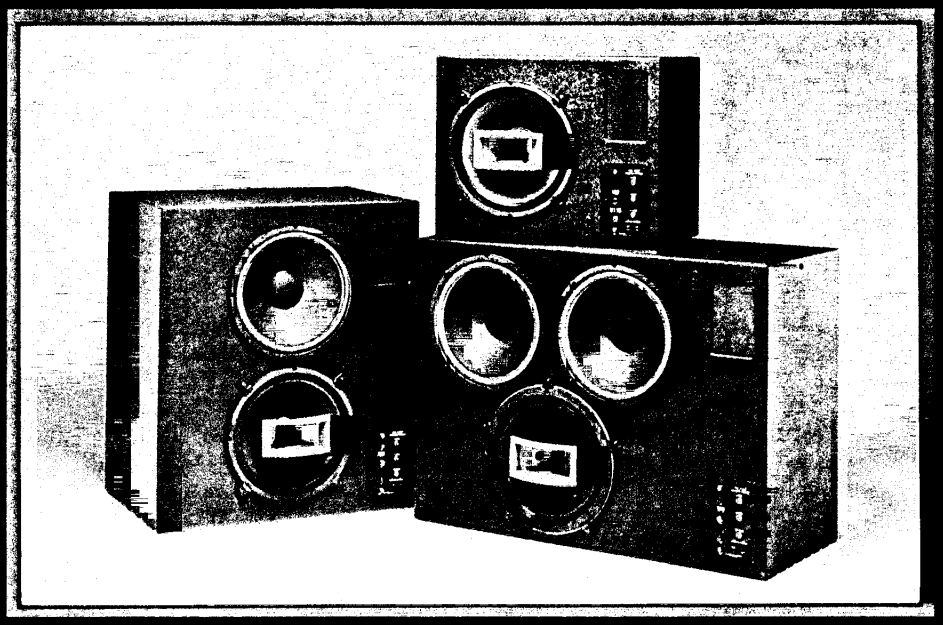
811B, 813B, 815B

THE UREI SERIES B TIME ALIGN® STUDIO MONITORS



FEATURES:

Flat power response maintains frequency balance at low distortion over wide range of output levels.

Time Align®design achieves accurate time domain response, minimizing fatigue while listening at high sound pressure levels.

One-point sound source.

Highly controlled sound field over entire frequency range.

Accurate stereophonic imaging.

Consistent ratio of direct to reverberant sound.

Since their introduction the UREI Time Align®studio monitors have continually been installed in more and more recording studios and broadcast production facilities worldwide to replace older (and some newer) monitor designs.

Series B is the third generation of UREI monitors. These monitors all feature a proprietary coaxial loudspeaker which has been developed by UREI engineers. Through the utilization of the latest advances in materials and fabrication techniques in the manufacture of the coaxial loudspeakers, the following system characteristics make them ideal for the most demanding program material:

High sensitivity, high power handling capability and extended high frequency response.

UREI

The performance breakthroughs which have been accomplished in designing the Series B monitor systems have made it possible to double the sensitivity to input signals and the power handling capability. The coaxial loudspeaker incorporates a JBL 2425H driver in the high-frequency section which extends the high frequency response envelope . . . to beyond 17.5 kHz.

The Series B monitors have the patented high frequency horn, with its diffraction buffer for correct acoustic impedance matching and smooth out-of-band-response, and the shadow slots which eliminate the midrange shadowing common to conventional coaxial loudspeaker horns. The ceramic magnet structures used on all of the drivers in the 800-series monitors assure that the sensitivity of these systems will not tend to degrade with time, even under continuous use at high monitoring levels.

Each UREI Series B monitor uses the new 801B coaxial driver to provide a true one-point sound source. Additional low-frequency drivers are utilized in the 813B and 815B for extended low-frequency response and greater overall sensitivity without sacrificing the tight bass, superior stereo imaging, and all of the other characteristics which you have come to expect from studio monitors by UREI.

TIME OFFSET CORRECTION

Even though a coaxial loudspeaker delivers the entire frequency spectrum from one source, the voice coils of the two transducers are displaced from each other, and the low and high frequency portions of a sound do not arrive at the listener's ear at the same time. This phenomenon, called "time smear," can be extremely fatiguing, particularly after several hours of critical listening.

UREI, in a joint engineering project with E.M. Long Associates, perfected the first professional utilization of the Time Align® technique, which considers driver placement and adjusts crossover group delay parameters to achieve simultaneous arrival of the sounds from both sections of the coaxial loudspeaker at the listener's ear. The result is a uniform sound which is not fatiguing, even at the high levels required in recording studio control rooms.

MIRROR IMAGE

For stereo applications, all UREI monitors are available in mirror imaged pairs for superior stereo reproduction and centering at the listening position.

CONDUCTOR COMPENSATION*

Every monitor features a BNC connector on the rear panel of the crossover to accommodate the Conductor Compensation feature of UREI's Model 6500 power amplifier. This unique, patented circuitry eliminates ringing and other problems originating in the hookup wiring and maintains extremely high damping and outstanding transient response at the loudspeaker terminals, not just at the amplifier output.

UREI TIME ALIGN® MONITOR SPECIFICATIONS

	Model 811B	Model 813B	Model 815B
SPEAKER COMPLEMENT:	Single Coaxial	Single Coaxial with one low frequency driver.	Single Coaxial with two low frequency drivers.
POWER RATING:	150 watts, 40 Hz-20 kHz, with pink noise.	150 watts, 40 Hz-20 kHz, with pink noise.	150 watts, 40 Hz-20 kHz, with pink noise.
FREQUENCY RESPONSE:	80 Hz-17.5 kHz ±3 dB	40 Hz-17.5 kHz ±3 dB	40 Hz-17.5 kHz ±3 dB
SENSITIVITY:	99 dB SPL/ watt/meter	101 dB SPL/ watt/meter	103 dB SPL/ watt/meter
IMPEDANCE:	8 ohms, nominal (minimum >6 ohms)	8 ohms, nominal (minimum >4 ohms)	8 ohms, nominal (minimum >4 ohms)
ENCLOSURE:	Approx. 142 l (5 ft^3)	326 l (11.5 ft^3)	368 l (13 ft^3)
WEIGHT:	49 kg (107 lb)	89 kg (195 lb)	107 kg (235 lb)
SHIPPING WEIGHT:	57 kg (125 lb)	98 kg (215 lb)	116 kg (255 lb)
DIMENSIONS:			
Height	527 mm (20 3/4 in)	914 mm (36 in)	813 mm (32 in)
Width	673 mm (26 1/2 in)	787 mm (31 in)	1105 mm (43 1/2 in)
Depth[1]	483 mm (19 in)	584 mm (23 in)	533 mm (21 in)
Depth with grille	559 mm (22 in)	660 mm (26 in)	610 mm (24 in)
ENCLOSURE FINISH:	Utility Flat Black Painted	Utility Flat Black Painted	Utility Flat Black Painted
OPTIONAL GRILLE:	811BG	813BG	815BG

[1]—Depth dimension is for enclosure only. Terminal strip and BNC connector at rear extend additional 25 mm (1 in). High frequency horn extends 64 mm (2 1/2 in) in front.

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JBL Professional, 8500 Balboa Boulevard, P.O. Box 2200, Northridge, California 91329 U.S.A.

15M U65081 2/86

model 813B
TIME ALIGN® MONITOR

(PRELIMINARY MANUAL)

United Recording Electronics Industries

8460 SAN FERNANDO ROAD, SUN VALLEY, CALIFORNIA 91352

(213) 767-1000

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INTRODUCTION

The UREI Model 813B Time Align® Studio Monitor is designed for critical listening applications in professional installations. When used correctly, it will provide a clear sound "picture" of the signal with full dimensionality. We recommend that you read these instructions completely before installing the 813B system.

CAUTION: The blue foam on the mouth of the horn and the padding inside the horn are installed for acoustical reasons. These are not packing materials. DO NOT REMOVE THEM!

FREQUENCY RESPONSE AND ROOM PLACEMENT

The Model 813B system is designed for flat frequency response with the front panel controls fully clockwise. The effect of these controls is shown in Figure 1, curves A, B and C. These controls are available to adjust the system output to compensate for deficiencies in control room acoustics. However, we recommend that these controls be set fully clockwise and that control room equalization be performed with an electronic equalizer such as the UREI Model 539 Room Equalizer.

Room placement has a great effect on relative sound pressure level below 150 Hz.[4] Figure 2 shows sound pressure vs. frequency for several types of room placement. Curve D is 4 pi steradian (free space) response. This is comparable to placement outdoors or with the system suspended in the middle of a large room far above the floor. Curve E is 2 pi steradian (half space) response. This is comparable to placement in the middle of a large wall with the front panel of the speaker flush with the wall. Curve F is typical pi steradian (quarter space) response, which is comparable to placement at the intersection of two boundaries, such as a wall and floor, two walls or a wall and ceiling.

Electronic equalization can be used to compensate for room placement to some extent. Large amounts of boost (i.e. more than 6 dB) at frequencies below 80 Hz should not be used, so that the displacement limits of the system are not exceeded and distortion or damage are avoided when the system is operated at high power levels. No boost should be used below 30 Hz. We recommend that a high pass (low cut) filter be used to reduce the signal level below 30 Hz. A filter of this type is provided in the UREI Model 539 1/3-octave Room Equalizer; alternatively, the UREI Model 501 Subsonic Processor, which is a two-channel filter with a corner

frequency of 30 Hz when set in the FLAT position, may be installed ahead of the power amplifier inputs.

Smoothest low frequency performance will be achieved if the system is mounted into a hard wall so that the front panel is flush with the wall surface and it is away from adjacent wall, ceiling or floor boundaries. The Model 813B is supplied in mirror image pairs, and we recommend that the cabinets be mounted with the control boxes on the lower outside edge of the cabinet, away from the center of the control room. This is especially important when the accessory grille cover is attached to avoid diffraction of the high frequencies at the mixer's position. For best stereo imaging, the distance between the cabinets should be approximately 0.9 to 1.1 times the distance from the mixer's position to the wall. The speakers should be angled vertically and horizontally so that the mixer's position is on the axis of both blue horns, Heavy gauge stranded wire (at least 16 AWG [2 mm]) should be used to interconnect the loudspeaker and amplifier. Heavier wire should be used for lengths greater than approximately 7.5 metres (25 feet).

POWER HANDLING AND AMPLIFIERS

The Model 813B system is rated at 23 volts RMS for one hour with pink noise band-limited from 40 Hz to 20 kHz. To avoid clipping short duration signal peaks when reproducing contemporary music at high levels, an amplifier rated at 400 watts per channel into 4 ohm loads is recommended. The UREI Model 6500 Dual Power Amplifier, rated at 450 W/channel into 4 ohm loads, is such an amplifier. The Model 6500 also provides UREI's exclusive Conductor Compensation™ circuit, which effectively eliminates any signal deterioration originating in the cable between the amplifier and loudspeaker system. This insures that the system is fed by the zero amplifier output impedance for which it was designed.

Some recently introduced amplifiers are adjustable for negative output resistance. These amplifiers are not recommended, because most customers lack the equipment to properly set up such an amplifier.[6] The usual result is that the system is overdamped and low frequency response suffers. UREI's Conductor Compensation, conversely, automatically provides the proper amount of correction for conductor reactance as well as resistance.

Amplifiers with transformer-coupled outputs usually offer a selection of impedances. We recommend that the 813B system be connected to the 4 ohm output of such amplifiers.

Some amplifiers employ output transistor protection circuits which are fooled by reactive loads, causing an objectionable "chatter" when operating near clipping levels. While the 813B employs protective fuses and lamps, it is still possible to damage the high frequency diaphragm of the coaxial driver when heavy clipping occurs. Note that it is possible, with such an amplifier, to blow the high frequency driver on clipped low frequency signals!

CONTROL PANEL

The Model 813B system is supplied with the Model 840 crossover network and control panel. The control panel, mounted on the enclosure baffle, has three adjustments: High Frequency Trim, High Frequency Drive and Midrange. The action of these controls is shown in Figure 1.

Separate fuses for the high and low frequency drivers are mounted beneath the controls. On the left side, under a removable panel, are three incandescent lamps which indicate excessive current peaks which occur near the system overload conditions. At the same time, they provide constant current power limiting to protect the system from excessive power. WARNING: Operation at levels so high that one or more lamps stay on continuously will cause compression of the signal's dynamic range as well as probable hearing loss.

MAINTENANCE

No preventive maintenance of the 813B is required, or even possible. The lamps and fuses are contained in the control box in the front panel. Access to the lamps is gained by removing the cover plate with the colored lenses on this box. NOTE: Do not operate the 813B without the cover plate installed, as this will affect the tuning of the enclosure.

Driver	Lamp Type	Fuse Type
800W Low Frequency Driver	1680	7A 3AG
801B Low Frequency Section	1680	(same as above)
801B High Frequency Section	1141	1.5A 3AG

In case of lamp and/or fuse failures, it is extremely important that these be replaced with the proper types. Failure to do so can result in damage to the drivers and network which will not be covered by the system warranty.

NOTE: If the 813B system is driven with high signal levels while a transducer is disconnected or has an open voice coil, voltages may be developed which exceed the ratings of the capacitors in the network. The warranty is void if the network is operated without a proper load.

Both loudspeakers may be removed from the front of the enclosure by removing the bolts which hold them in place and disconnecting the wires. When reinstalling the speakers, be certain that the proper wires are connected to the proper terminals, as shown in the following table:

WIRE COLOR	LOUDSPEAKER TERMINAL
Black	801B HF Black
Red	801B HF Red
White	801B LF Black
Green	801B LF Red
Brown	800W (No Mark)
Yellow	800W Purple Dot

In case of transducer failures, service should be done only by qualified loudspeaker repair technicians. Attempts at repair by untrained personnel may result in further damage and may void the warranty. Contact your UREI dealer or the UREI Customer Service Department for assistance in obtaining transducer service.

It is unlikely that network components other than the lamps and fuses will fail. Field service of these components is not normally authorized, and attempts at servicing may void the warranty. Contact your UREI dealer or the UREI Customer Service Department in case problems with the network are suspected.

Should it be necessary to gain access to the network components, the control box is removed from the front baffle by removing the four wood screws holding it in place. The main network panel on the rear of the enclosure may be removed by removing the wood screws holding the panel in place and removing the panel. If the loudspeaker is mounted in such a manner as to make access to the rear panel impossible, the coaxial loudspeaker may be removed and the fiberglass interior insulation may be moved aside to gain access to the rear panel circuit board. The circuit board may be removed by removing the screws in the corners which fasten the board to the metal support panel, and then disconnecting the wires from the connectors on the panel to the circuit board.

CAUTION: Fiberglass can cause skin irritation -- be certain to wear long sleeves and gloves when in contact with it.

REFERENCES

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4. "Elements of Acoustical Engineering," by Harry F. Olson, Chapter I.

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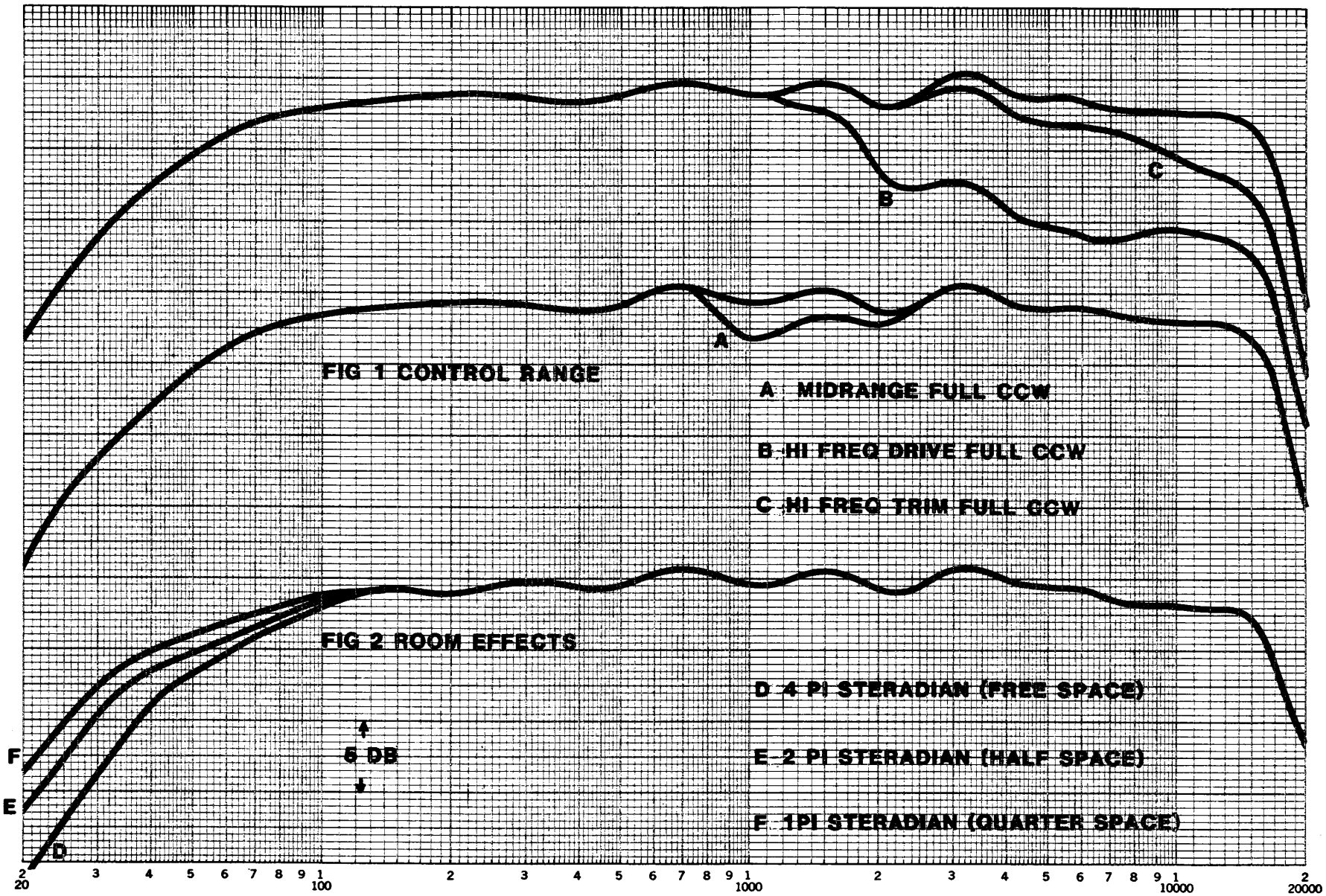
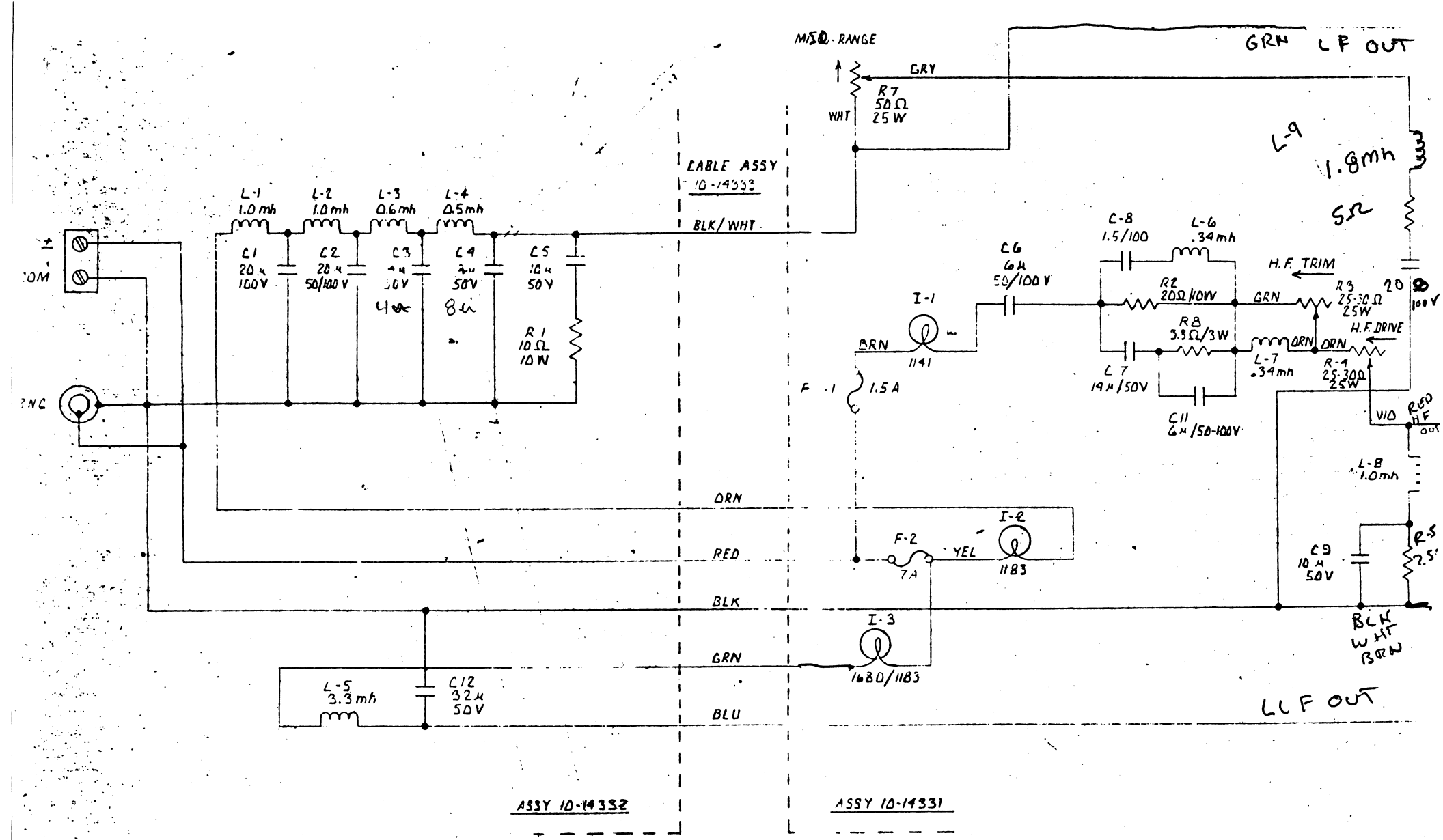
6. "Application of Negative Impedance Amplifiers to Loudspeaker Systems," by Werner and Carrell, JAES, October 1958.

813B STUDIO MONITOR





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