DECEMBER—JANUARY 1955
Vol. 6 No. 6

COLOR TV-VI

Electronic TUBES

Techni-talk on AM, FM, TV Servicing

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HUE AND SATURATION

It has been shown that the output of the balanced modulator circuits was combined and the resultant signal represented the subcarrier frequency, quadrature modulated by the two color signals. This signal represents the hue and saturation components necessary for color reproduction. The saturation component is represented by the amplitude of the modulation and the hue is represented by the phase of the modulation. It will be recalled that the subcarrier frequency applied to the R-Y balanced modulator circuit was ninety degrees out of phase with the subcarrier frequency applied to the B-Y balanced modulator circuit. Therefore, these two signals will *always* be ninety degrees apart.

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If two sine waves ("A" and "B" in Fig. 1) equal in amplitude but ninety degrees out of phase are combined, the resultant ("C" in Fig. 1) will appear as indicated. One method of determining the amplitude of "C" is through the use of vectors. It will be recalled that vectors may be added by drawing a parallelogram such as illustrated in Fig. 2. Since "A" and "B" are always ninety degrees apart, the parallelogram will be rectangular in shape. The diagonal lines marked "C" in the three parallelograms in Fig. 2 represent the vector sum of "A" plus "B." If "A" and "B" are unequal in amplitude the parallelogram will be rectangular as illustrated in Fig. 2. If "A" and "B" are equal in amplitude the parallelogram will be square as shown in Fig. 2.

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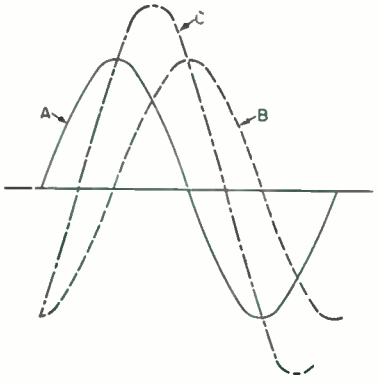
(*to be continued*)



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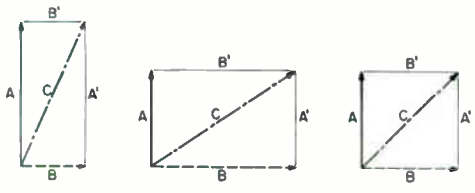

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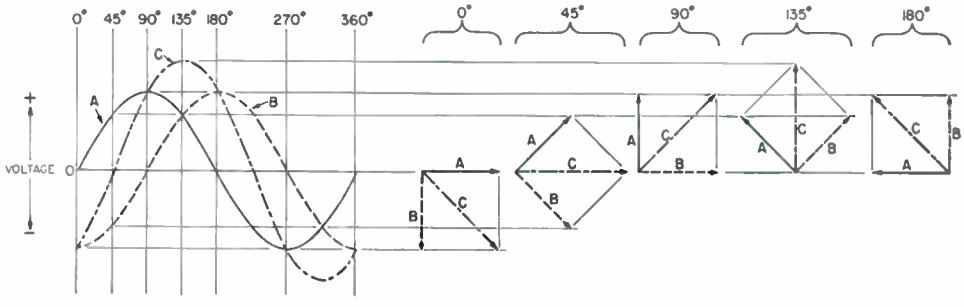
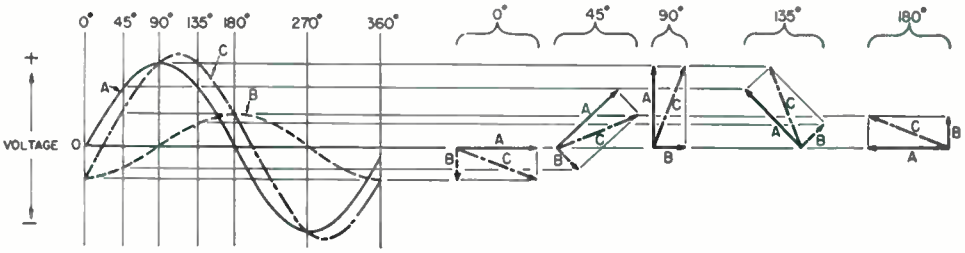


Fig. 3. Illustration of the vector addition of sine waves equal in amplitude.



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"TV SERVICE MONTH"

Sponsored by General Electric to

GE Electronic TUBES

HELPS IDENTIFY YOU AS A SOURCE FOR G-E TUBES. GIGANTIC CELEBRATION WILL FEATURE:

$25,000 in cash prizes for your customers.

Mammoth G-E ad in LOOK that builds recognition for your efforts. Your name and address can be listed.

Big kit of unique promotion items for your own TV Service Month.

DON'T DELAY! SEE YOUR G-E TUBE DISTRIBUTOR TODAY!

STARTS APRIL 19TH!

improve service business everywhere!

YOU will get the full benefit of TV Service Month! For 30 days new customers will visit your shop to get their entry blanks for the big G-E $25,000 contest. $10,000 first prize . . . plus 816 other cash prizes!

And here's sensational news! *Your name and address* can appear in G. E.'s announcement in LOOK—in subscribers' hands and on the newsstands April 19. You can be part of the industry's greatest public-relations program to date. 20,000,000 people see LOOK. It's read in homes all through your neighborhood.

See your G-E tube distributor immediately so your name may be included! In order to spark sales still more, your G-E distributor has ready for you a big kit of unique promotion items—each new, different, a winner. Read about some of them at right . . . then see or phone your distributor today! *Tube Department, General Electric Company, Schenectady 5, New York.*

You too can display this colorful window emblem! Pinpoints your shop as Contest and TV Service Month headquarters.

Large window streamer. Use it to announce a special attractive TV Service offer that will turn callers into buyers.

Footprints—plastic, self-stick—for sidewalk before your door. They invite customers in!

Talking postcard . . . brand-new, it's a record that actually plays on TV owners' phonographs! Also, regular advertising postcard. Both tell story of prize contest—help you promote TV Service Month profitably.

GENERAL ELECTRIC

161-1A1

BENCH NOTES

Contributions to this column are solicited. For each question, short-cut or chronic-trouble note selected for publication, you will receive $10.00 worth of electronic tubes. In the event of duplicate or similar items, selection will be made by the editor and his decision will be final. The Compony shoil have the right without obligation beyond the obove to publish and use any suggestion submitted to this column. Send contributions to The Editor, Techni-talk, Tube Department, Generol Electric Company, Schenectady 5, New York.

SERVICE HINTS

DUMONT R A 164-165
Poor reception; some channels appear overloaded; loud buzz in sound. Trouble—video det. crystal 1N64 was wired in reverse, causing AGC circuit to be inoperative. Reversed connections. Set performs perfectly. This crystal is mounted in can on top of chassis.

RCA—All models using Antenno matching unit attached to side of tuner
1. Snow—smear pix—weak crackle in sound.
2. Six dark vertical bars, left side of raster, more prevalent when on unused channel.
3. Poor picture or sound.
4. Interference lines across picture.
5. No picture or sound or both very weak.
6. Intermittent troubles of above nature.
7. Two rippled lines left side of picture when on the channel.

Check entire antenna matching unit for loose, unsoldered or shorted connections.

PHILCO 51 T 1607
No raster or intermittent raster, arcing hiss heard in set, caused by open 2-meg. resistor in high-voltage cage. Arcing occurs across this resistor when it opens.

PHILCO 51 T 2136
No raster. Open resistor R103 in deflection chassis.

PHILCO All models using 6BQ7 tubes in tuners
Intermittent, weak sound, snowy picture, or no picture or sound. Check C530 150 MMF in tuner for leakage or short. R507 gets hot.

PHILCO 51 T 1836, Code 123
No sound or picture.
Check C401 for short. Check pin 1 12AU7. First sound IF plate voltage may be low or absent.

PHILCO RF Chassis 94
No picture.
Check C305 for open.

PHILCO 51 T 2138
Raster intermittent or no raster.
Check R643 12K resistor in screen circuit of 6CD6-G horizontal output. This resistor intermittently changes its value.

ADMIRAL 21D1 Chassis
No raster, no high voltage.
Check pin 5 horizontal oscillator should be 165 volts. If not, replace R436 a 150K-ohm resistor. I have found it to increase to 800K in a few sets in for repair.

FREED EISMAN 1620C
Intermittent buzz in sound.
Check for brass filings in sound discriminator coil, shorting out coil.

GENERAL ELECTRIC 20C105
Intermittent sound and picture.
Check C379A 10 MFD 450 volt in sync separator plate circuit.

WESTINGHOUSE H710T2
6BQ6-GT plate glows.
Check R438 which is a 33K-ohm resistor plate load. You may find it missing from the circuit.

EMERSON 120169F Chassis
Popping sound, then a vertical roll.
Remedy—Place 100-ohm ½-watt resistor between plate and screen of 6W6-GT vertical output tube.

STROMBERG CARLSON 321 or 324
Picture bending on top.
Increase the value of R194 cathode circuit of 6SN7-GT horizontal oscillator from 1500-ohm to 2000-ohm ½-watt resistor.

George B. Meserole
Meserole Radio & Television
647 88 Street
Brooklyn 9, N. Y.

PENNY WISE

A very simple solution for adjusting the mechanical focus slug when you have misplaced your one and only nonmagnetic screwdriver is to use a copper penny. Simple but sure.

H. Blue
377 Front St.
Hartford, Conn.

What's new! 5AU4

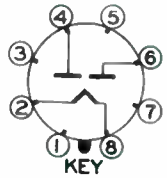
FULL-WAVE POWER RECTIFIER

The 5AU4 is a filamentary full-wave high-vacuum rectifier designed for use in the power supply of television receivers and other equipments which have high output current requirements. In full-wave operation with a supply voltage of 300 volts RMS, the 5AU4 is capable of delivering a d-c output current of 350 milliamperes.

Filament Voltage, AC or DC	5.0 Volts
Filament Current	4.5 Amperes

FULL-WAVE RECTIFIER WITH CAPACITOR-INPUT FILTER

AC Plate-supply Voltage per Plate, RMS	300	400 Volts
Filter Input Capacitor	40	40 Microfarads
Total Plate-supply Resistance per Plate	30	50 Ohms
DC Output Current	350	325 Milliamperes
DC Output Voltage at Filter Input	275	395 Volts



6CA5—12CA5

BEAM PENTODE
FOR AF POWER AMPLIFIER APPLICATIONS

The 6CA5 is a miniature beam pentode designed primarily for use in the audio-frequency power output stage of television and radio receivers. The tube features high power sensitivity at relatively low plate and screen voltages.

Heater Current	1.2	0.6 Amperes
Heater Voltage, AC or DC	6.3	12.6 Volts

MAXIMUM RATINGS

DESIGN-CENTER VALUES

Plate Voltage	130 Volts
Screen Voltage	130 Volts
Positive DC Grid-Number 1 Voltage	0 Volts
Plate Dissipation	5.0 Watts
Screen Dissipation	1.4 Watts

Form 3547 Requested.

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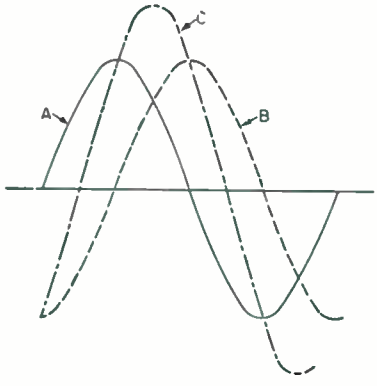

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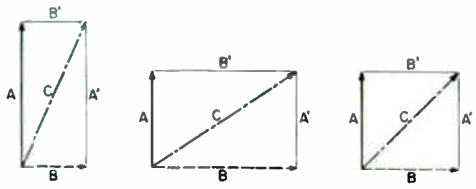

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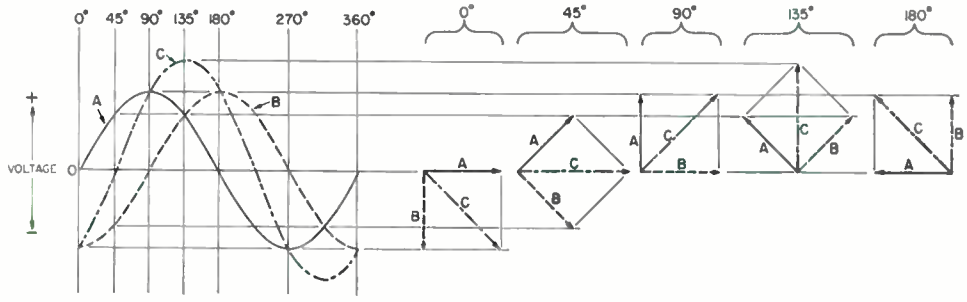

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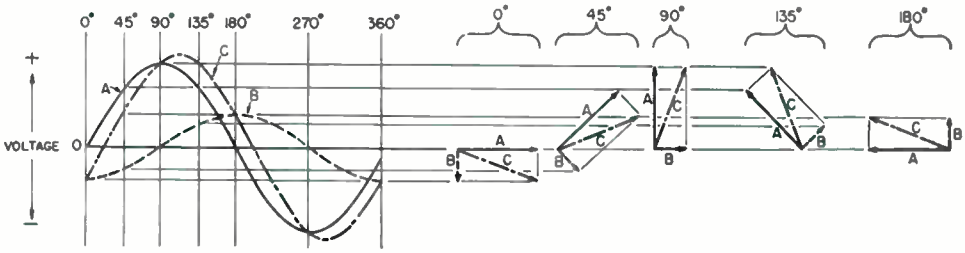

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April 19th • May 19th
Ask About Our Special Offer

Large window streamer. Use it to announce a special attractive TV Service offer that will turn callers into buyers.

Electronic TUBES TO Electronic TUBES CASH PRIZES! Electronic TUBES $25,000 Electronic TUBES FREE ENTRY BLANK

Footprints—plastic, self-stick—for sidewalk before your door. They invite customers in!

Talking postcard . . . brand-new, it's a record that actually plays on TV owners' phonographs! Also, regular advertising postcard. Both tell story of prize contest—help you promote TV Service Month profitably.

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161 1A8

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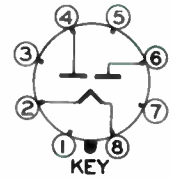

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