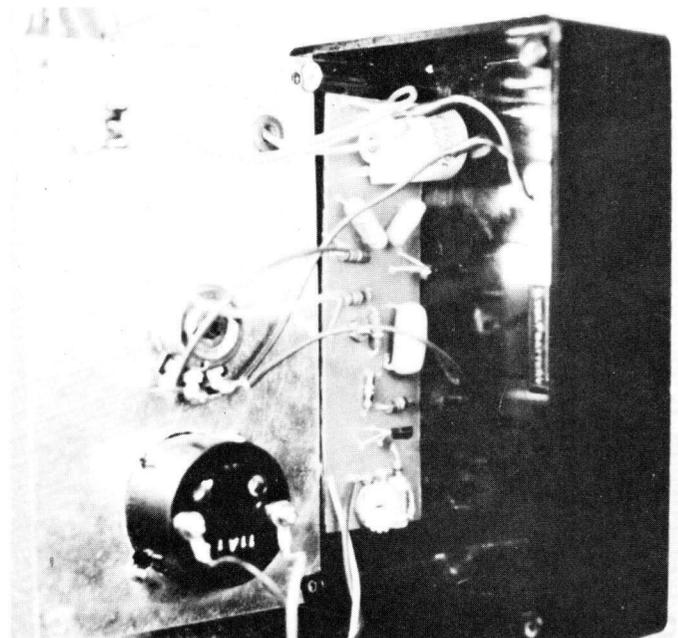


SHORTED TURN CHECKER

by Bill Reed, Toledo Appliance, Inc., Toledo, Ohio.



After running into problems with various shorted turn checkers that don't work very well with modern, low impedance, yokes and transformers, I decided to construct one that would give accurate results with coils of high or low impedance and that would be easy to use and read.

Construction details will vary, but I used a small plastic box, and etched a P. C. panel. For construction of a single unit, wiring on a "perf-board" will be quite adequate.

After construction, the unit should be adjusted as follows:

1. Set slug in oscillator coil, flush with outside end of coil (top).
2. Adjust bias pot (R2) for approximately 400 ohms.
3. Rotate "Calibrate" control full CCW.
4. Apply +9 volts to unit.

5. The meter should read approximately .1ma. If reading is higher, (.4ma or above), back-out oscillator coil slug until meter drops below .2ma.
6. Slowly advance "Calibrate" control CW. At some point the meter will jump to .4 or .5ma.
7. Continue to advance "Calibrate" control to full CW.
8. Adjust bias pot (R2) for .8 to 1ma reading.
9. Rotate "Calibrate" control to full CCW. The meter should now read .2ma or below.
10. Oscillator slug adjustment is correct when meter jumps to .4 or .5ma at approximately 1/3 rotation of the "Calibrate" control. Do not adjust slug for maximum reading.

To Use The Tester

1. Turn on and slowly advance "Calibrate" control until meter jumps to .4 or .5ma with test leads open.

AVOID MISTAKES - ORDER PARTS BY PART NUMBERS

2. Connect test leads to coil to be tested. If meter reads the same or goes up scale, the coil is O.K. If the meter drops, there is one or more shorted turn.

NOTES:

1. External wires should be disconnected from the coil under test.
2. When checking flybacks, remove the high voltage rectifier tube (if used) and check the secondary winding. Only the secondary need be checked as a shorted turn anywhere on the transformer will cause the meter to drop.
3. High Q coils will cause the meter to go off scale when good, so use a slightly lower "Calibrate" setting.
4. To verify that your tester is working, hook up to check a known good coil or transformer, then wrap a single turn of insulated wire around the coil. When you short the ends of the single turn, the meter will drop sharply.

The Tester Will Check:

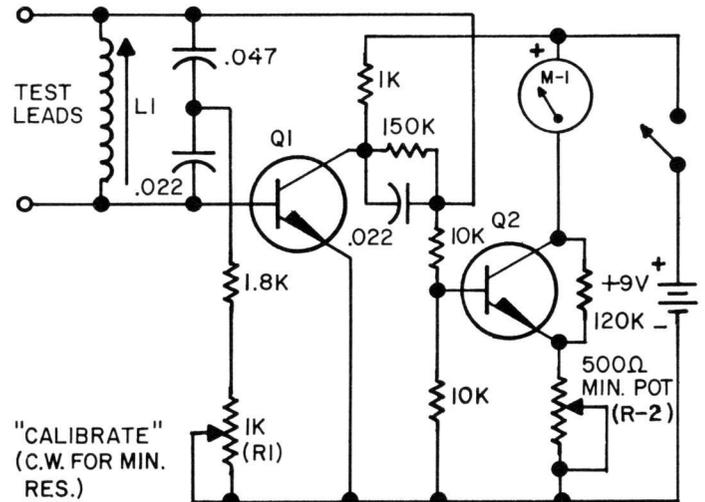
1. Flybacks (high or low impedance).
2. Yokes (B/W or Color).
3. Width coils.
4. Efficiency coils.
5. Horizontal oscillator coils.
6. Vertical output transformers (set "Calibrate" control slightly higher).
7. Focus coils.
8. Remote oscillator coils.
9. Possibly others - give it a try.

M-1 Micronta 0-1ma. or equivalent.

L-1 Horiz. osc. coil, Sylvania part no. 50-27910-1.

Q-1 2N3391A - 13-18365-1

Q-2 2N3694 - 13-29033-3 or -4.



Notes from the Field

D16 CHASSIS. DIAL LIGHTS DIM, ALSO PERMA-LOCK INDICATOR LAMP ERRATIC.

Check for open (hairline crack) ground lugs on filter capacitor, C509. Resolder all lugs and pin on this capacitor.

D16 CHASSIS. R429 BURNS AND LEFT SIDE OF PIX DARKER BRIGHTNESS LEVEL.

Check for open section in filter capacitor C509.

D16, D19 REMOTE CHASSIS. LOSS OF SENSITIVITY IN TRANSMITTER DISTANCE OR LOSS OF FUNCTION OPERATION.

Re-align receiver to transmitter by placing transmitter 10 feet distance; while keying transmitter functions align coils for maximum voltage drop across R1082.

D16, D19 REMOTE CHASSIS. SET WON'T TURN ON (MANUALLY OR REMOTE). Q1066 shorted.

D18, D19 CHASSIS. CONTROLS AND RESISTORS BURN ON CONVERGENCE BOARD.

Check for cold solder joint at ground terminal "FA" on board.

E01 CHASSIS. HORIZONTAL JITTER OR BENDING.

Check ripple amplifier Q508, also 15V zener, SC514, for 14.5V at emitter of Q508.

E01 CHASSIS. HORIZONTAL BENDING WITH CHANGE OF BRIGHTNESS CONTROL.

Check C414 for open.

E01, E02 CHASSIS. HIGH FAILURE RATE OF HORIZONTAL OUTPUT TRANSISTOR.

Replace elec. capacitor, C432.

E02 CHASSIS. ELIMINATE THE ROPE EFFECT ON RIGHT SIDE OF PIX.

Install .001MFD capacitor from collector of Q402 to ground.

E0301 CHASSIS. CIRCUIT BREAKER KICKS OUT, THERMISTOR GETS CHERRY RED.

Replace horizontal output transistor on board, Q406 - number 13-33181-1.

E03/04/05 CHASSIS. RF INTERFERENCE ON VHF CHANNELS. ALSO MAY APPEAR ON UHF.

Replace vert. driver Q306 to Motorola type no. 13-29776-1.

E03/04/05 CHASSIS. LEFT SIDE OF PIX. NORMAL, RIGHT SIDE SNOWY.

Change SC465, 135V zener.

E03/04/05 CHASSIS. TO REDUCE BUSY BACKGROUND, OR CHANGE EFFECT OF VIDEO PEAKING SWITCH.

Change C273 to 100PF and C274 to 470PF.

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E03/04/05 CHASSIS. TO STABILIZE HORIZONTAL SYNC AND BENDING ON CABLE SYSTEMS.

Change R416 value (use 1.5 megohm pot for sub. of R416 and adjust while watching pix.) Check all channels. Measure pot res. and install permanent resistor.

E03, E0411, E05 CHASSIS. POOR VHF CHANNEL RECEPTION.

Tuner RF-input cable not making good contact.

E04 CHASSIS. ERRATIC OPERATION OF PUSH BUTTON OR JUMPING CHANNELS.

Install .01MFD, 100V capacitor on 33V supply bus wire to ground foil. Also a .01 from tuning voltage bus wire to ground foils on push button units.

E0501 CHASSIS. SET SMOKES WHEN FIRST TURNED ON. Wire from collector of Q412 socket to terminal junction of R474 (18 ohm, 25W) open. R470 burns which causes adjacent convergence plug to burn.

E0501 CHASSIS. R800, R822, R804, R866 BURNED ON CONVERGENCE BOARD.

Open ground pin "FA" on board. Hairline foil crack around pin.

E06 CHASSIS. DISTORTED AUDIO. Q106 GETS HOT. Check for open bias diode SC130.

E0602 CHASSIS. WHITE HORIZONTAL LINE ABOUT TWO INCHES DOWN FROM TOP OF RASTER. IC302 chip vertical oscillator and driver.

E0602 CHASSIS. SET DEAD. BREAKER NOT OPEN. IC302 shorted.

E0602 CHASSIS. HEAVY SOUND BARS IN PICTURE. IC200 (15-39061-1).

E06-2 CHASSIS. PICTURE COULDN'T BE TUNED PROPERLY. LOOKED LIKE AGC PROBLEM.

Sound bars in picture, some channels. Open R286 resistor and IC200 IF chip.

CR2742 AND CR2743 CHASSIS. FM TUNING DRIFTS DURING WARM-UP - TUNING NEEDLE ALSO DRIFTS TO RIGHT.

Check C18 capacitor. If 5.6PF, replace with no. 43-14034-10. If 10PF, replace with no. 43-14034-113.

R61-4 CHASSIS. HUM PICKUP ON PHONO POSITION. Dress turntable audio cables in front of tuner along front of cabinet.

R63-1 CHASSIS. POWER SUPPLY HUM IN SPEAKERS. Check regulator IC.

RQ3748 CHASSIS. NOISY WHEN ADJUSTING BASS CONTROL.

Hex nut on control may be loose or missing.

ALL RQ SERIES QUAD TUNER - AMPLIFIER UNITS.

DO NOT move rear panel slide switch to bridge mode while unit is turned on.

Ray Newhard, FSDM, Walnutport, Pennsylvania.

SOUND OFF FOR PAY OFF

"Why isn't that gizmo attached to the gazmo so the watchamacallit would be easier to handle?" complained Joe.

"Yeah," agreed his helper. "And why don't they move the bingle bin next to the gazmo output so it would save me time and energy lugging the stuff all over the place?"

"Can't argue with the company," replied Joe. "They make all the important decisions."

Maybe the company does make the important decisions. But the company is not a thing. It is composed of a flesh and blood and brain group of people who need you to suggest how things should be done easier, faster, safer with less time, effort, or money.

So don't gripe about things as they are because you know how to make them better. Sound off with a suggestion and let the company - that group of people - consider your idea.

It pays off in many ways.

E05-1 CHASSIS. NO HIGH VOLTAGE.

Q404 collector shorting to CRT metal shield.

Dennis Heruth, Goldfines Service Company, Duluth, Minn.

B10 CHASSIS. AUDIO BUZZ.

Re-route neon indicator line.

Don Bradbury, Kennedy & Cohen, Middleburg Heights, Ohio.

E01-7 CHASSIS. R/G VERTICAL TOP CONTROL HAS VERY LITTLE OR NO EFFECT - VERY POOR R/G CONVERGENCE.

Shorted Blue Horizontal convergence clamping diode SC416.

Max Donnell, King Music Company, Brownwood, Texas.

A12-2 CHASSIS. NO VERTICAL SWEEP.

Check SC308.

George Hummel, Raub Supply Company, York, Pennsylvania.

D18 CHASSIS. NO HIGH VOLTAGE, H.O.T., YOKE AND TRIPLER CHECK OK.

Leaky, only under load, C436, 180PF 2 and 9 of H.O.T.

Joe Richard, GTE Sylvania Service Co., Cleveland, Ohio.

D18 CHASSIS. BUZZ WHEN FIRST TURNED ON.

Degaussing coil vibrating, relocate at shield end.

D19 CHASSIS. NO HIGH VOLTAGE, BOOST LOW.

SC406 shorted.

D19 CHASSIS. INTERMITTENT HORIZONTAL SYNC.

R416, 6.8K resistor connection loose and intermittent.

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D19 CHASSIS. INTERMITTENT COLOR.
Broken print at Test Point K.

D19 CHASSIS. 5" VERTICAL RASTER AND ROLLS.
Q318, 13-24776-1.

D19 CHASSIS. NO SYNC, COLOR CONTROL CHANGES
HORIZONTAL FREQUENCY.
Leaky, SC404, SC308, Q308, 6LN8.

E01-17 CHASSIS. TOP BEND IN PIX.
Q408, 13-33181-1, C-E leakage.

E06-2 CHASSIS. HORIZONTAL BLOCKING OFF CHAN-
NEL.
Intermittent connection at pin 14, IC400.

*Orren Dowdy, Service Mgr., Graybar Electric Co., Pittsburgh,
Pennsylvania.*

A12 CHASSIS. LOOKED LIKE RF IN PIX.
C226 cold solder joint.

E03 CHASSIS. INTERMITTENT HIGH VOLTAGE.
Q404 horizontal driver.

E03 CHASSIS. SNIVET JUST LEFT OF CENTER OF PIX.
Replaced chroma panel 02-37501-2.

E06 CHASSIS. VERTICAL FOLDOVER, BENDING, POOR
VERTICAL SWEEP.
Wire shorting to tie point near back of deflection yoke.
Cleared short.

R49 CHASSIS. OUTPUT TRANSISTOR FAILURE.
R506 decreased in value.

R49 CHASSIS. OUTPUT TRANSISTOR FAILURE.
Gummy liquid on PC board. Cleaned with Tri-Chloro-Ethylene.

G & W Distributing Company, Inc. Youngstown, Ohio.

CORRECTIONS

CORRECTION TO MODEL SHEET MZ2095W-4. Mask - part
number 74-35266-13 should be part number 74-35266-15.

CORRECTIONS TO SUPPLEMENT 2 TO D19-1/-3.

Page 41 - "Semi-Conductors - Transistors". Transistors Q600,
Q604, should be part number 13-35550-1.

Page 42 - "Miscellaneous Electrical Parts". Socket - Antenna
Input (-8 CH.), part number should be 73-35630-1.

HOLIDAY PICNICS AND FUN DUE THOUGHTS OF LIBERTY TOO . . .

During the July 4th holiday celebration, a public official will rise and lead his audience in the Pledge of Allegiance. That Pledge will be repeated by Americans in every town and city throughout the nation.

Few will actually hear it, but the words of the Pledge remain, and they bear listening to; for each pledges allegiance to the *flag* and all it symbolizes: *the Republic* (or representative democracy) with its *liberty and justice for all*.

Said over and over, the phrases lose meaning sometimes; to some, they may even sound corny.

But where else in the world is such an ideal proposed, much less pledged?

Perhaps liberty and justice are not attained by all. Perhaps . . . Still, along with the *pursuit of happiness* and the *blessings of liberty*, these ideals are expressions of concepts Americans believe, strive for and defend if necessary.

The world continues to watch this land and its people. They watch to see if this nation *conceived in liberty and dedicated to the proposition that all men are created equal* can indeed continue to prosper and endure. And some people in the world would enjoy seeing America and its concepts fail.

In almost two hundred years, America has not failed . . . The ideals for which it stands may be burdens, particularly in times of stress. But the burdens are shared; the ideals remain; the Pledge is renewed again.

Whether listening to the Pledge or tuning out and thinking of the picnic to come, Americans know that *liberty and justice* are more than patriotic words. They are the ideals for which we all live.



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