

# *Operating Instructions*

## **DE VRY MODEL ND30 (2830) SOUND SYSTEM**

**AS SUPPLIED WITH THE DE VRY  
16 mm. SOUND-ON-FILM PROJECTOR  
MODEL RS-(16)**



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BRANCH OFFICES  
NEW YORK HOLLYWOOD

*Distributors in Principal Cities of the World*

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# Operating Instructions

## DeVry Model ND30 (2830) Sound System

### A. OPERATING THE AMPLIFIER

#### 1. Power Supply

The DeVry Model ND30 (2830) Sound System is designed to operate ONLY on 115 Volts, 50-60 Cycle ALTERNATING CURRENT (A.C.). Amplifiers to operate on other than 50-60 cycle are obtainable on special order only.

If D.C.(DIRECT CURRENT) is the only power available, it will be necessary to use a 300 watt CONVERTER to change the 110-115 volts D.C. to 115 volts A.C. in order to operate the amplifier.

#### 2. Connecting the Amplifier, Speaker and Projector

FIGURE 1 shows the correct way to connect the Amplifier, Speaker and Projector. The upper half of Figure 1 shows how to interconnect the equipment for ALTERNATING CURRENT. The lower half of Figure 1 shows how to interconnect the equipment for DIRECT CURRENT. Note that when a CONVERTER is used the D.C. side of the converter is connected to the power source and the amplifier power cord is connected to the A.C. side of the converter. All other connections are the same as for A.C.

We recommend that before you operate the amplifier you check to determine whether the power supply is A.C. or D.C.

#### 3. Amplifier Controls and Switches

The principal amplifier controls are shown in FIGURE 2.

(a) Main Amplifier Switch

HOW TO CONNECT THE PROJECTOR, AMPLIFIER AND SPEAKER

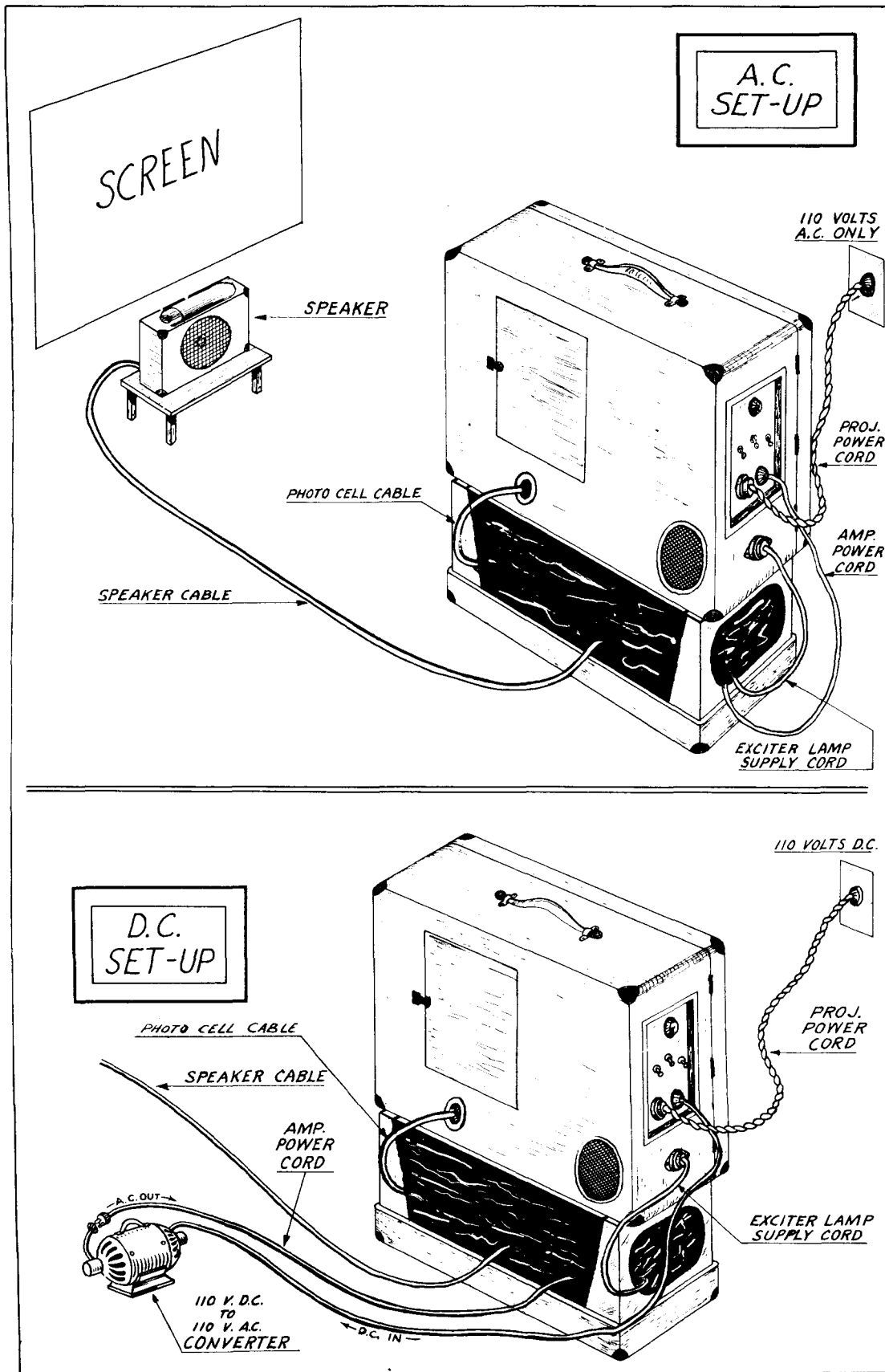


FIGURE 1

Moving this switch to the "ON" position energizes and lights up the amplifier tubes provided the speaker cord is plugged into its socket in the amplifier.

This switch should always be turned to the "ON" position several minutes before it is desired to use the equipment, to allow time for the tube filaments to warm up and reach the proper operating temperature.

(b) Main Volume Control

This control regulates the VOLUME of sound reproduced from the film, as well as the VOLUME of sound when using either a TURNTABLE or MICROPHONE.

(c) Tone Compensator Control

The Tone Compensator Control (See Figure 2) regulates the Frequency Response of the Amplifier.

Turning this control to the LEFT reproduces the LOW TONES, while turning it to the RIGHT decreases the Low Frequency Response and INCREASES the amount of HIGH TONES that are reproduced. When this control is at the "Zero" setting all the LOWS are fully reproduced; when set at the "100" setting all the HIGHS are fully reproduced.

The operator will have to determine the proper setting of this control for each sound film used.

(d) Microphone Control

This is an auxiliary Volume Control to regulate the sound volume when using a Microphone. It is to be used in conjunction with the Main Volume Control.

#### 4. Amplifier Inputs

(a) Microphone

A High Impedance microphone (which DeVry can supply) may be plugged into the amplifier using the microphone input jack, labeled "Microphone" on the amplifier panel. This facility enables you to operate the amplifier and speaker as a PUBLIC ADDRESS SYSTEM and to provide commentation for silent pictures.

(b) Phonograph Record Turntable.

An ELECTRIC PHONOGRAPH TURNTABLE, (which DeVry can supply), may be used with your amplifier. This facility is especially advantageous when you are showing SILENT FILMS and it is desired to provide a background of music or to provide music between reels. Insert the phonograph plug into the phonograph input jack, labeled "Phonograph" on the amplifier panel. We recommend the CRYSTAL TYPE of turntable although other types will give fairly good results.

When using the phonograph to provide music between reels, it is best to plug in the phonograph at the end of the reel and then to withdraw it as the next reel is started. As long as the projector is not running, the exciter lamp off, it is not necessary to unplug the photo-cell cable when using the phonograph between reels.

IMPORTANT !

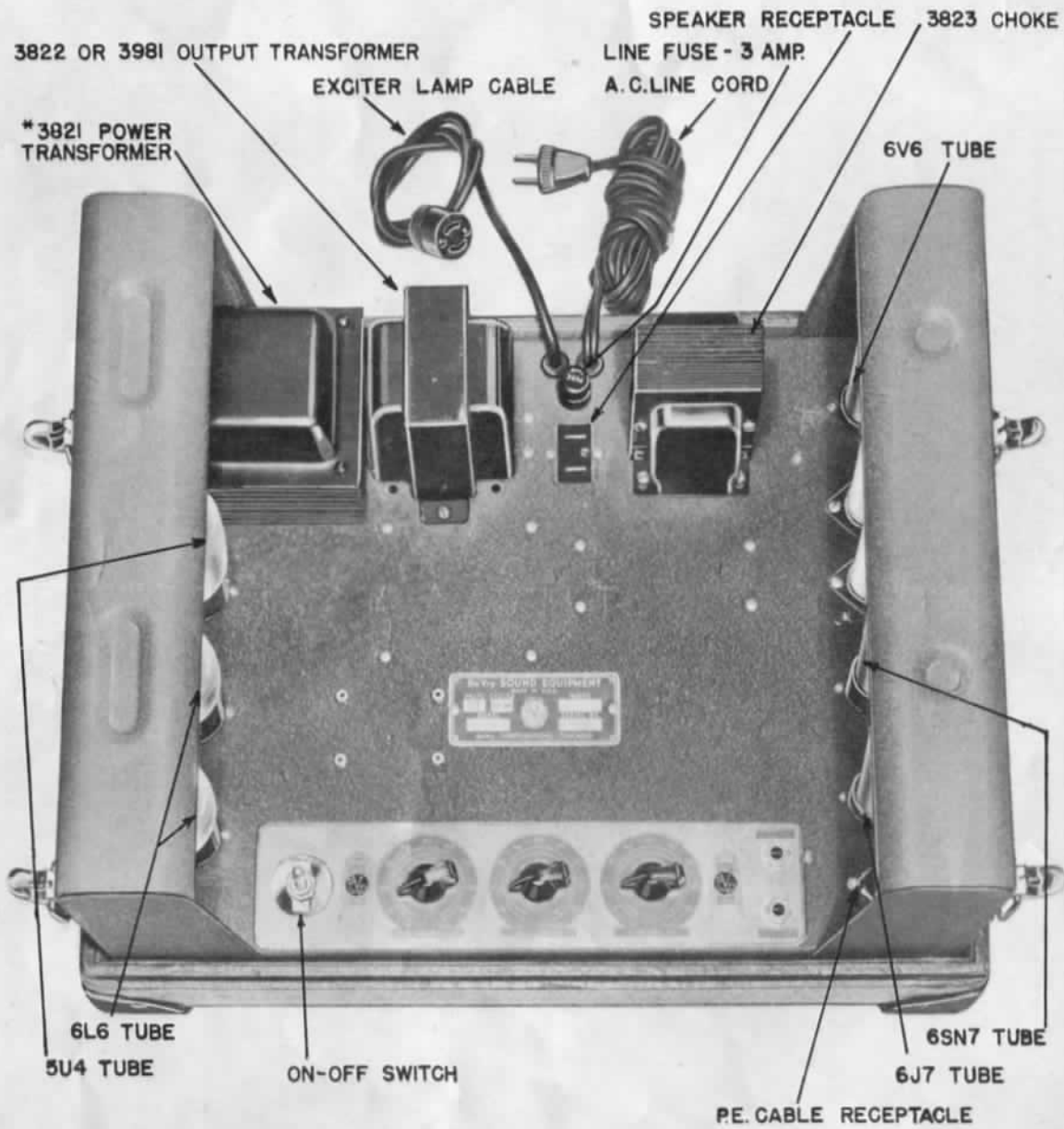
IT IS NOT POSSIBLE TO USE BOTH THE MICROPHONE AND PHONO-TURNTABLE AT ONE TIME.

IF YOU USE A MICROPHONE, THE PHONOGRAPH MUST BE UNPLUGGED. IF YOU USE THE PHONO-TURNTABLE THE MICROPHONE MUST BE UNPLUGGED.

NOTE !

In the event that multiple microphones are to be used DeVry can supply you with a quality, yet inexpensive MIXER UNIT. This Mixer (10899) has four inputs, permitting the use of four microphones or 3 microphones and a phono-electric turntable. Each input has its own volume control enabling you to balance the sound from each input to any desired degree.

FIGURE 2



\*FOR 50-60 CYCLE OPERATION ONLY

## B. AMPLIFIER MAINTENANCE AND SERVICING

### 1. Inspection of Tubes

Modern tubes have a very long life and seldom need replacement. However, a periodic check-up of all tubes should be made every 30 to 60 days depending upon the usage given the amplifier.

It is best to have the tubes tested by modern tube-testing equipment. Most radio dealers have such instruments.

### 2. Prolonging life of tubes

Tube life can be prolonged by always operating the amplifier at its rated line voltage of 115 volts, 50-60 cycle A.C.

### 3. Exciter Lamp Servicing

If the exciter lamp in the projector fails to light after the amplifier has been "ON" for approximately 30 seconds, the cause might be the following:

- a. Burned Out Exciter Lamp.
  - b. Exciter Lamp Not Properly Adjusted.
  - c. Exciter Lamp Cable from Amplifier Not Connected to Projector.
  - d. The 6V6 Amplifier Tube is defective or completely burned out.
- {See Page 21 your  
Projector Manual

NOTE ! The Exciter Lamp used in the DeVry Model RS(16) Sound Projector is a 4 Volt  $3/4$  Ampere Lamp. The DeVry Part Number for this lamp is 416.

### 4. Amplifier Fuse

The fuse used is of 3 AMPERE CAPACITY and if replaced, should not exceed this capacity.

If the amplifier fails to operate when power is supplied, switch is on, and speaker cord is plugged in, CHECK THE FUSE.

IMPORTANT ! Connecting the amplifier power cord to 110-115 volt D.C. instead of 105-125 volt A.C. WILL BLOW THE FUSE. If this happens, check the LINE VOLTAGE SUPPLY. It is wise to carry spare fuses.

### 5. Keeping Amplifier Clean

Excessive dirt, dust or other foreign substances combined with oil or grease adhering to switch controls, socket prongs, etc., can create poor sound or loss of sound.

We recommend that all switches, controls, prongs be kept scrupulously clean. Carbon tetrachloride is generally used for this purpose.



## 6. No Sound

- a. First check all connections. Be sure the exciter lamp cable plug, the photo electric cell cable plug, the speaker cable plug, and the A.C. Power Cord Plugs are firmly seated in their respective sockets.
- b. Check to see if amplifier tubes are firmly seated.
- c. Burned Out Amplifier Tubes. Replace faulty tubes.
- d. Burned Out Exciter Lamp. Switch over to second lamp or replace faulty exciter lamp.
- e. Improper adjustment of exciter lamp. Readjust according to directions on Page 21 in Projector Manual.
- f. Burned out speaker voice coil.
- g. Blown amplifier fuse. Insert new 3 ampere fuse.
- h. Photo electric cell not firmly seated in its socket.

## 7. Distorted Sound - Insufficient Sound

If the sound is distorted and unnatural it may be due to:

- a. Improper threading.
- b. Too high photo cell voltage.
- c. Defective amplifier tubes.
- d. Defective exciter lamp.
- e. Defective photo electric cell.
- f. Dirt over slit lens.

The remedy in each case is obvious.

## 8. Excess Noise in Speaker

If a ringing or metallic sound is heard when the projector is running it probably indicates poor exciter lamp adjustment.

If a low pitched buzz is heard the film is probably improperly threaded. Recheck threading.

## C. LOUDSPEAKER

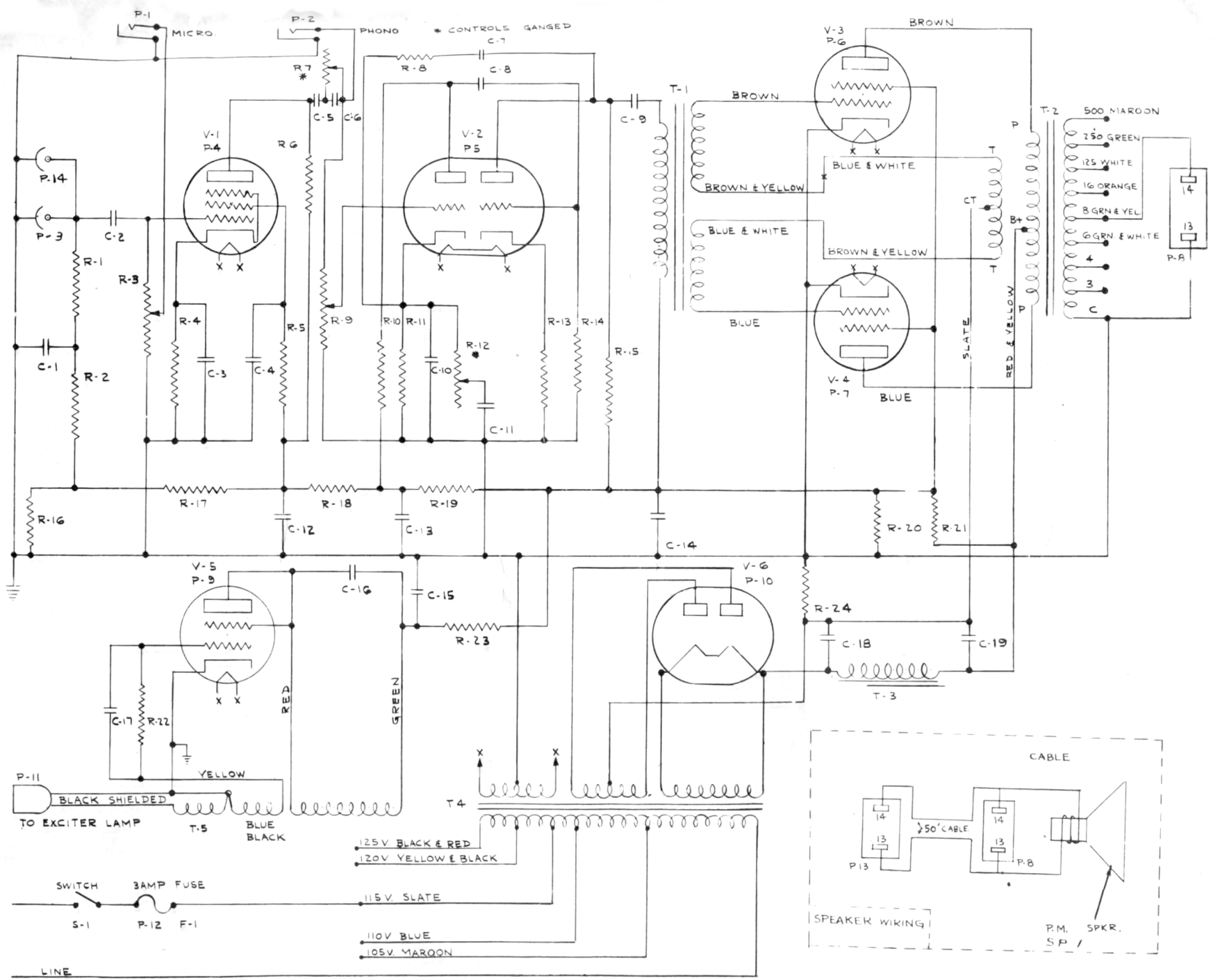
The #4429 speaker supplied with the ND30 (2830) Amplifier is a high quality Permanent Magnet Type having an input for the utilization of an extension speaker. In the event you require an additional speaker for use with your 4429 speaker, order the DeVry #2974 P.M. Speaker.

Unless you are thoroughly familiar with the functioning of sound systems, we recommend that if serious amplifier trouble is encountered, you engage the services of your local radio man or someone who is competent in this line.

The DEVRY SALES & SERVICE DEPARTMENT will be happy to assist you in any way possible.

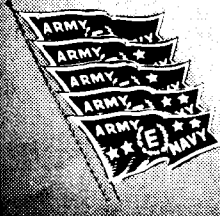
## Code and Parts List For Amplifier Wiring Diagram at Right.

	Code	Part No.	Description		Code	Part No.	Description
CONDENSERS	C-1	4217	.1 mfd. 400 volt condenser	RESISTORS (continued)			
	C-2	4053	.005 mfd. 600 volt condenser				
	C-3	4157	10 mfd. 25 volt condenser	R-13	4035	500 ohm 1/2 watt resistor	
	C-4	4217	.1 mfd. 400 volt condenser	R-14	4205	250,000 ohm 1/2 watt resistor	
	C-5	3836	.01 mfd. condenser	R-15	4017	50,000 ohm 1/2 watt resistor	
	C-6	3859	.00025 mfd. 400 volt condenser	R-16	4198	100,000 ohm 1/2 watt resistor	
	C-7	3862	.05 mfd. 600 volt condenser	R-17	4032	200,000 ohm 1/2 watt resistor	
	C-8	3812	.04 mfd. 600 volt condenser	R-18	4016	10,000 ohm 1 watt resistor	
	C-9	3825	.25 mfd. 400 volt condenser	R-19	4015	5,000 ohm 1 watt resistor	
	C-10	3826	.002 mfd. paper condenser	R-20	4105	10,000 ohm 25 watt resistor	
	C-11	3813	.03 mfd. 600 volt condenser	R-21	4104	1,500 ohm 25 watt resistor	
	C-12,13, 14,15	3863	10-10-10 mfd. 450 volt condenser	R-22	4026	20,000 ohm 1 watt resistor	
	C-16	15927	.001 mfd. 400 volt Mica condenser	R-23	4056	1,500 ohm 5 watt resistor	
	C-17	4235	.0005 mfd. 400 volt mica condenser	R-24	10833	130 ohm 25 watt resistor	
	C-18,19	3814	19-19 mfd. 575 volt condenser	SWITCHES	S-1	4519	Switch with plate
FUSES	F-1	4085	3 ampere fuse	SPEAKER	SP-1	4429	12" P. M. speaker
SOCKETS AND PLUGS	P-1	4367	Microphone jack	TRANSFORMER	T-1	3821	Power transformer
	P-2	4367	Phonograph jack		T-2	3822 or 3981	Output transformer
	P-3	4599	P. E. C. input assembly		T-3	3823	Choke
	P-4	4031	6J7 tube socket		T-4	3824	Input transformer
	P-5	4360	6SN7 tube socket		T-5	4373	Oscillator coil
	P-6	3882	6L6 tube socket	TUBES & LAMPS	V-1	4301	6J7 tube
	P-7	3882	6L6 tube socket		V-2	4361	6SN7 tube
	P-8	4075	Speaker receptacle		V-3	4327	6L6 tube
	P-9	4298	6V6 tube socket		V-4	4327	6L6 tube
	P-10	3828	5U4 tube socket		V-5	4330	6V6 tube
	P-11	3940	Female twist lock plug		V-6	4310	5U4 tube
	P-12	3964	Fuse post				
	P-13	4599	P. E. C. input assembly				
RESISTORS	R-1	4197	500,000 ohm 1/2 watt resistor				
	R-2	4197	500,000 ohm 1/2 watt resistor				
	R-3	3869	1 meg. ohm potentiometer				
	R-4	3847	1000 ohm 1/2 watt resistor				
	R-5	4020	1 meg. ohm 1/2 watt resistor				
	R-6	4205	250,000 ohm 1/2 watt resistor				
	R-7	4372	Dual potentiometer - ganged with R-12				
	R-8	4205	250,000 ohm 1/2 watt resistor				
	R-9	4046	500,000 ohm potentiometer				
	R-10	4037	150,000 ohm 1/2 watt resistor				
	R-11	4038	3000 ohm 1/2 watt resistor				
	R-12	4372	Dual potentiometer - ganged with R-7				



This Schematic Also Applies to The DeVry Sound System -  
For Operation on 25-60 Cycle A.C.

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