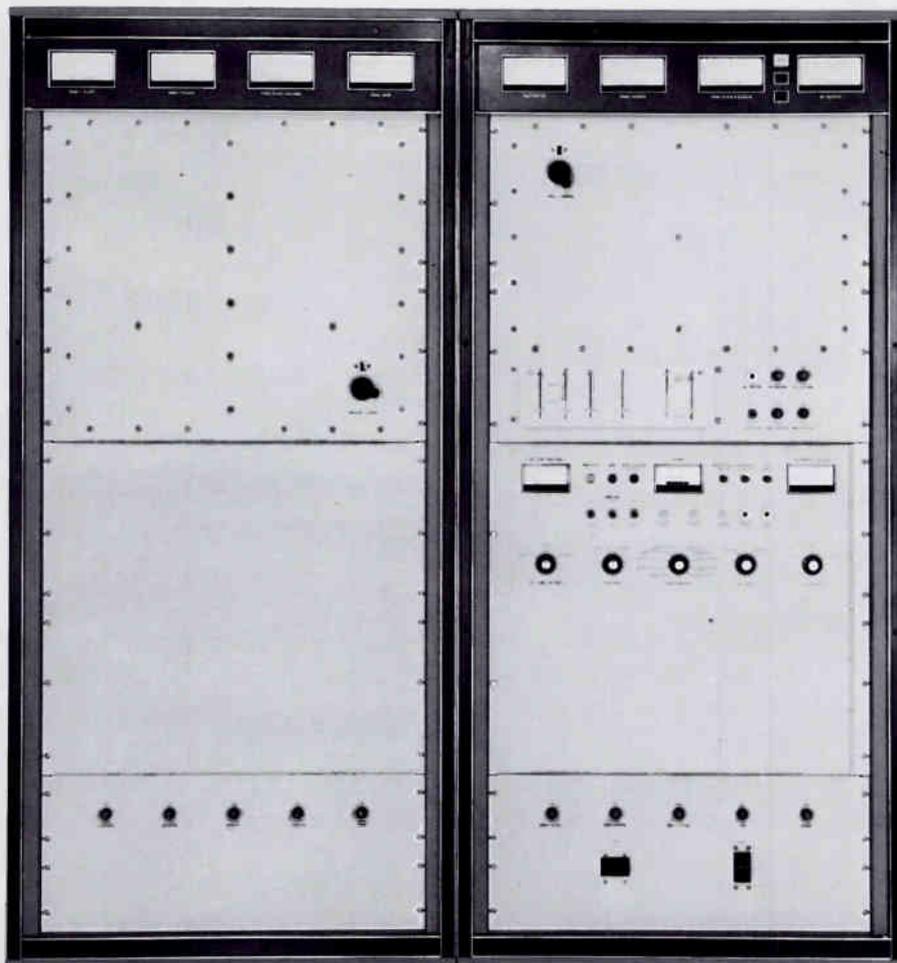

Models 705C-710C-715C AM Transmitters, 5000 to 15000 watts



FRONT VIEW OF TRANSMITTER

OPERATIONAL BENEFITS

- 125% positive peak capability.
- Stable high level plate modulation.
- Three (3) tubes.
- Plug-in solid state **low level audio and RF driver** stages.
- Adaptable for AM stereo.
- Oil-filled modulation transformer.
- Two (2) ovenless crystals **switchable**.
- Unexcelled accessibility.
- Remote ready — wire or STL
- Interface for standard telemeter control equipment.
- Step start.
- Three (3) step overload.
- FCC primary circuits **metered and continuously** monitored.
- Secondary operating parameters with **multimeter** readout.
- Front panel circuit breakers.
- Fuses with fault indicators.
- Tally light fault indicator with **memory system**.
- Remote resettable fault indicator.



BROADCAST PRODUCTS

6199 WAREHOUSE WAY, SACRAMENTO, CA 95826, U.S.A. • (916) 381-3750
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Models 705C-710C-715C AM Transmitters, 5000 to 15000 watts

GENERAL

Elcom • Bauer Models 705C-710C-715C make up a family of medium-power AM transmitters over a nominal output power range of 5000 watts to 15000 watts. 705C is offered with a standard power cutback to either 1000 watts or 500 watts; a 2500 watt power cutback is available at a slight additional charge. 710C and 715C have a standard power cutback to ¼ power for tuning and testing.

705C, 710C and 715C are contained in **dual-width cabinets**; the 715C also includes a high-voltage vault.

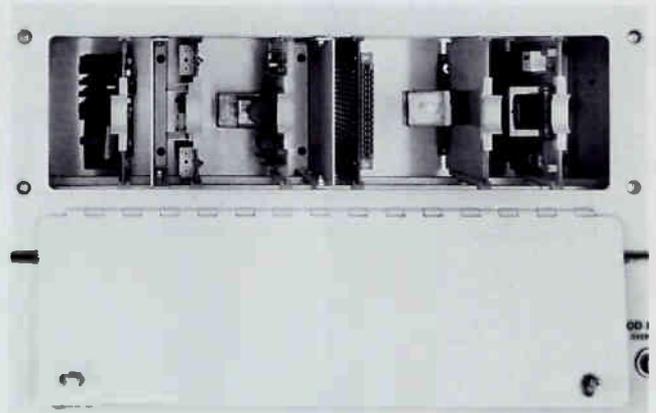
OSCILLATOR, RF DRIVER and AUDIO DRIVER

The master RF oscillator uses an ovenless crystal that operates at four times carrier frequency for maximum stability. A solid state amplifier is used to drive a highly efficient two-transistor RF stage, operating Class D, which then feeds the final amplifier. The audio driver section consists of a solid state, push-pull Class B audio amplifier. Audio drive, RF drive and all tube plate voltages are reduced for low power operation. All of the low level solid state circuitry are located on individual plug-in printed circuit boards conveniently accessible from the front panel.

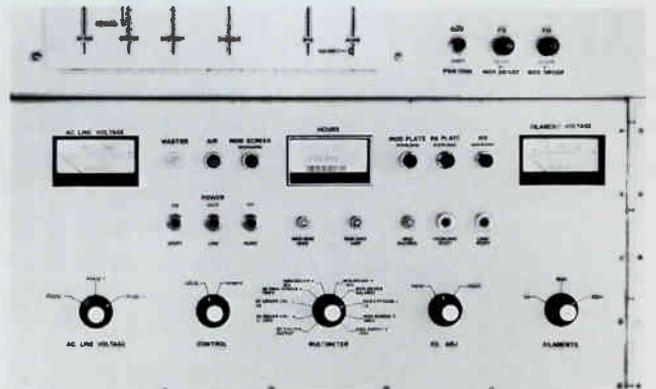
METERING, CONTROL and PROTECTION CIRCUITS

Metering for all important operating parameters, including filament operating hours, plate voltages and currents, line voltages and RF output, is included. Optional remote metering can be provided if desired, as remote metering sampling is standard.

All control circuitry is easily accessible through a front swingout panel. The appropriate control functions for ATS or remote control are available via barrier strips. A four-function remote control interface is factory-installed. A solid state control system, utilizing diode-logic and relays, incorporates full overload protection. A tally light fault locator memory system with three-step overload recycling is standard, providing quick restart on momentary outages with full transmitter protection. The tally light system allows remote fault resetting while indicating where the fault occurred.



CARD CAGE
PLUG-IN LOW LEVEL RF AND AUDIO DRIVER



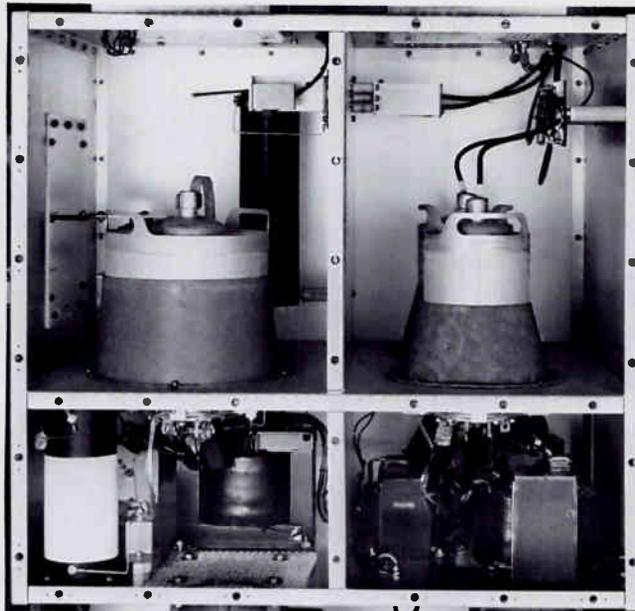
METERING AND CONTROL
WITH TALLY LIGHT FAULT LOCATOR

POWER AMPLIFIER and MODULATOR

The 705C RF power amplifier consists of a single 4CX5000A tetrode tube, while the 710C and 715C use a single 4CX15000A tetrode tube. The RF power amplifiers on all models are operated Class C, and are plate modulated.

The audio modulator for the 705C, 710C and 715C transmitters consists of two type 4CX5000A tetrode tubes, operated push-pull in Class AB-1. A large oil-filled modulation transformer is standard, as is vacuum capacitor final output plate tuning. All models are easily capable of 125% positive modulation and can be used with the latest audio processing systems.

This amplifier modulator system is inherently stable and tolerant of antenna system impedance variations.

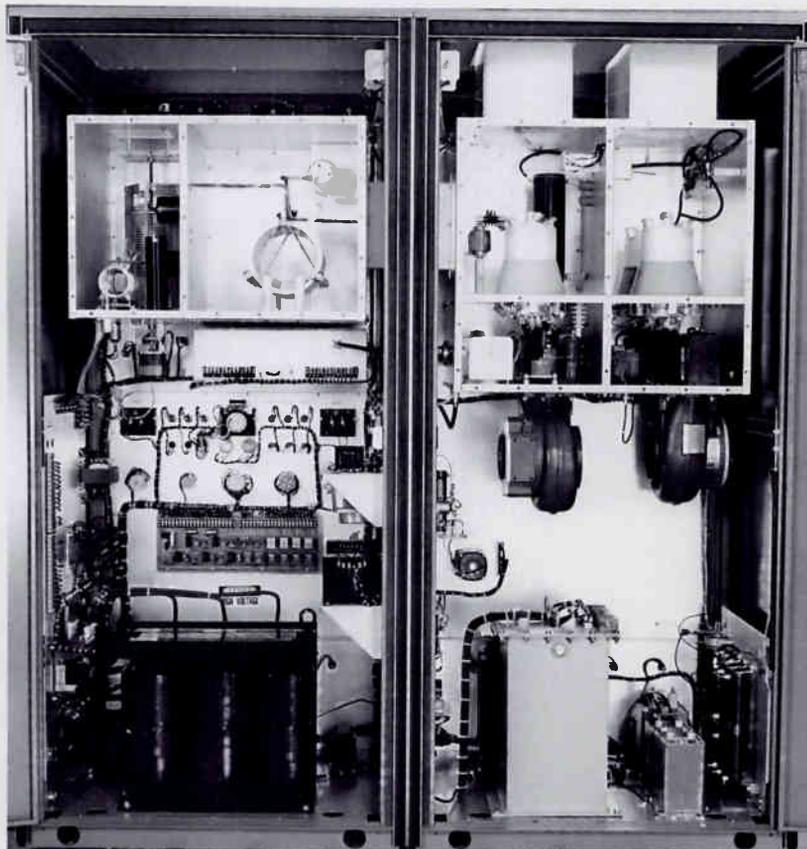


FINAL CAVITY

POWER SUPPLY and CABINETS

Step-start high-voltage switching, which allows the transmitter to cycle through low power output before high power output is energized, is standard except on 408-volt primary systems. (Contact the factory for details on 408-volt operation.)

Solid state rectification is used exclusively in all transmitter power supplies. All power supply components are conservatively rated and easily accessible through the rear door of the power supply cabinet, which is interlocked. Full-length, non-interlocked front doors and side panels, which may be removed if necessary, are provided on the cabinets along with interlocked rear doors that remove primary voltage and bleed down high voltage instantly. Grounded shorting sticks are also provided as an additional precaution.

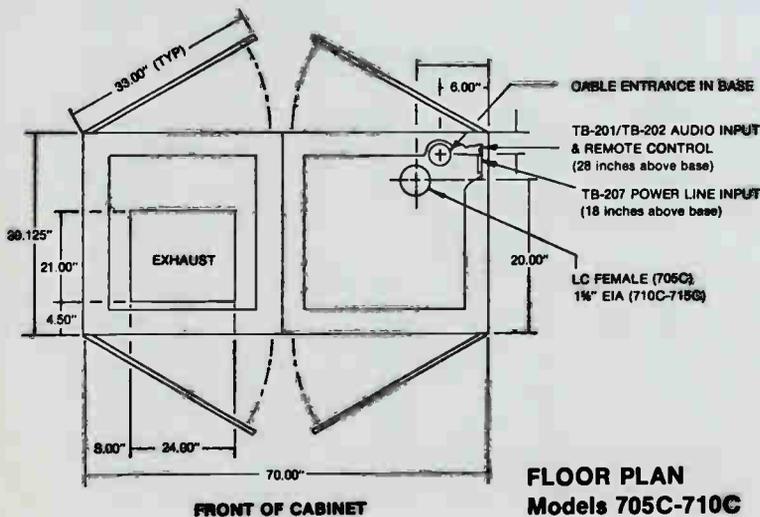


705C REAR VIEW

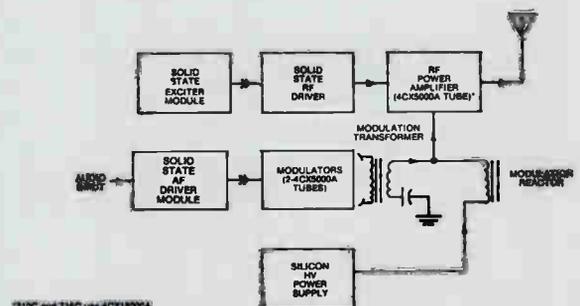
SPECIFICATIONS for 705C-710C-715C AM Transmitters

Electrical	705C	710C	715C
Power Output:			
Nominal:	5000W	10000W	15000W
Maximum:	6000W	12000W	15000W
Power Supply:*	208-240 VAC 50/60 Hz, 3 phase		
Power Consumption:			
Zero Modulation:	10600W	19000W	28000W
Average Modulation:	12000W	22000W	33000W
100% Modulation:	15500W	27000W	40000W
Power Factor:	0.9	0.9	0.9
Output Impedance:	50 Ohms, nominal, all models		
Audio Input Impedance:	600 Ohms, balanced, all models		
Audio Input Level:	+10 dBm ±2 dB for 100% modulation all models		
Audio Frequency Distortion:	2% or less (50 Hz to 10 KHz, 95% modulation)	2% or less	2% or less
Audio Frequency Response:	±1 dB, 50Hz to 10KHz, all models		
Frequency Stability:	±5 Hz, all models		
Frequency Range:**	540 to 1600 KHz, all models		
Noise, referred to 100% modulation:	Better than -60 dB, all models		
Carrier Shift:	0-100% modulation: Less than 2%, all models		
*Other line voltages on request.			
**2MHz-10 MHz available on request.			

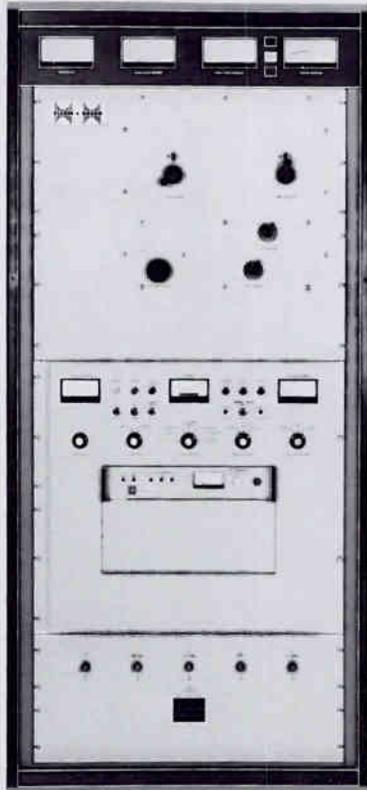
Mechanical	705C	710C	715C
Output Connector:	LC Female	1" EIA	1" EIA
Weight:	1900 lbs. (862 kg)	2150 lbs. (975 kg)	2300 lbs. (1046 kg)
Size:	75" H x 70" W x 30" D (191 cm H x 178 cm W x 76 cm D)		
High Voltage Vault Size:	none	none	39" H x 25" W x 23" D (99 cm H x 66 cm W x 58 cm D)
Maximum Altitude:*	7500', (2286 meters), all models		
Ambient Temperature Range:	-4° F to 113° F (-20° C to +45° C), all models		
*Higher available on special order.			



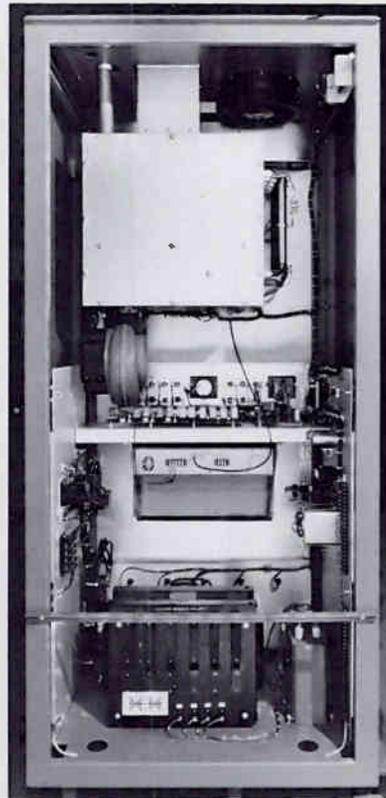
BLOCK DIAGRAM 700 SERIES



Models 603-605 FM Transmitters, 2500-5500 watts



FRONT VIEW



BACK VIEW

OPERATIONAL BENEFITS

- Solid State direct FM phase lock loop exciter.
- AFC status indication.
- Grounded grid power amplifier.
- No neutralization required.
- VSWR protections.
- Automatic power output control.
- Remote ready - wire or STL.
- Interface for telemetry control equipment.
- ATS interface.
- Three (3) phase optional single phase.
- Front panel circuit breaker.
- Fuses with fault indicator.
- Two (2) tube types.
- FCC primary circuits metered and continually monitored.
- Secondary operational parameters with multimeter readout.
- Solid State timing - diode logic and relays.
- Tally light fault indicator with memory system.
- Tuning controls with counter indicators.
- Unexcelled accessibility.



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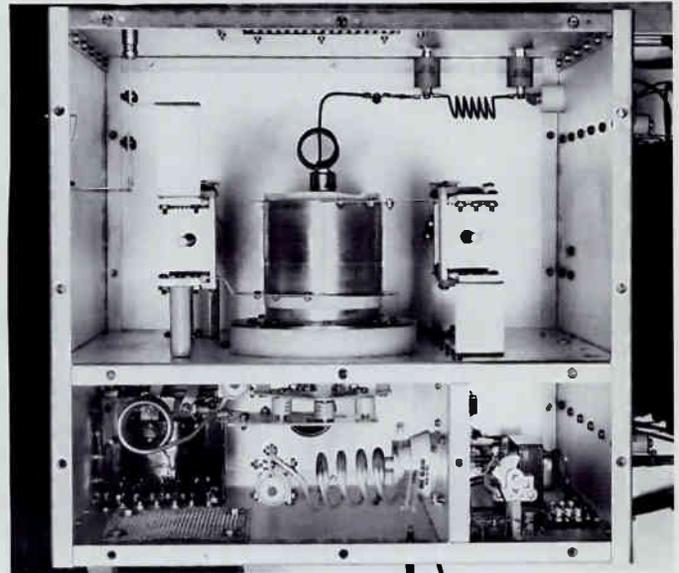
Models 603-605 FM Transmitters

GENERAL

The Elcom • Bauer Models 603-605 FM Transmitters cover a nominal output power range of 2500 watts to 5000 watts. The transmitters use the Elcom • Bauer Model 690PLL phase-locked loop exciter, and feature a single driver tube and a single final amplifier tube in a grounded grid configuration. This results in high reliability, efficiency, and low maintenance cost.

The transmitter is completely self-contained with external RF harmonic filter and associated directional coupler. It requires connection only to a primary power source, audio input and monitoring equipment for operation. The transmitter includes terminations for interfacing to most standard wire or STL remote control systems.

Excellent specifications are insured by the 690 solid state FM PLL exciter. Its output feeds type 4CX250B tubes in the intermediate power amplifier (IPA) stage. The IPA drives a ceramic zero bias triode tube, 3CX3000A7, operated in a grounded grid configuration power amplifier (PA) stage that requires no neutralization. Rugged variable inductors of solid brass, silver-plated, are used for final power amplifier tuning. High voltage for the IPA and PA stage is provided by a solid state three phase power supply.



603-605 POWER AMPLIFIER

690PLL EXCITER

The 690PLL Exciter is the heart of all transmitter models. Its advanced phase-locked loop design provides great frequency stability while delivering an exceptionally clean signal for further amplification. A single crystal frequency is used to synthesize any carrier frequency in the FM band; the frequency can be programmed in 100 KHz steps.



690PLL EXCITER

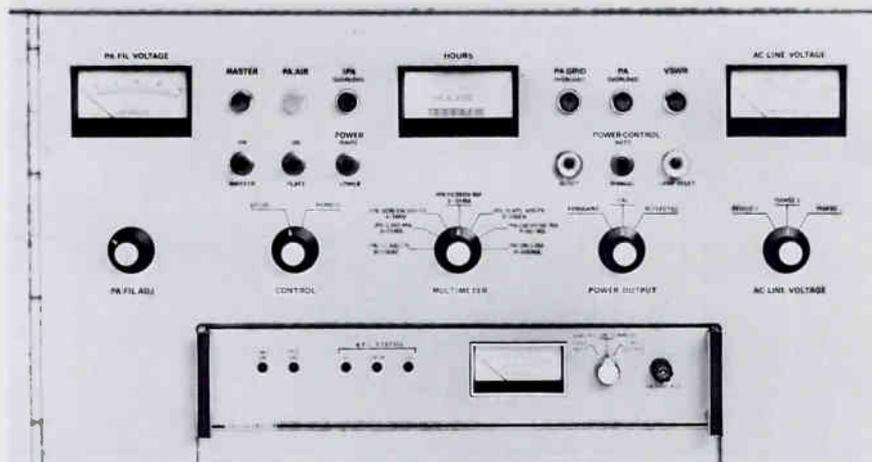
METERING, CONTROL and PROTECTION CIRCUITS

All important operating parameters are metered, including operating elapsed time and AC line voltage. A multimeter is provided to check seven operating voltages and currents. The 690PLL Exciter has its own multimeter as well as operating and AFC status indicators.

The final plate current, final input current, driver plate current, and VSWR are overload protected and monitored by a tally light system with memory. Automatic recycling restarts the transmitter should a mo-

mentary fault occur. The tally light memory keeps the appropriate fault indicator lamp lit until it is reset locally or by remote control.

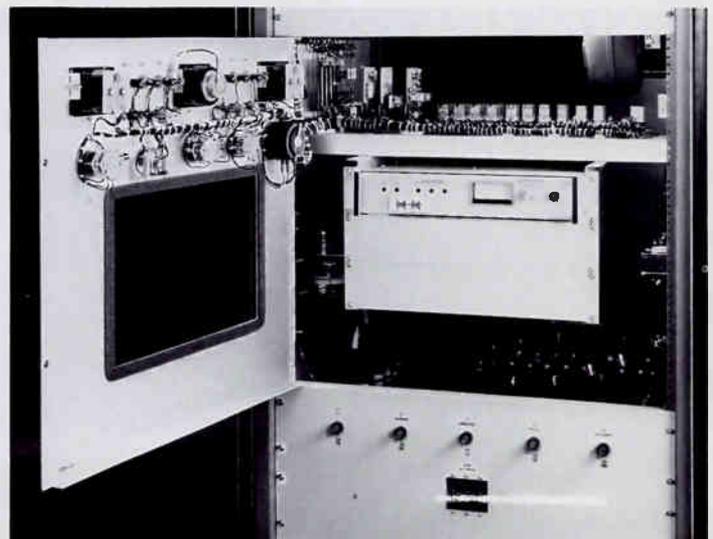
Interfacing to remote control or ATS systems is simple with all of the standard functions accessible via terminal strips. A four-function remote control interface is available to simplify remote control installation. All control circuits are accessible via a swing-out panel.



METERING CONTROL AND PROTECTIVE SYSTEM

POWER SUPPLY and CABINET

Solid state rectification is used exclusively in all Elcom-Bauer transmitter power supplies. All power supply components are conservatively rated and all parts are easily accessible through the rear of the cabinet. A full-length non-interlocked front door, which may be removed if necessary, is provided along with side panels and an interlocked rear door. High voltage ground switch and a grounded shorting stick are provided to insure personal protection.

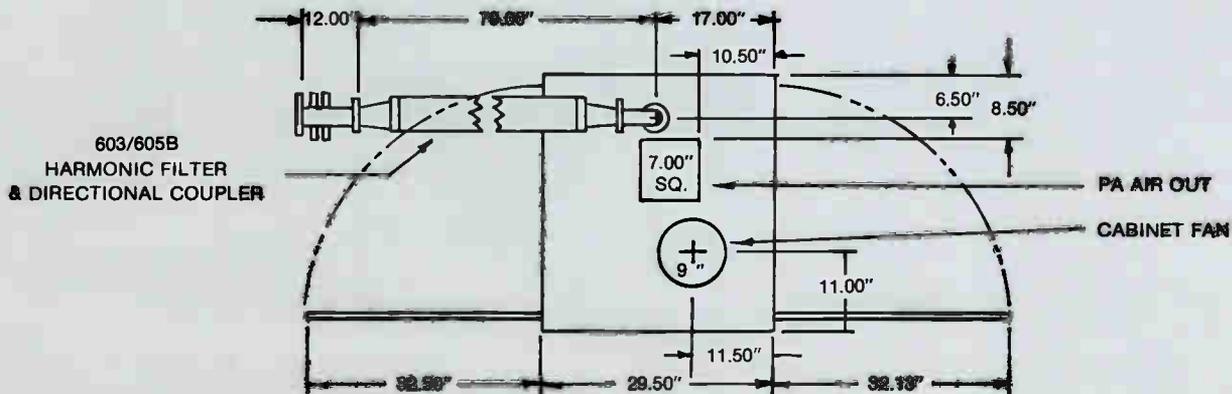


HINGED DOOR PROVIDES EASY ACCESS TO CONTROL CIRCUITRY AND EXCITER

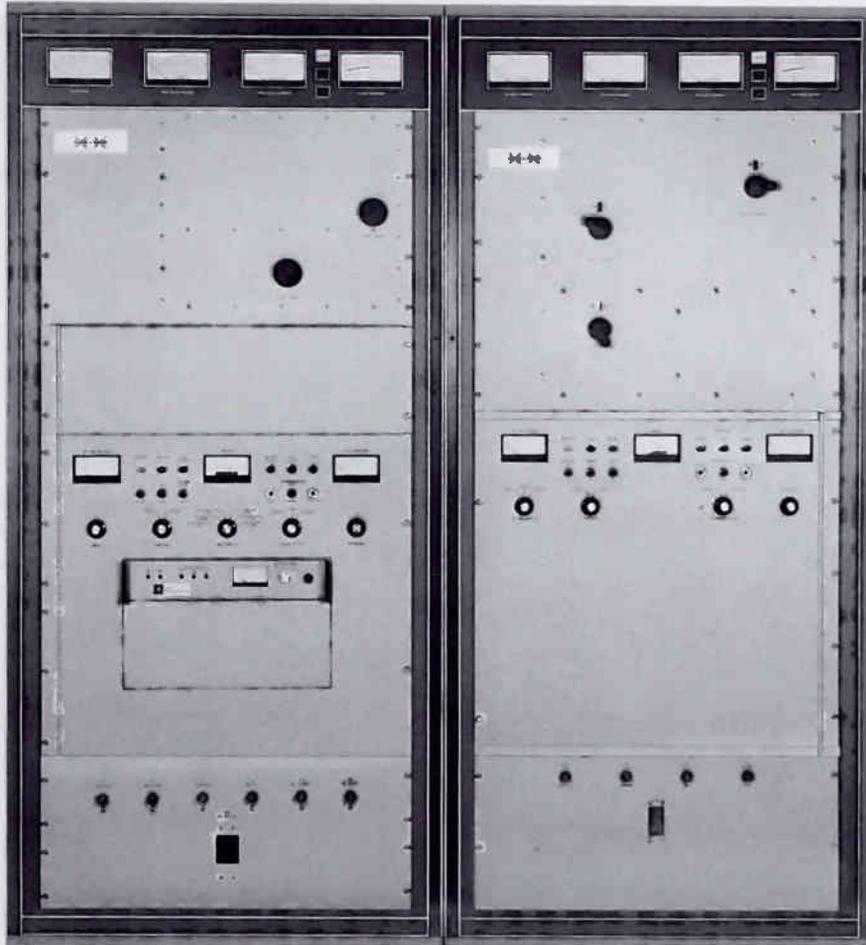
SPECIFICATIONS for Models 603-605 FM Transmitters

Electrical	603	605B	Mechanical	603	605B
Power Output:			Output Connector:		
Nominal:	3000W	5000W	Weight:	1500 lbs. (681 kg.)	1700 lbs. (771 kg.)
Range:	2500W to 3500W	3500W to 5000W	Size:	75 in. H X 35 in. W X 30 in. D, both models (191 cm H X 89 cm W X 76 cm D)	
Power Supply:	200-245 VAC, 50/60 Hz, three phase		Maximum Altitude*	7500 feet (2286 meters), both models	
Power Consumption at			Ambient Temperature	Range: -4° F to 118° F (-20° C to + 48° C), both models	
Nominal Output:	5700W	8000W			
Power Factor:	0.9	0.9			
Output Impedance:	50 ohms, nominal				
Audio Input Impedance:					
Monophonic:	600 ohms balanced, both models				
Composite:	10K ohms unbalanced, both models				
Audio Input Level:					
Monophonic:	+10 dBm both, models				
Composite:	3.5 volts peak to peak, both models				
Audio Frequency Distortion:					
Monophonic:	Less than 0.25% THD, both models				
Composite:	Less than 0.25% THD, both models				
Frequency Stability:	±300 Hz or better, both models				
Frequency Range:	88 to 108 MHz, both models				
Modulation Capability:	±150 KHz, both models				
FM Noise, referred to 100% modulation, 400 Hz:	Better than -65 dB, both models				
AM Noise, referred to equivalent 100% AM modulation:	Better than -80 dB, both models				

FLOOR PLAN



Models 610A-625A FM Transmitters, 7500-27500 watts



FRONT VIEW WITH
601-602A DRIVER

OPERATIONAL BENEFITS

- Solid State direct FM phase lock loop exciter.
- AFC status indication.
- Grounded grid power amplifier.
- No neutralization required.
- VSWR protection.
- Automatic power output control.
- Remote ready—wire or STL.
- Interface for standard telemeter control equipment.
- ATS interface.
- Built-in standby.
- Front panel circuit breaker.
- Fuses with fault indicator.
- Three (3) tube types.
- FCC primary circuits metered and continually monitored.
- Secondary operating parameters with multimeter readout.
- Solid State timing-diode logic and relays.
- Tally light fault indicator with memory system.
- Tuning controls with counter indicators.
- Unexcelled accessibility.



BROADCAST PRODUCTS

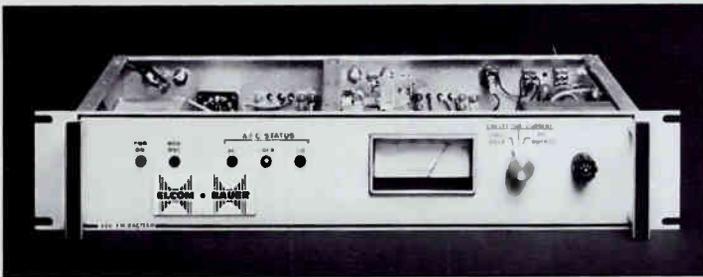
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Models 610A-625A FM Transmitters, 7500-27500 watts

GENERAL

Elcom • Bauer Models 610A or 625A power amplifier combined with a 601A or 603 comprise a family of high power FM transmitters for a nominal output power range of 10,000 watts to 25,000 watts. The 610A may be operated from 7500 watts to 13,000 watts or 7500 watts to 17,500 watts, while the 625A may be operated from 17,500 watts to 25,000 watts. Both are suitable for Class B and Class C station use. And they can be combined for a nominal 20,000 watts and 50,000 watts for redundancy and special high power/minimal number of antenna bays application.

Both transmitters use a grounded grid triode final amplifier driver by a lower power transmitter employing the model 690PLL phase-locked loop exciter. These 601A or 603 driver transmitters are capable of operating directly into the antenna feed should it ever be necessary.



690PLL EXCITER

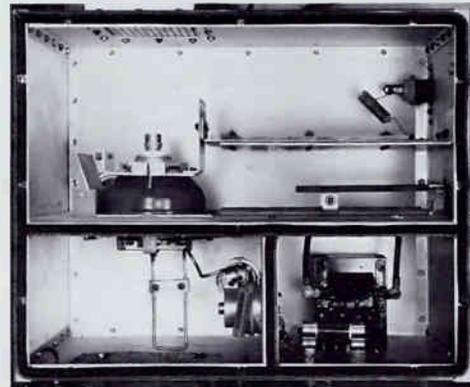
690PLL EXCITER

The 690PLL exciter is the heart of both transmitter models. Its advanced phase-locked loop design provides great frequency stability while delivering an exceptionally clean signal for further amplification. A single crystal frequency is used to synthesize any carrier frequency in the FM band; the frequency can be programmed in 100 KHZ steps.

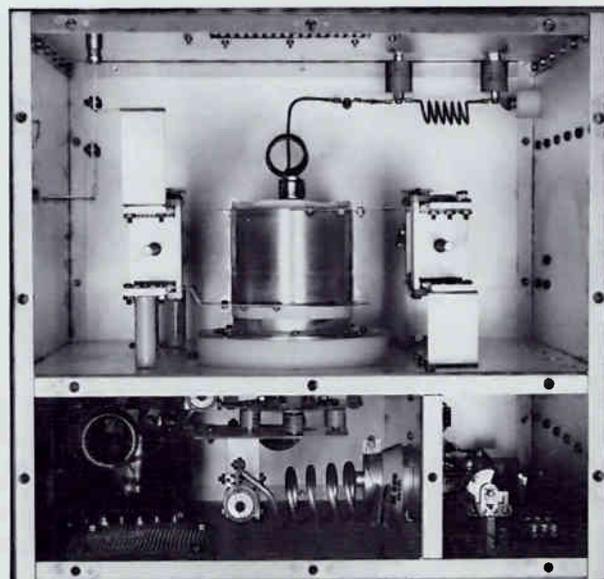
The 690PLL accepts input signals from monaural programming, composite stereo generators, and SCA generators. The applicable specifications for the 690PLL are incorporated into the transmitter specifications shown on the following pages. Also available from Elcom-Bauer are companion model 682 stereo generator and model 683 SCA generator.

INTERMEDIATE POWER AMPLIFIER

The 601A driver transmitter uses a 5CX1500A ceramic pentode tube as the intermediate power amplifier, whereas the 603 driver transmitter uses a 3CX3000A7 ceramic zero bias grounded grid triode as the intermediate power amplifier. Both IPA's are driven by a 4CX250BC ceramic tetrode. Each tube is contained in a separate aluminum enclosure for excellent RF shielding.



601A DRIVER (IPA)
SIMPLIFIED STRIPLINE TUNING



603 DRIVER (IPA)

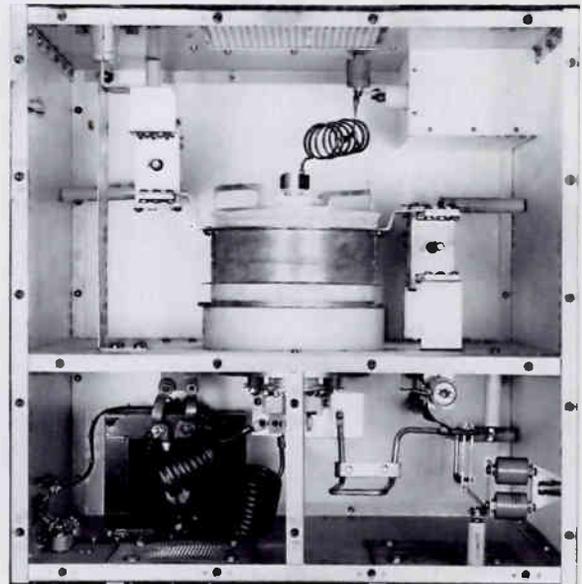
FINAL POWER AMPLIFIER

A ceramic zero bias grounded grid triode is used as a final power amplifier in both transmitters. The 610A uses a 3CX10,000A7 tube while the 625A uses a 3CX15,000A7 tube. Both operate at approximately 80% efficiency and require low drive power to attain full output due to excellent gain characteristics.

Heavy duty inductors are used to provide simple, stable tuning adjustments. An external harmonic filter and directional coupler are provided standard on both models.

POWER SUPPLY and CABINETS

Solid-state rectification is used exclusively in all transmitter power supplies. All power supply components are conservatively rated and easily accessible through the rear of the cabinets. The 610A power supply is completely self-contained, while the 625A uses a separate power supply vault for the final power amplifier plate supply. Full-length non-interlocked front doors and side panels, which may be removed if necessary, are provided along with interlocked rear doors. High voltage grounding switch and grounded shorting sticks are provided for additional protection.



625A FINAL CAVITY 3CX15000A7



METERING AND PROTECTIVE CONTROL SYSTEM

METERING CONTROL and PROTECTION CIRCUITS

All important operating parameters are metered, including operating elapsed time and AC line voltage. The driver transmitters have complete independent metering, and the 690PLL exciter has its own multimeter as well as operating and AFC status indicators.

The final plate current and final input current, IPA plate current, IPA input current, IPA driver plate current and VSWR are overload protected and monitored by a tally light system with memory. Automatic recycling restarts the transmitter should a momentary fault occur. The tally light memory keeps the appropriate fault indicator lamp lit until it is reset.

A step-start high voltage system provides filament

warm-up time before plate voltage is applied, and a reduced power status is front-panel selectable for use during tuning. Automatic power control is standard on both models, allowing use of maximum power while compensating for power line voltage variations; this function is provided by a motorized IPA screen rheostat.

Interfacing to remote control or ATS systems is simple with all of the standard functions accessible via terminal strips. A four function remote control interface is standard to simplify remote control installation. All control circuits are accessible via two swing-out front panels.

SPECIFICATIONS for 610A-625A FM Transmitters

Electrical	610A	625A	Mechanical	610A	625A
Power Output:			Output connector:	3/4" EIA female, both models	
Nominal:	10,000 W	25,000 W	Weight:	2600 lbs. (1179 kg)	3000 lbs. (1361 kg)
Range:	7,500 W to 13,000 W*	17,500 W to 25,000 W**	Size:	75 in. H x 70 in. W x 30 in. D (191 cm H x 178 cm W x 76 cm D)	
Power Supply:	208-240 VAC, 50/60 Hz, three phase	208-240 VAC, 50/60 Hz, three phase	Power Supply Vault Size:	N/A	36 in. H x 34 in. W x 26 in. D (91 cm H x 86 cm W x 66 cm D)
Power Consumption at Nominal Output:	21,000 W	38,000 W	Maximum Altitude:*	7500 feet (2286 meters), both models	
Power Factor:	0.9	0.9	Ambient Temperature: Range:	-4°F to 113°F (-20°C to +40°C), both models	
Output Impedance:	50 ohms nominal	50 ohms nominal			
Audio Input Impedance:					
Monophonic:	600 ohms, balanced, both models				
Composite:	10K ohms, unbalanced, both models				
Audio Input Level:					
Monophonic:	+ 10 dBm, both models				
Composite:	3.5 volts peak to peak, both models		*Higher available on special order		
Audio Frequency Distortion:					
Monophonic:	Less than 0.25% THD, both models				
Composite:	Less than 0.25% THD, both models				
Frequency stability:	± 300 Hz, or better, both models				
Frequency range:	88 to 108 MHz, both models				
Modulation capability:	± 150 KHz, both models				
FM Noise, referred to 100% modulation, 400 Hz:	Better than -65 dB, both models				
AM Noise, referred to 100% equivalent AM modulation:	Better than -50 dB, both models				

* T.P.O. Power Level to 17.5 KW on request

** T.P.O. Power Level to 27.5 KW on request

