGE MEASUREMENTS IN PARENTHESIS ARE MADE WITH 8 VDC APPLIED TO J801-11, 5VDC

APPLIED TO J801-13, 7VDC
 APPLIED TO TB801-13 AND 4Vpp
 1KHz SINE WAVE APPLIED TO
 TB801-2.

Figure 4-16. Amplifier Schematic Diagram.

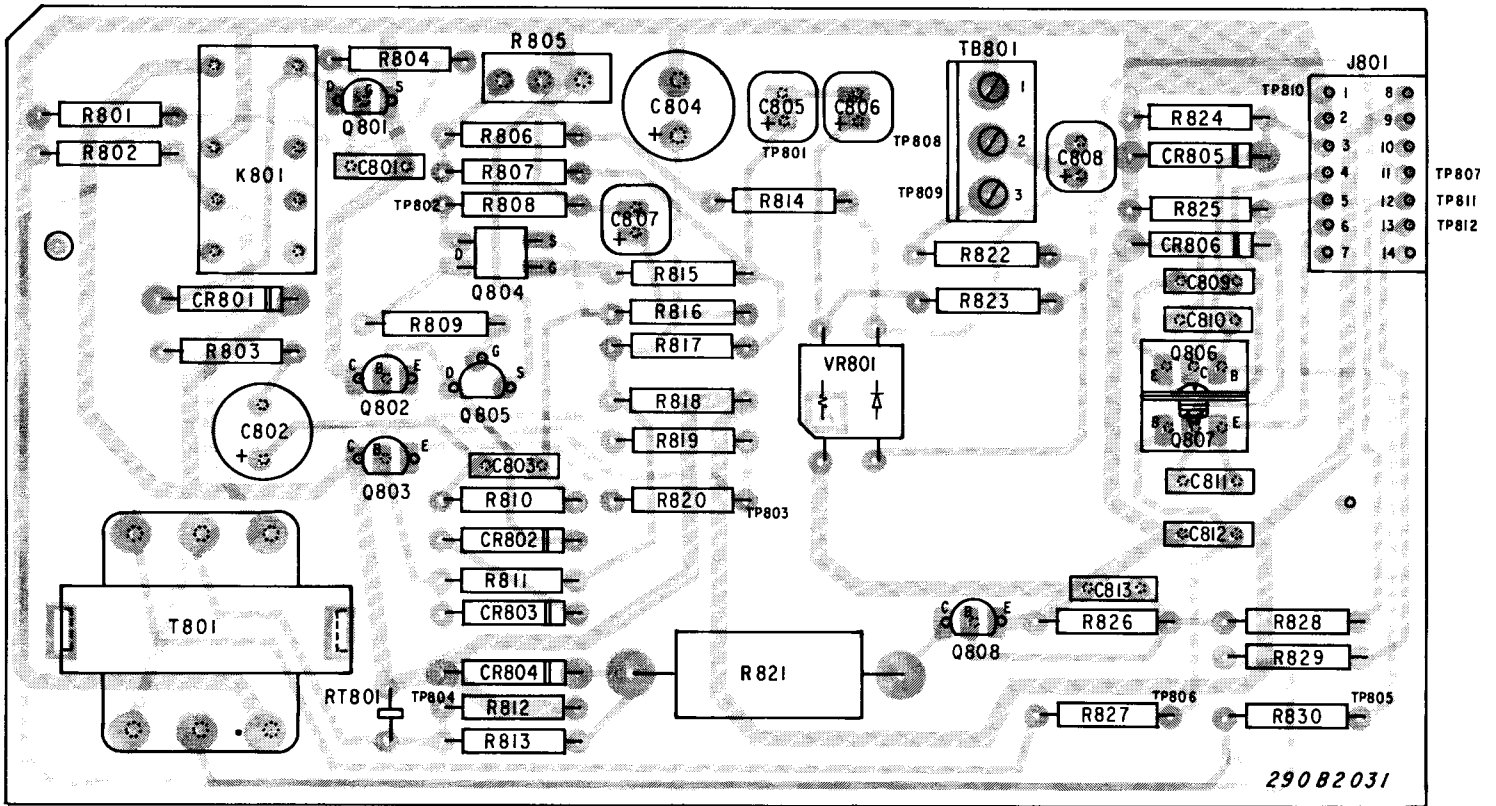
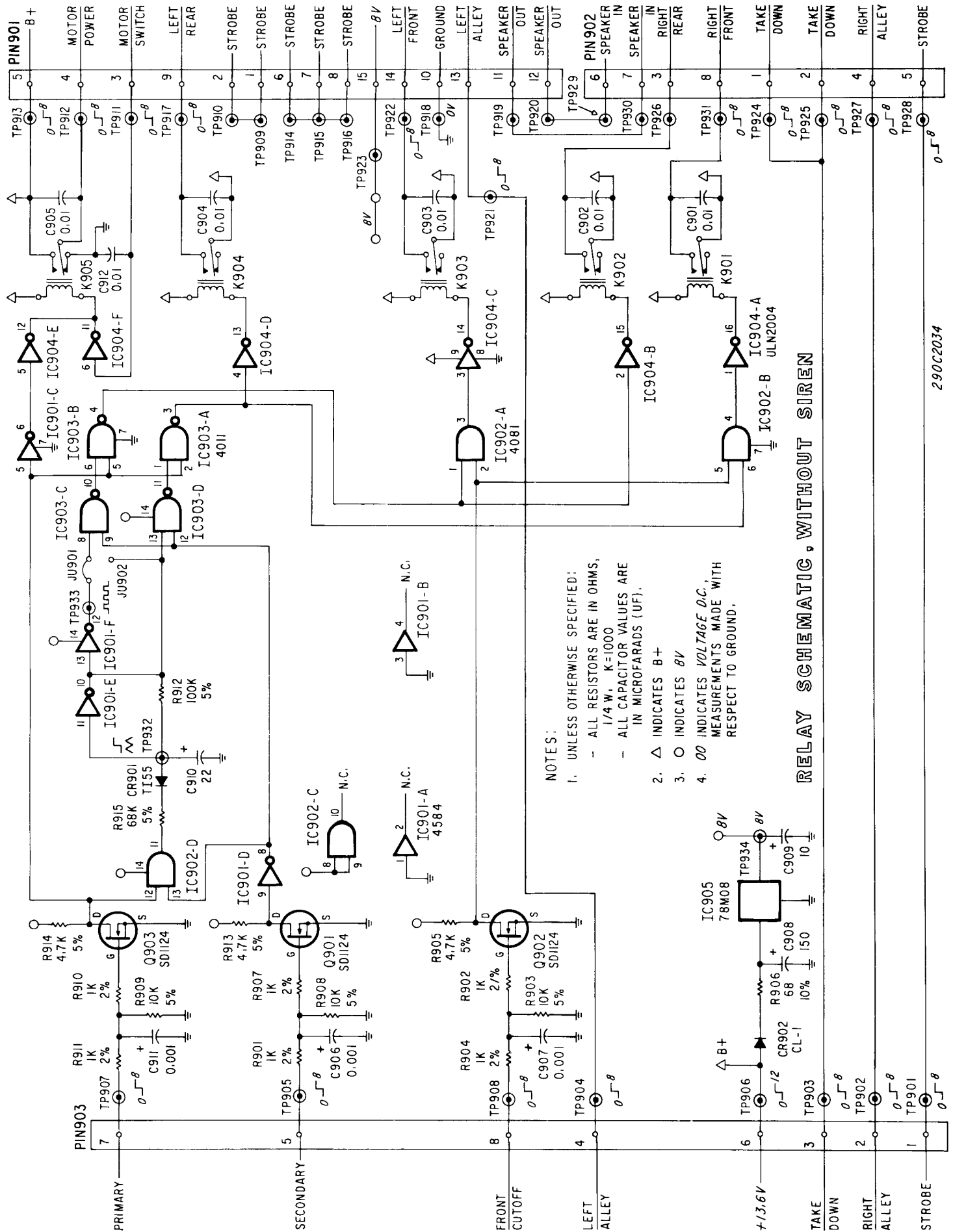


Figure 4-17. Amplifier Component Location Diagram.

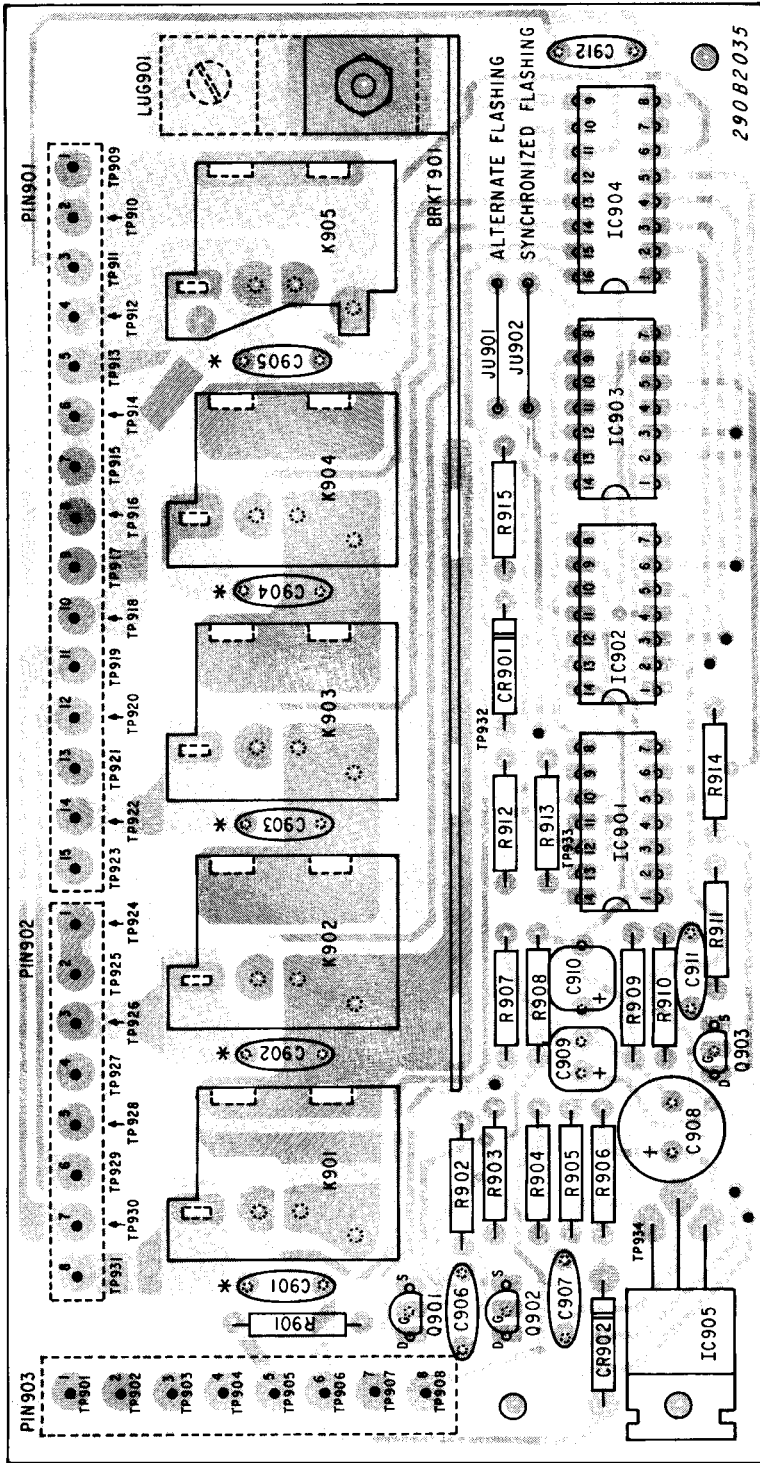
PARTS LIST
AMPLIFIER PC BOARD

Schematic Symbol	Description	Part No.	Schematic Symbol	Description	Part No.
*RESISTORS			CAPACITORS		
R801,808	10K Ohm	100A257	C801,810,812	0.0015UF, Film	107A769
R802,826	2700 Ohm	100A256	C802,804	150UF, 16V, Electrolytic	108A147
R803,812	27 Ohm	100A290	C803	0.0047UF, Film	107A772
R804,807,809,829	1000 Ohm, 10%	100A233	C805,806	1.0UF, 50V, Tantalum	107A649
R805	250K Ohm, Potentiometer	105A255	C807	3.9UF, 15V, Tantalum	107A642
R806	180K Ohm, 10%	100A706	C808	0.47UF, 35V, Tantalum	107A645
R810	3300 Ohm	100A242	C809,811,813	0.01UF, Film	107A767
R811,828	5600 Ohm, 10%	100A253	SEMICONDUCTORS		
R813	8.2 Ohm, 10%	100A724	CR801,804,805,806	Diode, CL-1	115B301
R814,815	4700 Ohm	100A298	CR802,803	Diode, TI55	115B101
R816	220 Ohm, 10%	100A219	Q801, 805	Transistor, SD1124	125A153
R817	150K Ohm, 10%	100A226	Q802	Transistor, TIS93	125B133
R818	33 Ohm, 10%	100A288	Q803,808	Transistor, TIS92	125B132
R819,820,827,830	10 Ohm	100A792	Q804	Transistor, IRFD9123	125A325
R821	270 Ohm, 2 Watt, Wire-wound	103A128	Q806,807	Transistor, 2N6109	125B431
R822	470 Ohm	100A248	MISCELLANEOUS		
R823	2200 Ohm	100A225	K801	Relay, 12V, DPDT	131A130A-01
R824,825	150 Ohm, 10%	100A238	T801	Transformer, Driver	120B145
*Unless otherwise specified, all RESISTORS are carbon type, $\pm 5\%$, 1/4 watt.			RT801	Thermistor, 200 Ohm	104A111
			VR801	Resistor, Variable	105A262
			TB801	Terminal Strip	229A170
			J801	Connector, Receptacle Printed Circuit Board (with parts)	140A216 200C897



290C2034

Figure 4-18. Relay Board Schematic Diagram (Light Only).



NOTE: TERMINAL BOARDS (TB901, TB902, & TB903) WITH TERMINAL LUG (LUG901) ARE MOUNTED ON THE BACK SIDE OF THE PRINTED CIRCUIT BOARD. JUMPERS, JU901 IS FOR ALTERNATE FLASHING, JU902 IS FOR SYNCHRONIZED FLASHING. ONLY ONE IS TO BE USED. CUT THE JUMPER NOT REQUIRED. CAPACITORS WITH AN ASTERISK (*) (C901 THROUGH C905) ARE FOR OPTIONAL EMI/RIF, USE ONLY WHEN REQUIRED.

Figure 4-19. Relay Board Component Location Diagram (Light Only).

PARTS LIST
RELAY PC BOARD (LIGHT ONLY)

Schematic Symbol	Description	Part No.	Schematic Symbol	Description	Part No.
R901, 902, 904, 907, 910, 911	1000 Ohm, 2%	100A712	CR901	Diode, TI55	115B101
R903, 908, 909	10K Ohm	100A257	CR902	Diode, CL-1	115B301
R905, 913, 914	4700 Ohm	100A298	Q901, 902, 903	Transistor, SD1124	125A153
R906	68 Ohm, 10%	100A280	IC901	IC, MC14584B	128A059
R912	100K Ohm	100A262	IC902	IC, MC14081BCP	128A077
R915	68K Ohm	100A261	IC903	IC, 4011BE	128A065
			IC904	IC, ULN2004A	128A090
			IC905	IC, UA78MD8CKC	128A097
				MISCELLANEOUS	
			K901, 902, 903, 904	Relay, 12-volt	131A166
			K905	Relay, 12-volt	8536A401
			PIN901	Terminal Pin Strip, 15-pin	229A166
			PIN902	Terminal Pin Strip, 8-pin	229A165
			PIN903	Terminal Strip, Plug	229A172
			LUG901	Connector	8474A120
			BRKT901	Bus Bar	8474A170
				Terminal Strip, Socket	229A171
				End of TB903	200C912
				Printed Circuit Board (with parts)	

*Unless otherwise specified, all RESISTORS are carbon type, ±5%, 1/4 watt.

CAPACITORS
C901, 902, 903, 904, 905, 912 0.01UF, 50V, Disc 107A213
C906, 907, 911 0.001UF, 500V, Disc 107A263
C908 150UF, 16V, Electrolytic 108A147
C909 10UF, 10V, Tantalum 107A634
C910 22UF, 15V, Tantalum 107A677A-02

- J** * 012
- CAL** = CALIFORNIA (REAR FLASHING)
 - = VOLTAGE (12V)
 - S** = INTEGRAL SIREN AND ACCESSORIES
 - H** = 100 WATT SPEAKER
 - F** = FRONT LIGHT CUT-OFF
 - C** = ONE TAKEDOWN LIGHT, AND ONE DIRECTIONAL STROBE
 - D** = TWO DIRECTIONAL STROBES
 - T** = TWO TAKEDOWN LIGHTS
 - A** = TWO ALLEY LIGHTS
 - J** = JETSONIC, Model J
- BASIC LIGHT BAR, WITH FOUR ROTATING LIGHTS

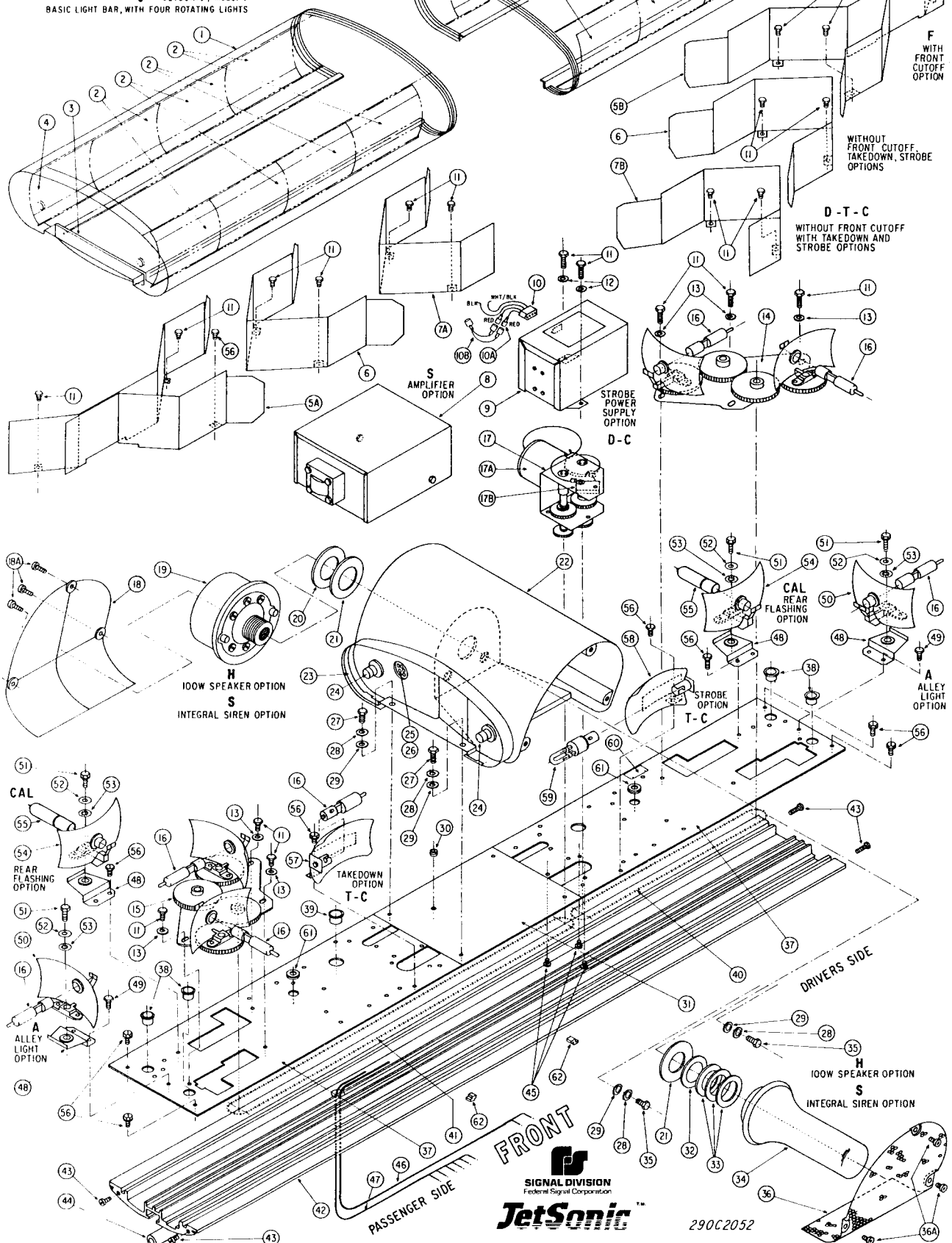
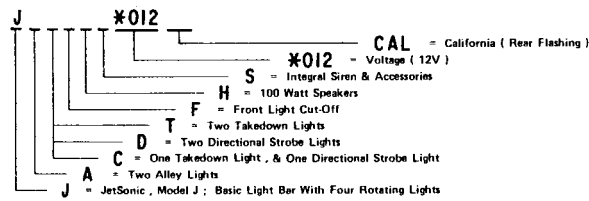


Figure 4-20. JetSonic Exploded View.

PPL 0205
PARTS LIST



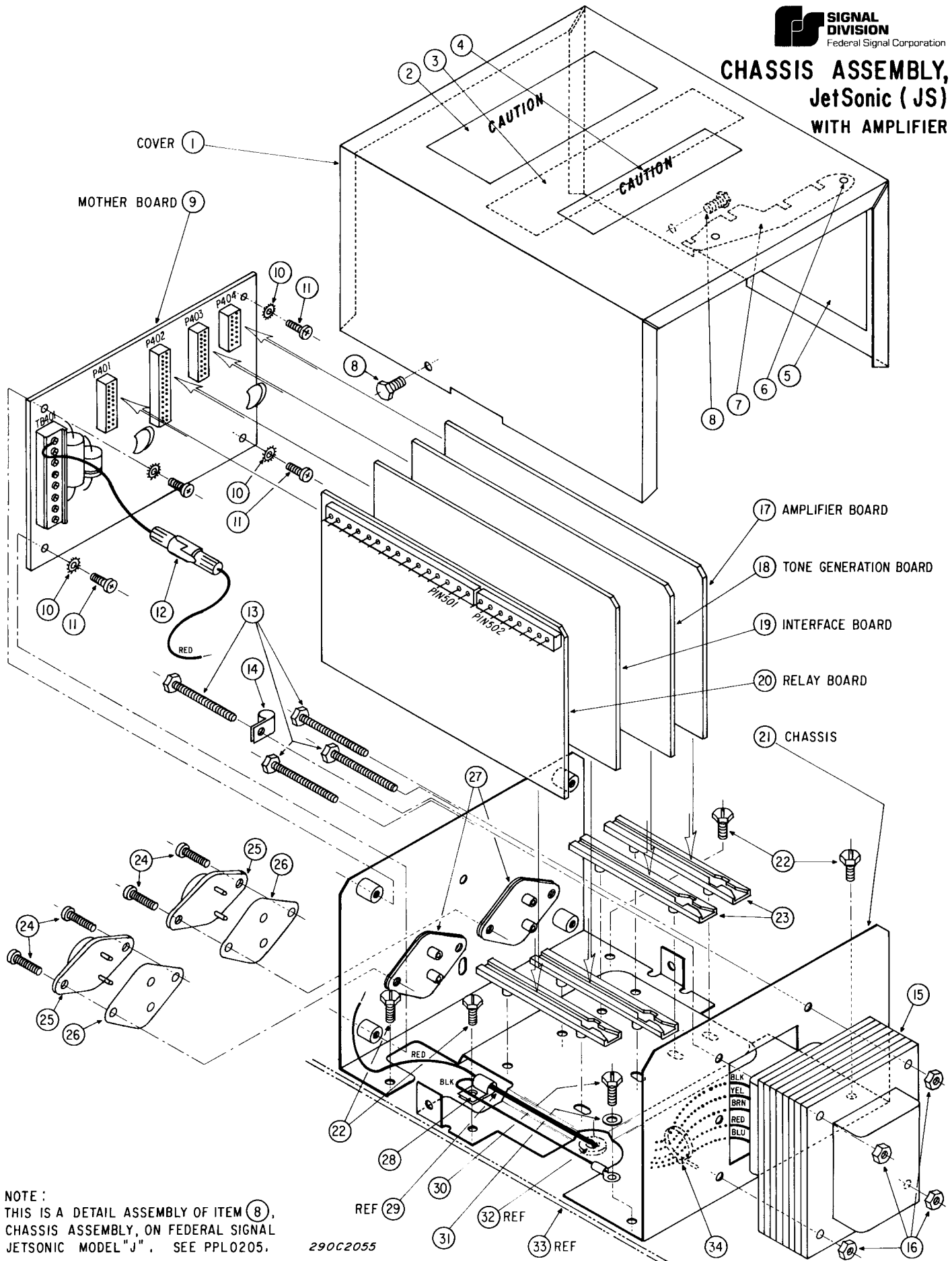
JULY 1985

Item No.	Description	Part Number	J	A	C	D	T	F	H	S	CAL
1	Dome, Clear	8552D054-00	2								
2	Insert, Clear	8552D048-00									
	Insert, Red	8552D048-01									
	Insert, Amber	8552D048-02	16								
	Insert, Blue	8552D048-03	AR								
	Insert, Green	8552D048-04									
3	Gasket, Dome	8552B047	2								
4	Insert, End, Clear	8552D058-01									
	Insert, End, Red	8552D058-03									
	Insert, End, Amber	8552D058-05	2								
	Insert, End, Blue	8552D058-07	AR								
	Insert, End, Green	8552D058-09									
	Insert, End, Red, W/Cutout	8552D058-02	0								
	Insert, End, Amber, W/Cutout	8552D058-04	0	2							
	Insert, End, Blue, W/Cutout	8552D058-06	0	AR							
	Insert, End, Green, W/Cutout	8552D058-08	0								
5	Mirror Assembly (used with front cut-off, F)										
5A	Passenger Side	8552C167	0					1			
5B	Drivers Side	8552C168	0					1			
	Mounted to item 37 with 6 screws, 3 each side										
	(see item 11)	7011A067-06	0					4			
	(see item 5B)	7011A122-08	0					2			
6	Mirror Assembly (used without C, D, T, or F)										
	Passenger Side & Drivers Side Interchangeable	8552C171	2		0	0	0	0			
	Mounted to item 37 with 4 screws, 2 each side										
	(see item 11)	7011A067-06	4		0	0	0	0			
7	Mirror Assembly (used with C, D, & T, but without F)										
7A	Passenger Side	8552C156	0		1	1	1	0			
7B	Drivers Side	8552C156-01	0		1	1	1	0			
	Mounted to item 37 with 4 screws, 2 each side										
	(see item 11)	7011A067-06	0		4	4	4	0			
8	Chassis Assembly, JS (see PPL 0207)	8552D194A.S	1								
	Chassis Assembly, JS W/Amp. (see PPL 0206)	855D173	0							1	
9	Strobe Power Supply (used with C, and D)	8552B088	0		1	1					
	(see PPL 0175)										
10	Connector, Strobe Power	139A141	0		1	1					
10A	Wire, Terminated	1300A218-02-0079	0		1						
10B	Cable Assembly, Strobe	146A664	0		1						
	10A & 10B used on JACH*012 and JACHS*012										
11	10-32 x 3/8 Screw, Hex Wh. Hd., Taprite	7011A067-06	6		2	2					
12	No. 10 Lockwasher, Int. Tooth	7075A014	0		2	2					
13	No. 10 Washer, Flat	7072A010	6								
14	Gear Cluster Mechanism Assembly, Drivers Side	8552C147	1								
15	Gear Cluster Mechanism Assembly, Passenger Side	8552C147-01	1								
16	Lamp, T4 Halogen (795) (replacement)	8107A119	4	2	1		2				
17	Gear Shaft & Motor Bracket Assembly	8552C162	1								
17A	Motor (replacement)	8422B111-32	1AR								
17B	Microswitch, V3L-3003 D8 (replacement)	8552A112	1AR								
18	Door, Speaker Housing	8552D059	1								
18A	8-32 x 3/8 Screw, Mech., Phil. Hd.	7000A109-06	3								
19	Driver, 100W	8556C063	0						1	1	
20	Washer, Steel	7072A137	0						1	1	
21	Washer, Velutex	8283A451	0						2	2	
22	Housing, Speaker	8552D057	1								
23	Gasket, Bulkhead	8552A056	2								
24	Bumper, Lens, Blk.	8552A056	4								
25	Filter	8552A062	2								
26	Plug, Vent	8552A063	2								
27	1/4 - 20 x 3/4 Screw, Hex Hd.	7000A311-12	4								
28	1/4 Lockwasher, Split, Steel	7074A015	4						2	2	
29	1/4 Washer, Flat, Steel	7072A028	4						2	2	
30	Grommet	8108A014	1								
31	Plate, Center	8552C042	1								
32	Washer	8283A453	0						1	1	
33	Washer, Neoprene Rubber	8283A452	0						3	3	
34	Cone, Long, Atlas	8283B1001	0						1	1	
35	1/4 - 20 5/8 Screw, Hex Hd.	7000A311-10	0						2	2	
36	Grille, Speaker	8552C063	1								
36A	8-32 x 1/4 Screw, Mech., Phil. Hd.	7000A109-04	3								
37	Plate, Mounting	8552D161	2								
38	Bushing, Snap (2827)	8552A041	4								
39	Bushing, Snap (2836)	8552A064	1								
40	Chain, Drive, 26.593 Lg., Drivers Side	8552A170	1								
41	Chain, Drive, 47.968 Lg., Passenger Side	8552A169	1								
42	Extrusion, Machined	8552D172	1								
43	1/4 - 20 x 5/8 Screw, Trn. Hd., Str., S.S.	7000A460-10	4								
44	Tubing, Extrusion Gasket	8552A104	1								
45	8-32 x 3/8 Screw, Hex Wh. Hd.	7011A054-06	3								
46	Cable, Power	175A546	1								
	Cable, Power	175A544	0							1	
47	Cable, Data	175A541	0							1	
48	Bracket, Lamp	8552A145	0	2							2
49	10-32 x 1/4 Screw, Hex Wh. Hd.	7011A067-04	0	4							
50	Reflector, Socket, Contact Assembly (used on A)	8552A179	0	2							
51	10-32 x 1/2 Screw, Hex Wh. Hd., Taprite	7011A067-08	0	2							2
52	No. 12 Washer, Flat	7072A022	0	2							2
53	No. 10 Lockwasher, Int. Tooth	7075A014	0	2							2
54	Reflector, Socket, Contact Assembly (used on CAL)	8552A179-01	0								2
55	Lamp, Halogen T4, (795) (replacement)	8548A028	0								2
56	No. 10 x 3/8 Type B Thd. Frm. Scr., Sit. Hex. Wh. Hd. 7011A122-06		0		2	2	2				4
57	Socket & Reflector, Passenger Side	8552B152	0		1	1	1				
58	Socket & Reflector, Drivers Side	8552B150	0		1	1	1				
59	Flash Tube Assembly, Strobe (replacement)	8107A127	1		1	2					
60	Nameplate, JetSonic, Model J	8146A940	1								
61	Bushing, Nylon, 3/8 I.D.	231A144	2								
62	Gasket, Extrusion (2 shown)	8552A103	4								
Not Shown											
	Control Head Assembly	8552D174	1								
	Instruction Sheet, JS Rev B 485	256A566B	1								

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, voltage, description, and part number.
REFER TO PARTS PRICE LIST (Part No. 1001) for prices of parts.
Printed in U. S. A.

Federal Signal Corporation
Signal Division
2645 Federal Signal Drive
University Park, Illinois 60466

**CHASSIS ASSEMBLY,
JetSonic (JS)
WITH AMPLIFIER**



NOTE :
THIS IS A DETAIL ASSEMBLY OF ITEM (8),
CHASSIS ASSEMBLY, ON FEDERAL SIGNAL
JETSONIC MODEL "J". SEE PPL0205.

290C2055

Figure 4-21. Siren Assy. (with Amplifier) Exploded View.

Item No.	Description	Part No.	Qty.
1	Cover , Amplifier	8552C160	1
2	Label , Caution	161A383	1
3	Gasket , JS	8552A083-01	1
4	Label , Caution	161A384	1
5	Label , SetSonic With Siren	8146A939	1
6	Rivet , Brass , Semi-Tubular	7097A111-14	2
7	Guide , PC Board Alignment	8552C165	1
8	8-32 x 1/4 Screw , Hex Hd. , Taptite	7011A043-04	2
9	Board , PC Assembly , Mother Board	200C895	1
10	#6 Lockwasher , Ext. Tooth	7075A002	4
11	6-32 x 3/8 Screw , Pan. Hd. , Phl.	7000A404-06	4
12	Fuse Assembly	200A911	1
13	6-32 x 1-1/4 Screw , Hex. Hd. , Indent	7000A309-20	4
14	Clamp , Cable	150A117	1
15	Transformer	120C151-03	1
16	6-32 Nut , Hex , Ext. Keys	7058A035	4
17	Board , PC Assembly , Amplifier	200C897	1
18	Board , PC Assembly , Tone Generation	200C898	1
19	Board , PC Assembly , Interface	200C896	1
20	Board , PC Assembly , Relay	200C894	1
21	Chassis , Sub-Assembly	8552C175	1
22	#10 x 3/8 Type B Thd. Frm. Screw , Hex Wsh. Hd.	7011A122-06	4
23	Guide , Card	8552A066	4
24	#6 Type B Sht. Mtl. Screw , Pan Hd. , Phl.	7011A041-08	4
25	Transistor , Power , 2N5885 , NPN	125 B432	2
26	Insulator , Transistor , Thermal Conductive.	235A123A-01	2
27	Socket , Transistor	138A125	2
28	Clamp , Cable	8542A028-02	1
29	• Cable , Power	175A544	0
30	#10 x 1/2 Type B Thd. Frm. Screw , Hex Wsh. Hd.	7011A122-08	1
31	#10 Lockwasher , Int. Tooth	7075A014	1
32	• Bushing , Snap (2836)	8552A064	0
33	• Plate , Mounting	8552D161	0
34	Clamp , Cable Tie Wrap	150A109	1
• 0 Qty. indicates for reference only , parts called out on PPL 0205.			

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model , description , and part number.
REFER TO PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
Signal Division
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CHASSIS ASSEMBLY, JetSonic (JS) WITHOUT AMPLIFIER

CHASSIS ASSEMBLY , JetSonic (JS)
Without Amplifier

PPL 0207
PARTS LIST

JUNE 1985

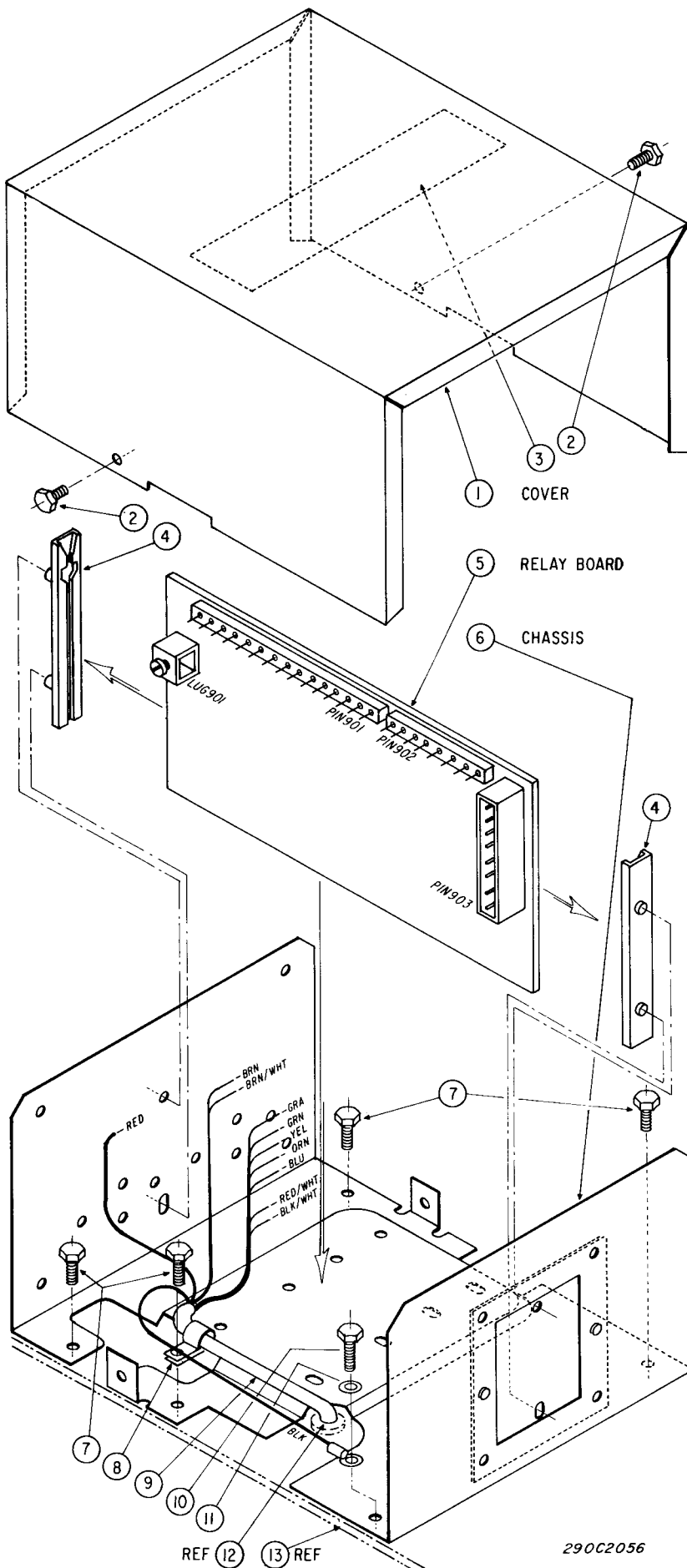
Item No.	Description	Part No.	Qty.
1	Cover	8552C160	1
2	6-32 x 3/16 Screw , Hex Hd. , Indent	7000A309-03	2
3	Gasket , JS	8552A083-01	1
4	Guide , Card	8552A066	2
5	Board , PC Assy. , Relay	200C912	1
6	Chassis , Sub-Assy.	8552D193	1
7	#10 x 3/8 Type B Thd. Frm. Screw , Hex Wsh. Hd.	7011A122-06	4
8	Clamp , Cable	8542A028-02	1
9	• Cable Assembly	175A546	0
10	#10 x 1/2 Type B Thd. Frm. Screw , Hex Wsh. Hd.	7011A122-08	1
11	#10 Lockwasher , Int. Tooth	7075A014	1
12	• Bushing , Snap (2836)	8552A064	0
13	• Plate , Mounting	8552D161	0
• 0 Qty. indicates for reference only, parts called out on PPL 0205.			

DO NOT ORDER PARTS BY ITEM NUMBER. Give model , description , and part number.
REFER TO PARTS PRICE LIST (Part No. 1001) for prices of parts.

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NOTE: THIS IS A DETAIL ASSEMBLY OF ITEM (8), CHASSIS ASSEMBLY, ON FEDERAL SIGNAL JETSONIC MODEL "J". SEE PPL 0205.



290C2056

Figure 4-22. Chassis Assy. (without Amplifier) Exploded View.