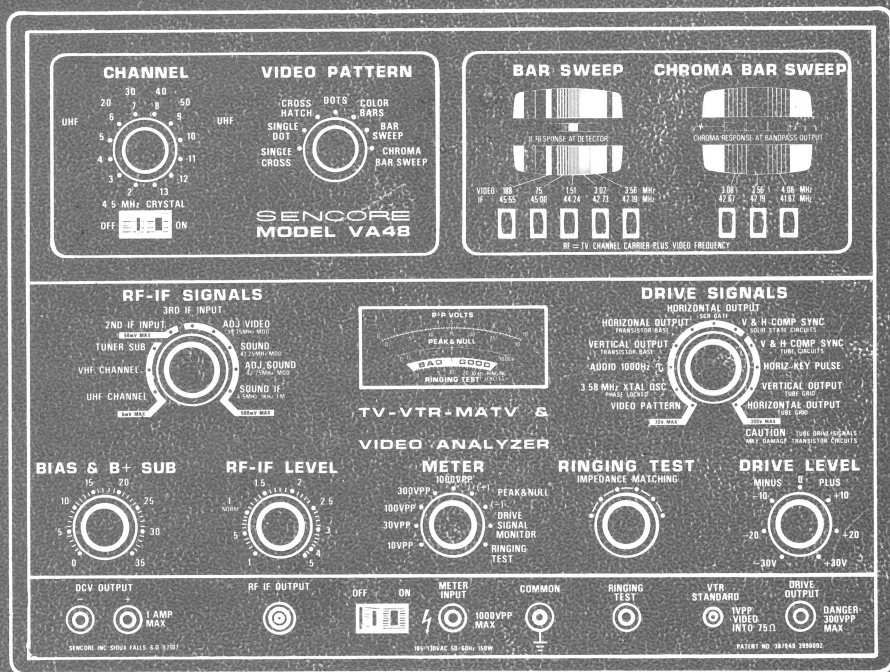


VA48

ManualsPlus.com

SPEED TEST SET-UP BOOKLET



SENCORE

Introduction

This booklet is designed to provide simplified operating instructions for your VA48. **This booklet is not designed to replace the instruction manual.** You should fully read and understand the instruction manual before you attempt any test. These simplified instructions will, however, help you remember each test provided by the VA48 once the complete instructions in the manual are fully understood.

The written portion of this booklet gives a reminder list of where each signal is used for signal-injection troubleshooting. This section also reminds you which pattern to select on the VIDEO PATTERN control and gives a brief reminder of how to apply many of the signals.

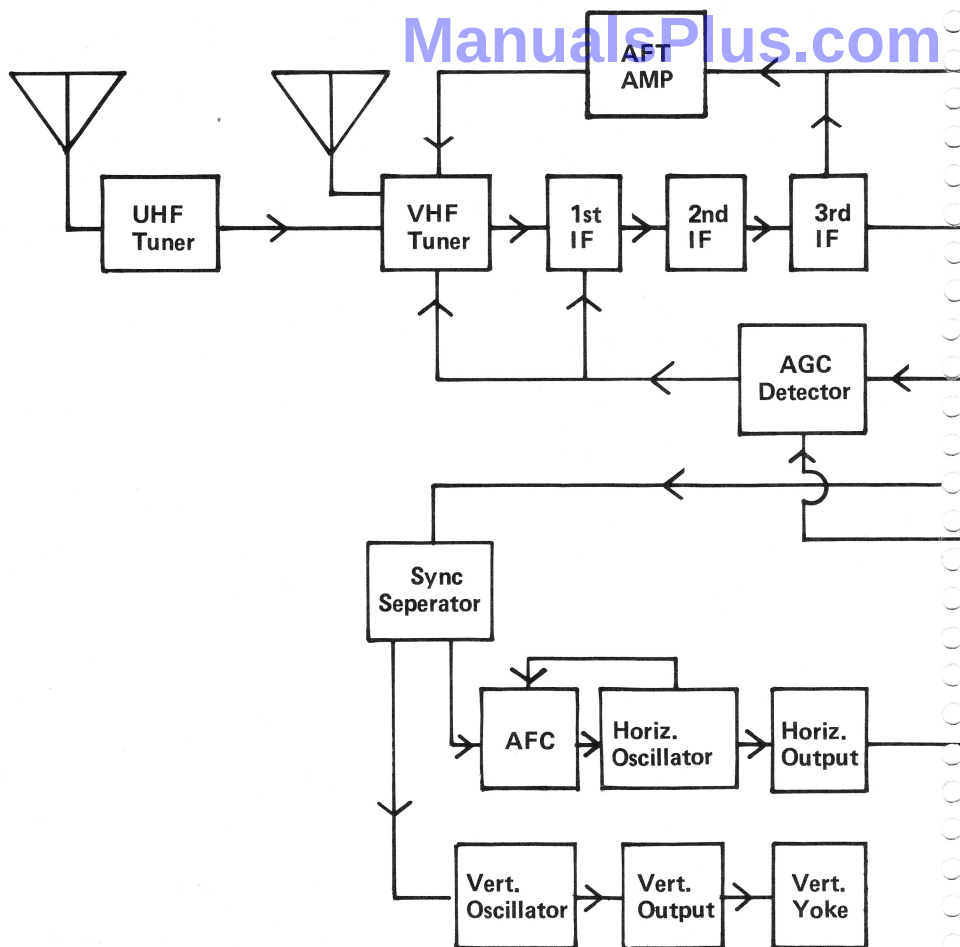
A drawing is provided to explain the VA48 setup for each key test. This drawing shows those controls and input/output connections necessary to make a particular test. If a control or input/output jack is not labeled, it may be left in any position without affecting the test. Finally, a portion of the total receiver block diagram is shown as a reminder of where the signal will typically be injected.

It is possible to combine two or more of the tests. For example, the meter circuit may be used to monitor signals at any time a signal is being injected with either the RF/IF OUTPUT or the DRIVE SIGNALS OUTPUT.

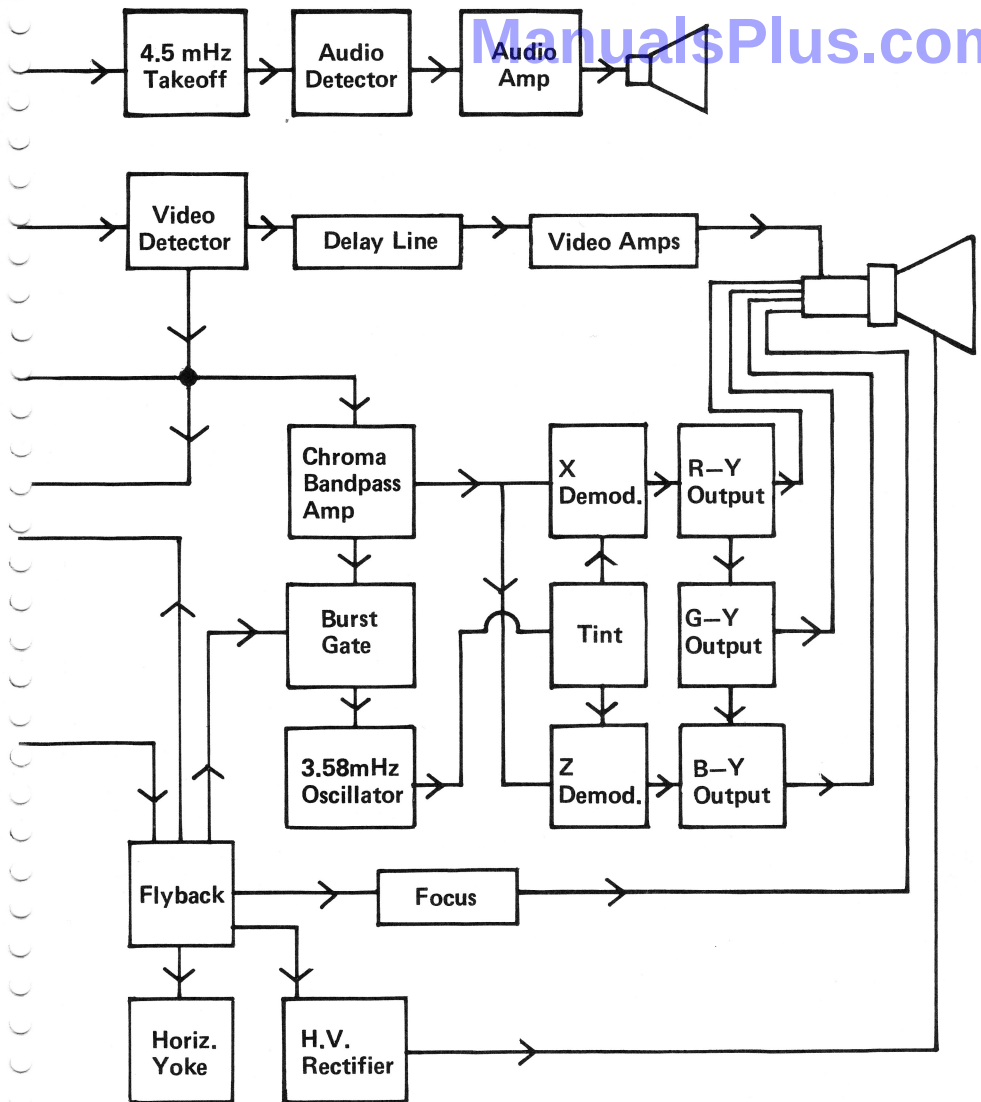
Special Drive Signal Note

Each of the setups for the DRIVE SIGNALS functions shows a connection to the VHF antenna input. This setup aids in locating a defective stage since all of the signals are phase-locked to each other. If the DRIVE SIGNAL injected into a suspect stage returns the operations of the receiver to normal, you immediately know you have located the receiver defect.

Introduction	2
Typical Color Television Receiver Block Diagram . . .	4
VHF Injection	6
UHF Injection	8
IF Injection	10
Video IF Alignment	12
AFT Alignment	14
Composite Video	16
Chroma Bandpass Alignment	18
3.58 MHz Color	20
Composite Sync	22
Vertical Drive	24
Horizontal Drive	26
Horizontal Keying Pulse	28
Sound IF	30
Audio	32
Ringin Test	34
Meter Circuit	36
Bias & B+ Sub	38
VTR Servicing	40



Typical Color Television Receiver Block Diagram



Circuits Tested:

All receiver circuits, VHF tuner

Patterns To Use:

Standard Color Bar Pattern—for troubleshooting

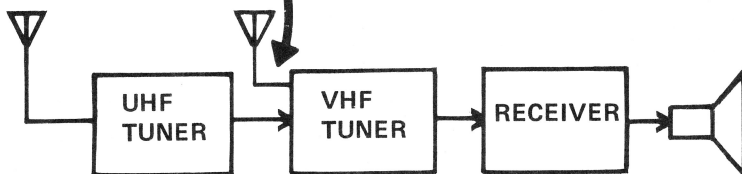
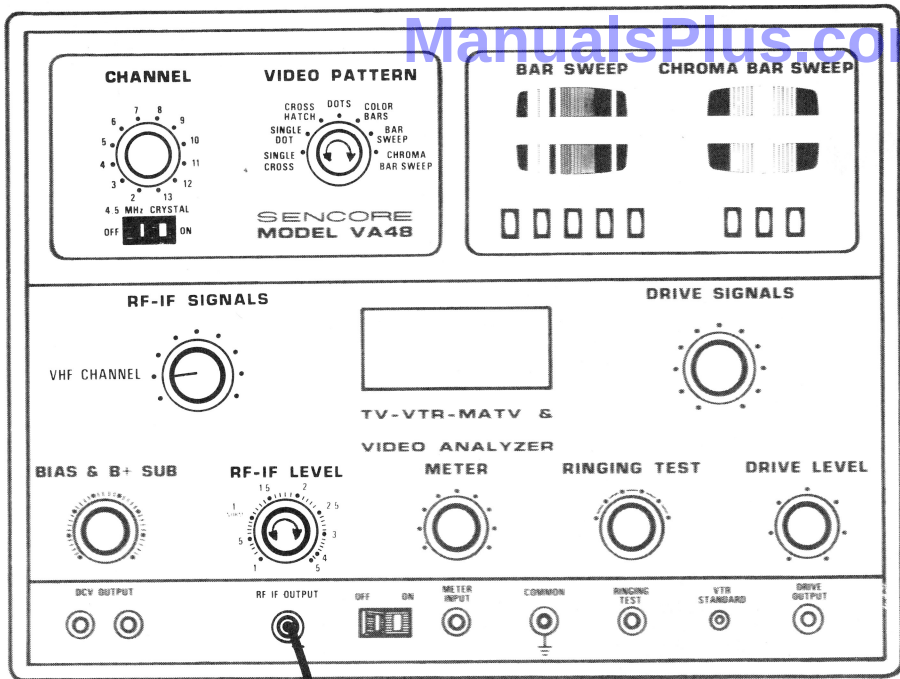
Bar Sweep Pattern—for IF alignment check and IF alignment

Chroma Bar Sweep Pattern—for color stages check and alignment

Dots and Crosshatch Patterns—for convergence

Special Applications:

TEST	INSTRUCTIONS
1. Overall operations check	1. Inject VHF signal into antenna terminals
2. Fine tuning	2. Set on each channel
3. Convergence	3. Follow manufacturer's recommended procedure
4. Color killer	4. Set for no color on <i>Bar Sweep Pattern</i>
5. IF alignment check	5. Reduce contrast and brightness. 3.56 MHz <i>Bar Sweep</i> bar should turn black first, all others at about same point for proper alignment
6. AFT check	6. AFT should not change <i>Color Bars</i>
7. Receiver sensitivity	7. Should have good picture at "norm" setting
8. AGC	8. No tear at full output; no noticeable change when output amplitude is adjusted from "norm" to maximum
9. B & W grey scale	9. Use 3 left bars of <i>Bar Sweep Pattern</i>



UHF Injection

Circuits Tested:

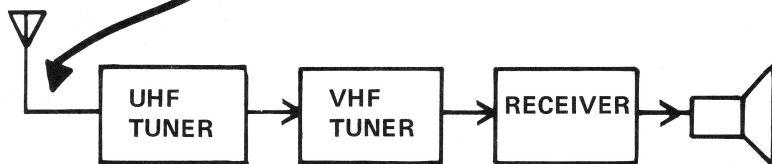
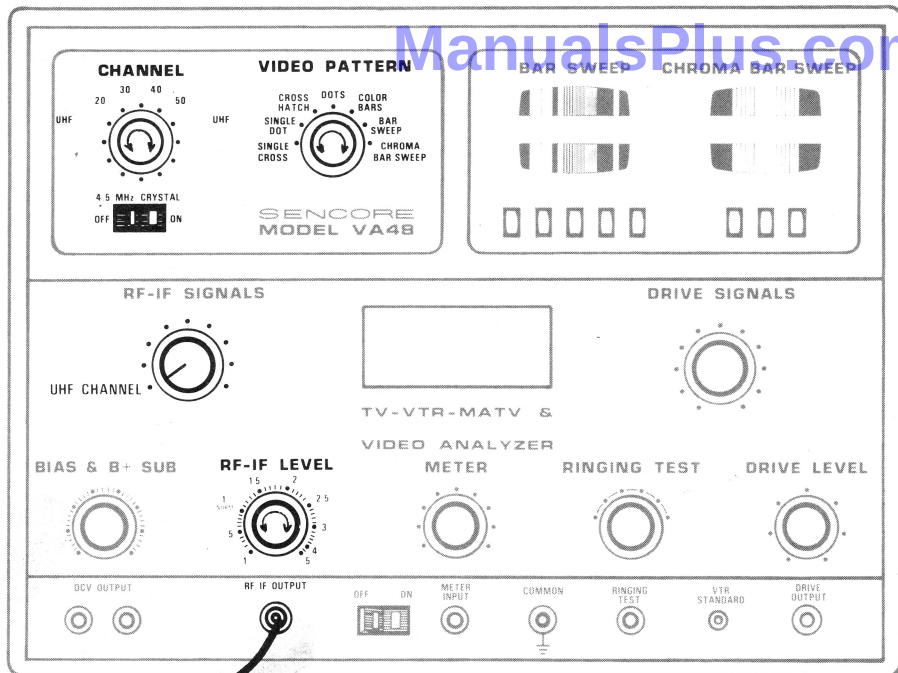
Same as VHF Injection plus UHF tuner

Patterns To Use:

Any

Special Applications:

Same as VHF injection plus UHF tuner



Circuits Tested:

Video IF amplifiers

Pattern To Use:

Bar Sweep

Special Applications:

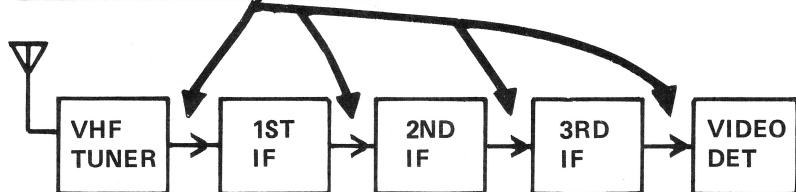
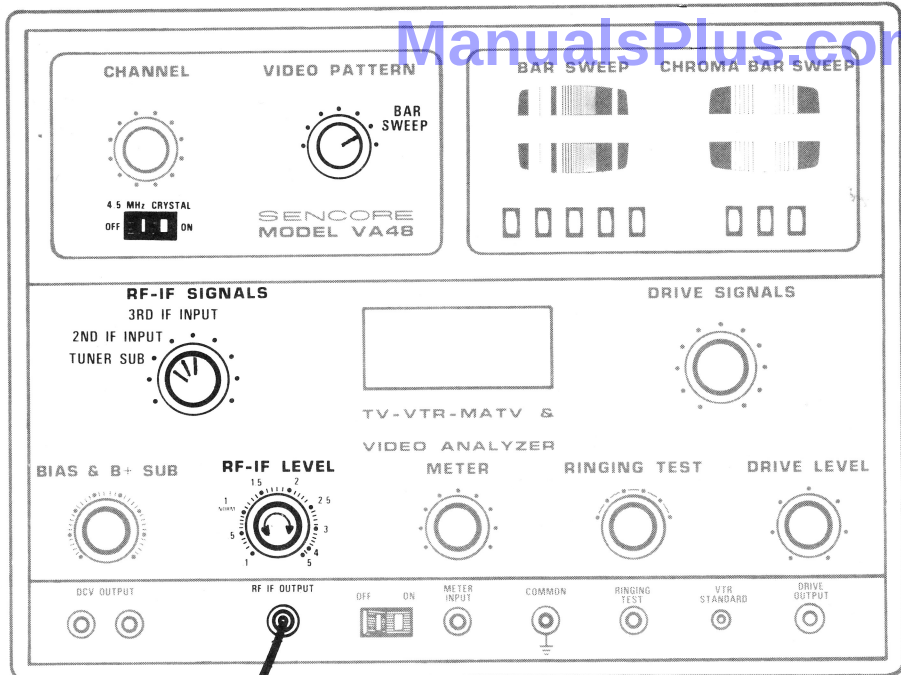
TEST

- 1. Locating dead IF stage**
- 2. Rough alignment**
- 3. IF stage gain**

INSTRUCTIONS

1. Stage-by-stage signal injection
2. Start with last IF and adjust for best gain. Repeat at each stage. Follow with full alignment.
3. Each IF signal position set for stage-gain of 10

NOTE: See next page for IF alignment.



Circuits Tested:

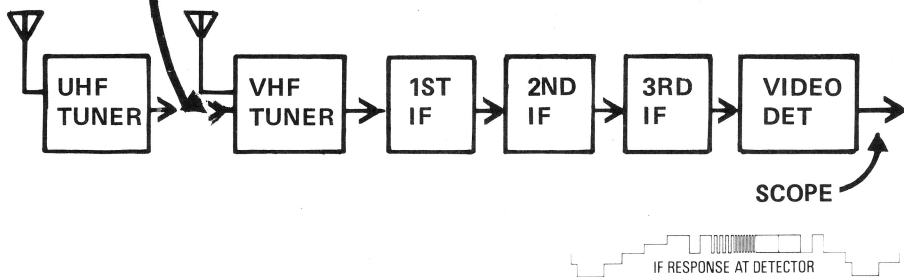
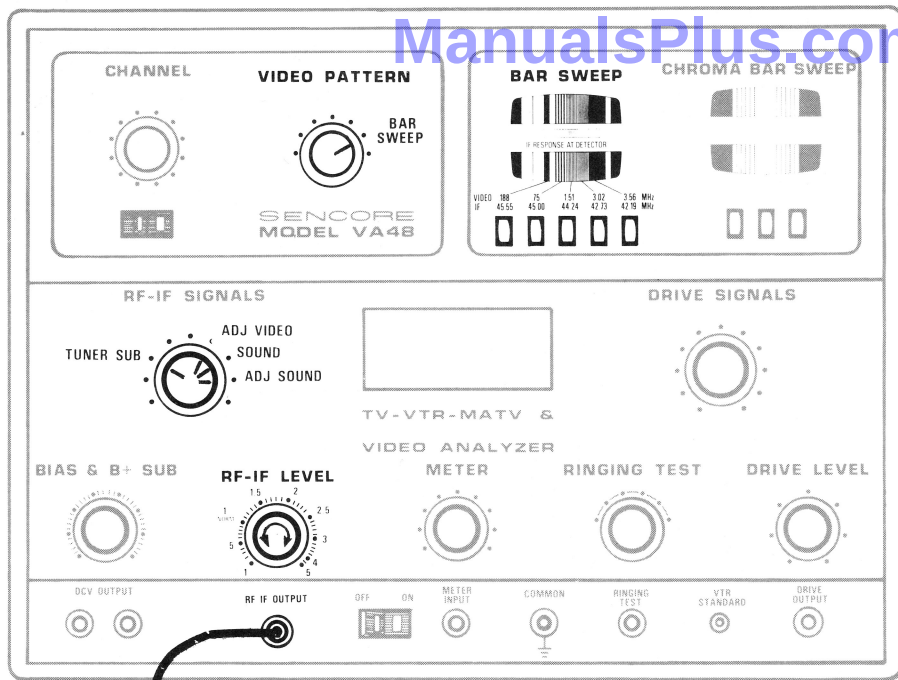
Video IF amplifiers, trap setting

Pattern To Use:

Bar Sweep

Instructions:

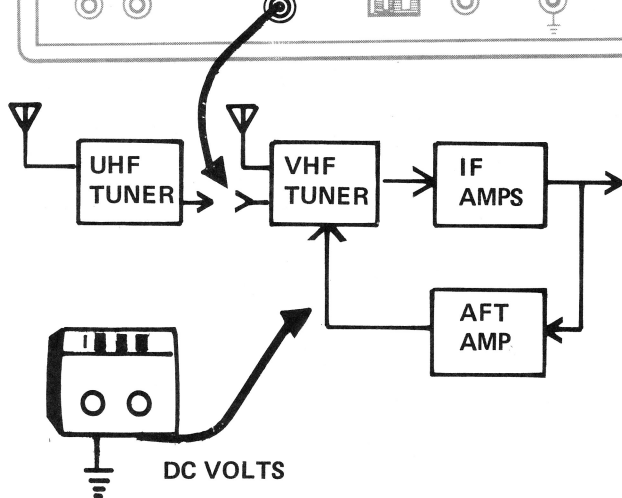
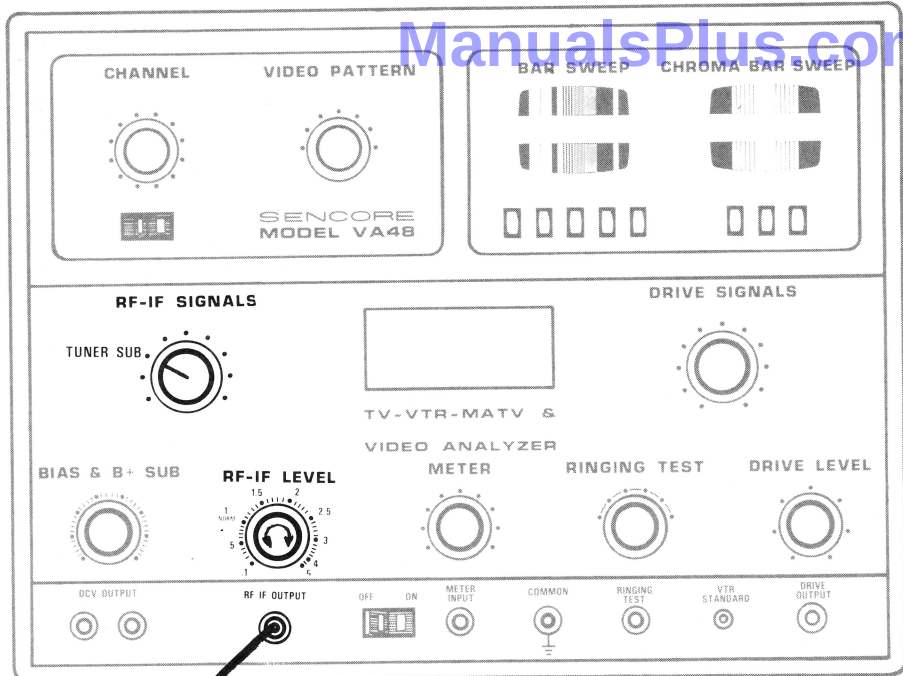
1. Inject tuner sub into UHF input (or mixer test point) of VHF tuner.
2. Set TV tuner to UHF position.
3. Set each trap (with trap signals) for minimum 1KHz signal at video detector or CRT.
4. Adjust IF coils for equal amplitude bars with minimum ringing as viewed with scope at video detector.
5. Recheck 39.75, 41.25, and 47.25 traps.
6. If it was necessary to readjust traps, return to tuner sub and double-check alignment.



NOTE: Align only after IF alignment.

Instructions:

1. Turn AFT off and measure feedback voltage.
 2. Turn AFT on and note number of AFT adjustments.
- (a) **3 Adjustments**
3. Set 45.25 coil for maximum "+" voltage.
 4. Set control for positive portion of "S" curve for maximum "+" voltage.
 5. Reset 45.25 coil for maximum "-" voltage.
 6. Set control for negative portion of "S" curve for maximum "-" voltage.
 7. Reset 45.25 coil for same voltage as in Step 1.
- (b) **2 Adjustments**
3. Set 45.25 coil for maximum "+" voltage and note voltage.
 4. Set 45.25 coil for maximum "-" voltage and note voltage.
 5. Set centering control for equal amount of + and - voltage swing.
 6. Reset 45.25 coil for same voltage as in Step 1.
- (c) **1 Adjustment**
3. Set control for same voltage with AFT off or on.



Circuits Tested:

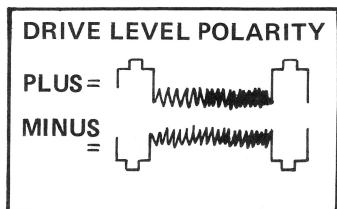
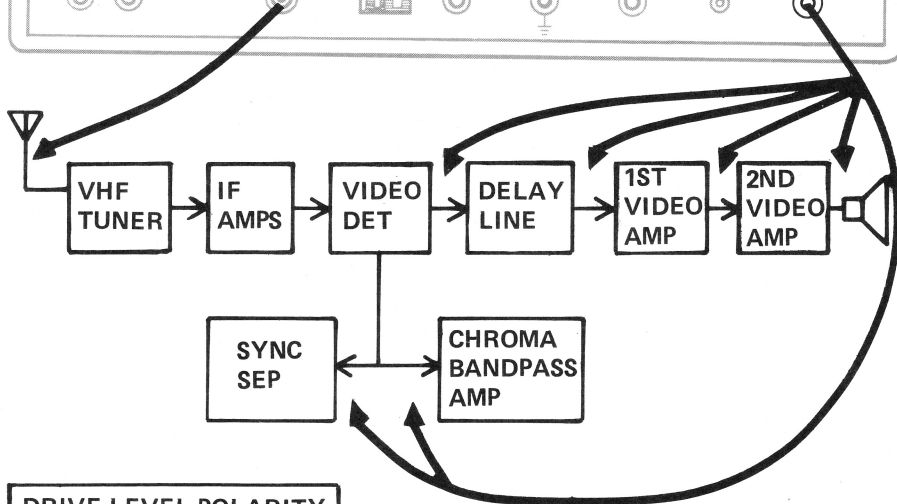
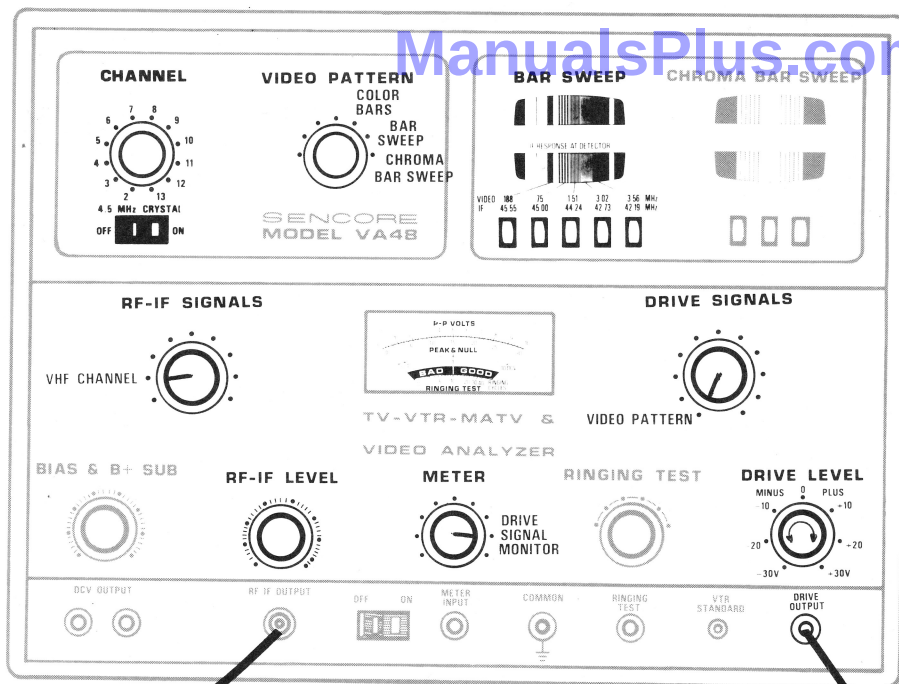
Video amp, video output, delay line, chroma bandpass amp, sync separator

Patterns To Use:

Color Bars, Bar Sweep, Chroma Bar Sweep

Special Applications:

TEST	INSTRUCTIONS
1. Video amp trouble-shooting	1. Inject <i>Bar Sweep Pattern</i> to locate defective stage or frequency response loss
2. Video amp 3.58 MHz trap	2. Inject <i>Chroma Bar Sweep Pattern</i> and adjust for minimum middle bar
3. Chroma bandpass amp	3. Inject <i>Color Bars</i> to check for missing color information (See next page for alignment)
4. Sync separator	4. Inject <i>any pattern</i> to check that sync is stripped cleanly



WARNING: CHECK LEVEL BEFORE INJECTING SIGNAL.

Circuits Tested:

Chroma bandpass amp, color demodulators, color output stages

Pattern To Use:

Chroma Bar Sweep

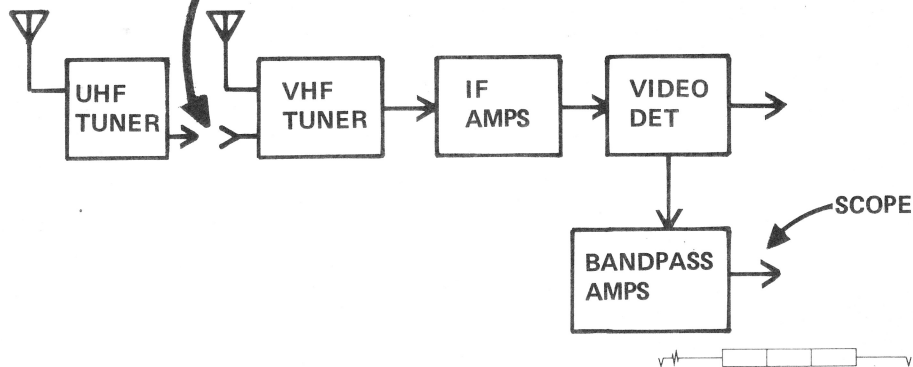
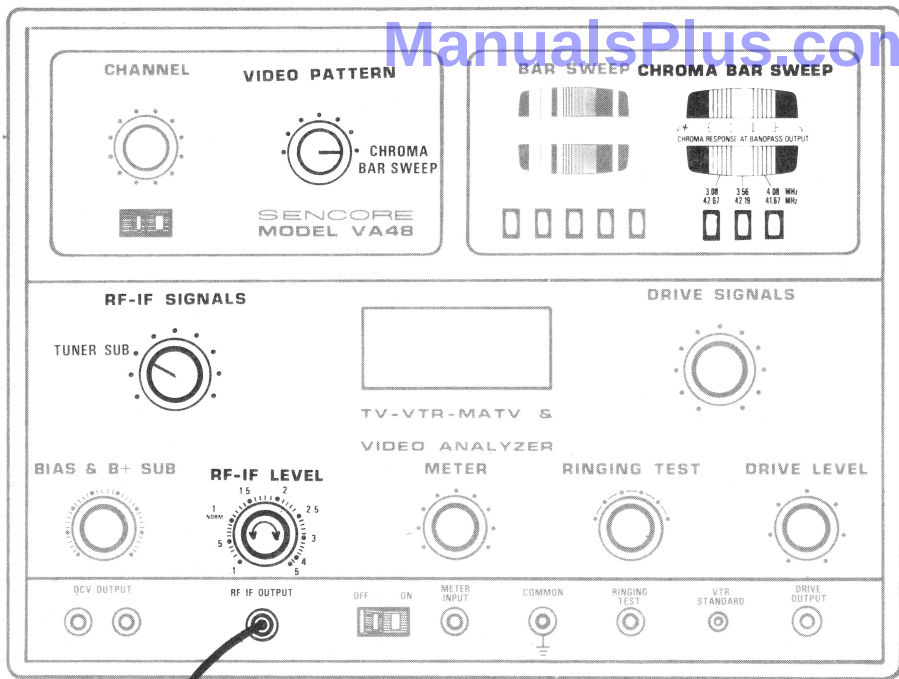
Special Applications:

TEST

1. Bandpass amp alignment
2. Tint range set
3. Color killer check

INSTRUCTIONS

1. Set for even bars on scope connected to output of chroma bandpass amp
2. Set for even blue bar with tint control mechanically centered
3. Alternate between *Bar Sweep* and *Chroma Bar Sweep Pattern* . . . should be no color in *Bar Sweep*, good color in *Chroma Bar Sweep*



Circuits Tested:

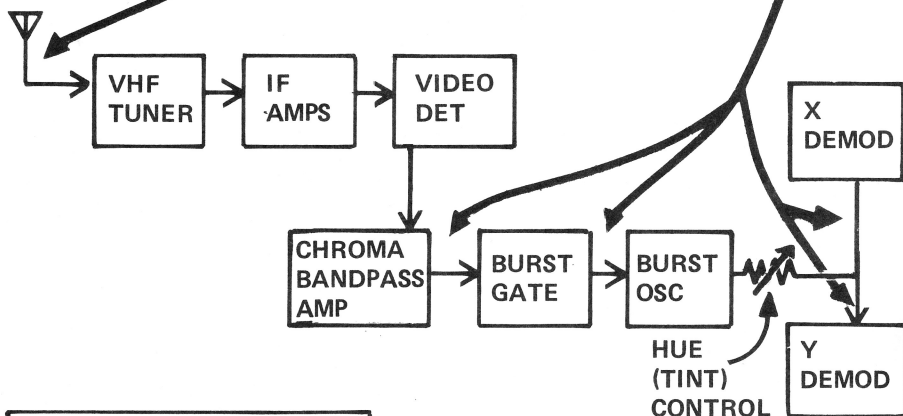
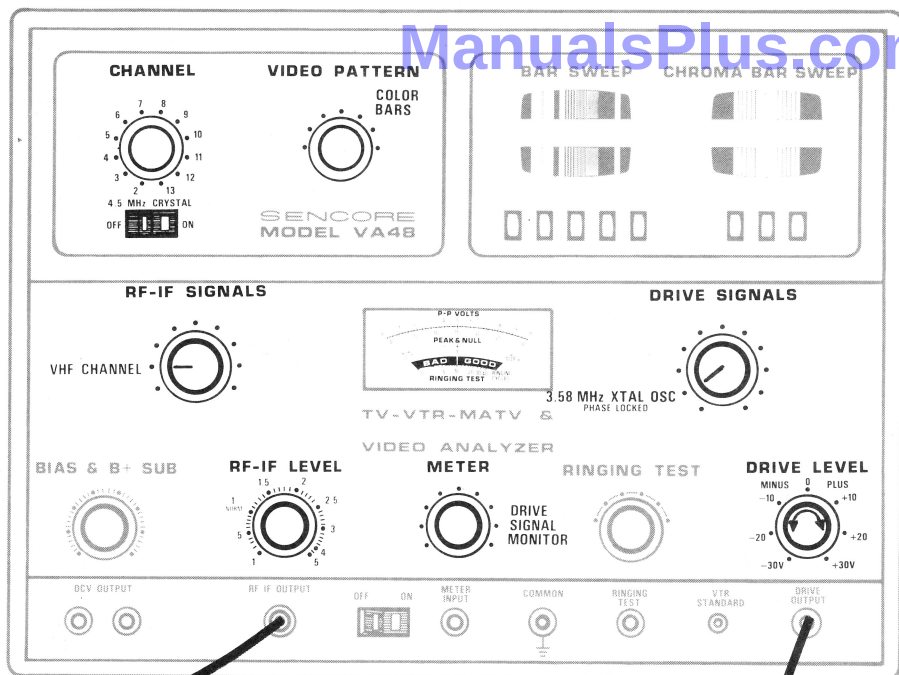
Burst gate, 3.58 MHz oscillator, tint control phase-shift network

Pattern Needed:

Color Bars or Chroma Bar Sweep

Instructions:

Substitute signal, change Drive Level polarity control to shift phase



DRIVE LEVEL POLARITY
PLUS = IN PHASE
WITH BURST
MINUS = 180° OUT
OF PHASE WITH BURST

WARNING: CHECK LEVEL
BEFORE INJECTING SIGNAL.

Composite Sync

Circuits Checked:

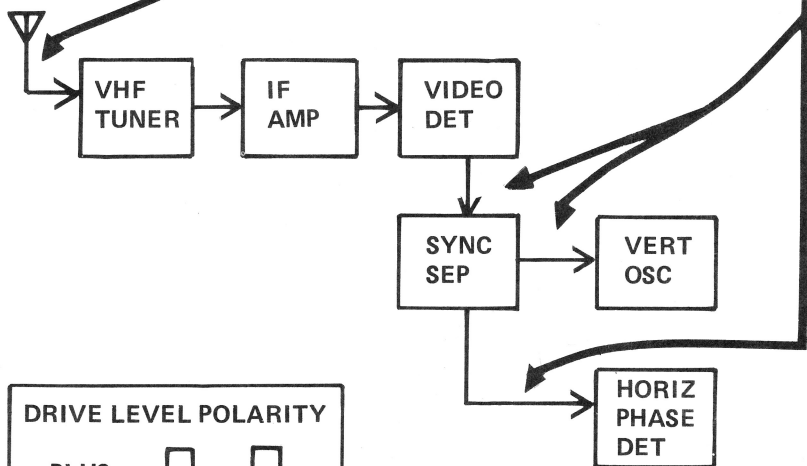
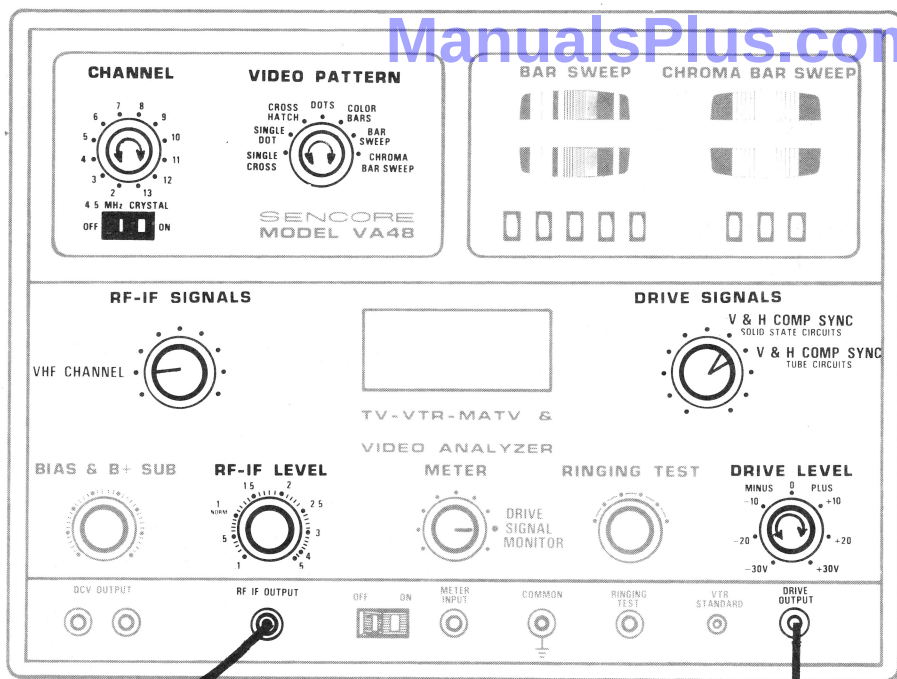
Sync separator, vertical oscillator, horizontal oscillator

Pattern To Use:

Any

Instructions:

Inject at input or output of sync separator to return sync.



DRIVE LEVEL POLARITY

PLUS =



**WARNING: CHECK LEVEL
BEFORE INJECTING SIGNAL.**

Circuits Tested:

Vertical oscillator, vertical amp, vertical output, vertical yoke

Pattern To Use:

Any

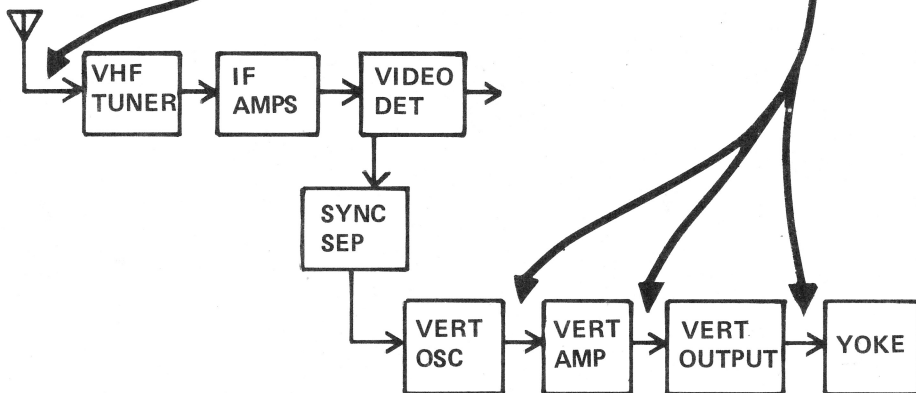
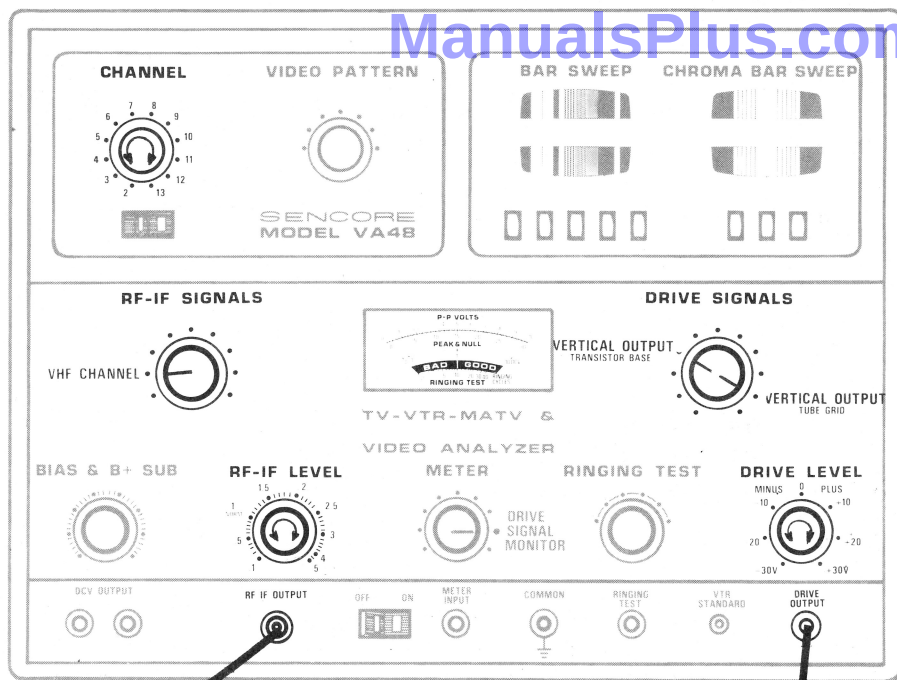
Special Applications:

TEST

1. Vertical oscillator
2. Amplifier output
3. Vertical yoke

INSTRUCTIONS

1. Substitute signal
2. Inject signal
3. Inject signal, both positive and negative to find breakdown voltage, observe meter for signs of loading



DRIVE LEVEL POLARITY

PLUS =

WARNING: CHECK LEVEL BEFORE INJECTING SIGNAL.

Circuits Tested:

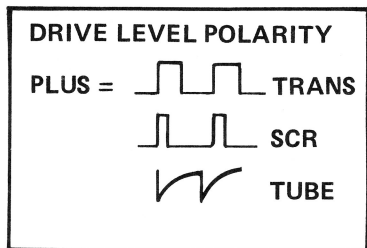
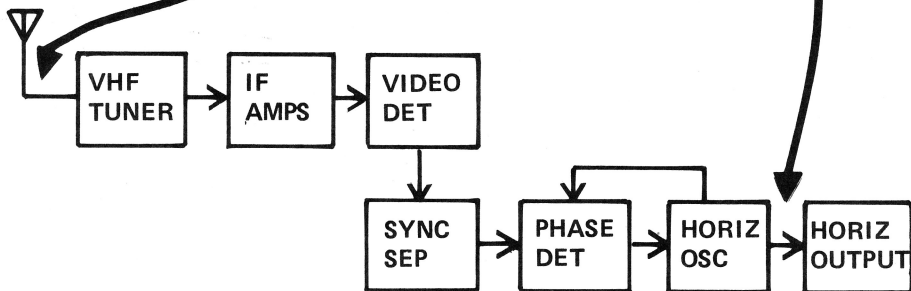
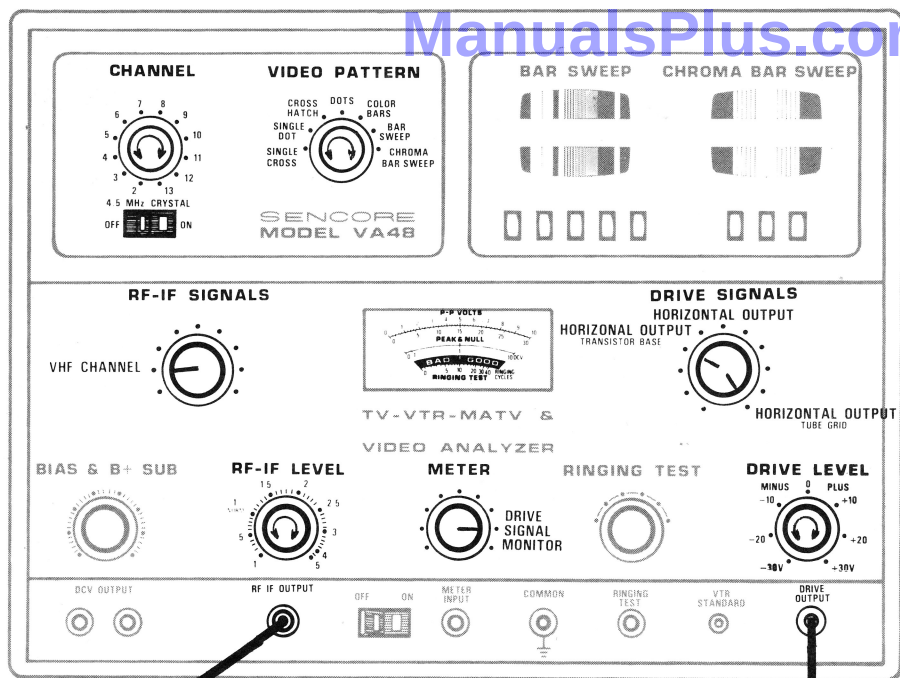
Horizontal oscillator, output

Pattern To Use:

Any

Instructions:

Inject signal stage-by-stage to locate defect



Horizontal Keying Pulse

ManualsPlus.com

Circuits Tested:

Keyed AGC, burst gate, keyed video detector, any keyed circuits

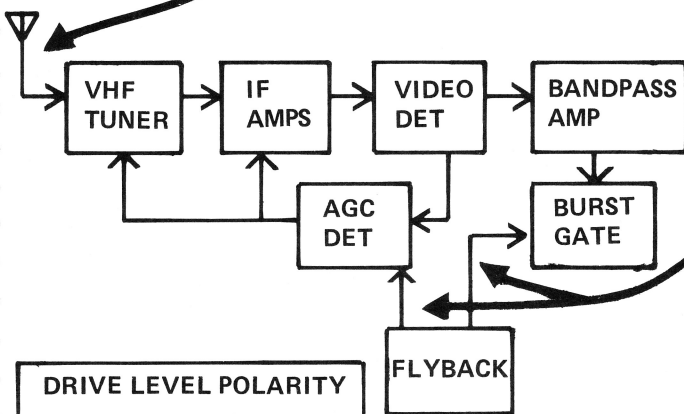
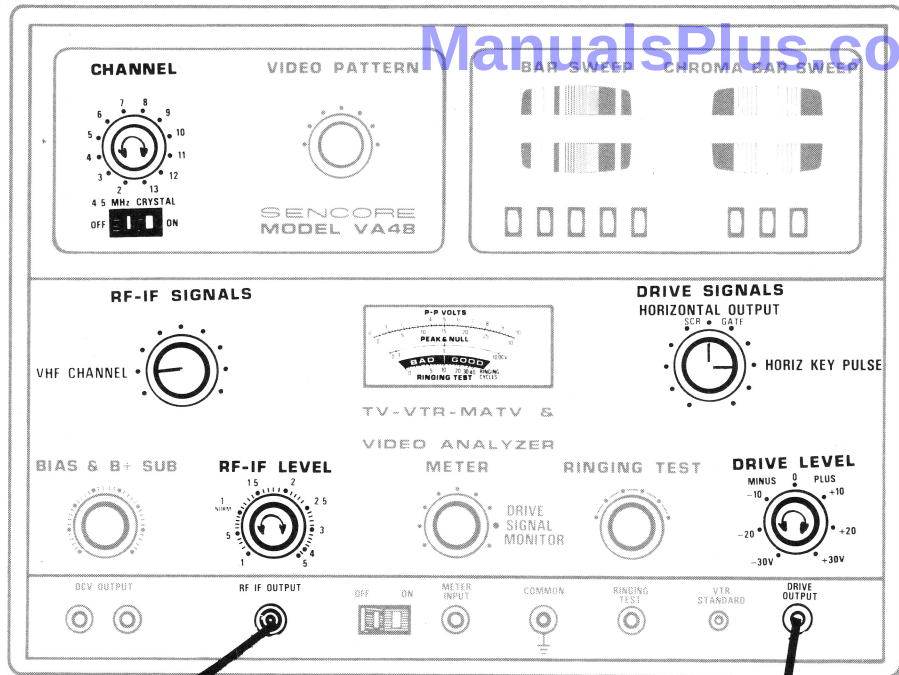
Pattern Needed:

Any

Instructions:

Substitute for flyback keying pulse

NOTE: Horizontal SCR drive may be used for low-impedance, solid state circuits.



DRIVE LEVEL POLARITY

PLUS =



**WARNING: CHECK LEVEL
BEFORE INJECTING SIGNAL.**

Circuits Tested:

Sound take-off coil, sound detector, 4.5 MHz (video) trap

Patterns To Use:

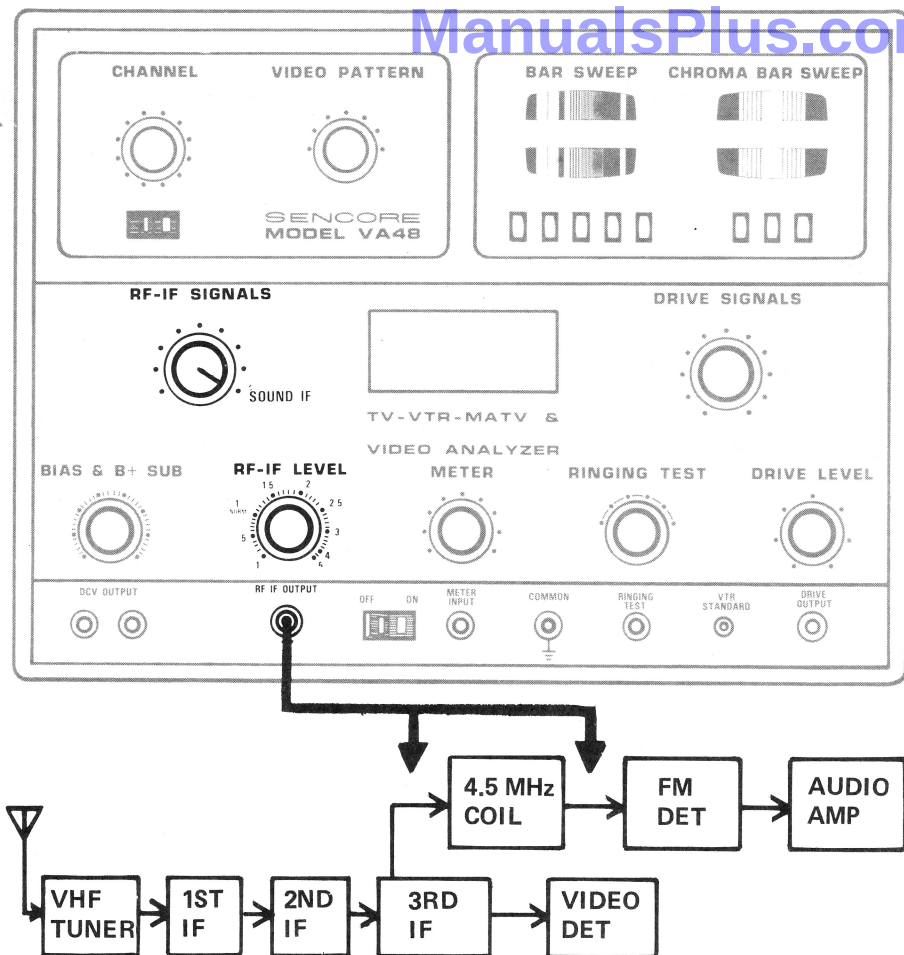
None

Special Applications:

TEST

INSTRUCTIONS

- | | |
|-----------------------------|--|
| 1. Sound IF troubleshooting | 1. Inject stage-by-stage up to sound detector |
| 2. Sound detector alignment | 2. Inject at sound take-off coil and reduce amplitude while adjusting for best sound |
| 3. 4.5 MHz trap set | 3. Inject at video IF input and adjust for minimum interference in picture |



Circuits Tested:

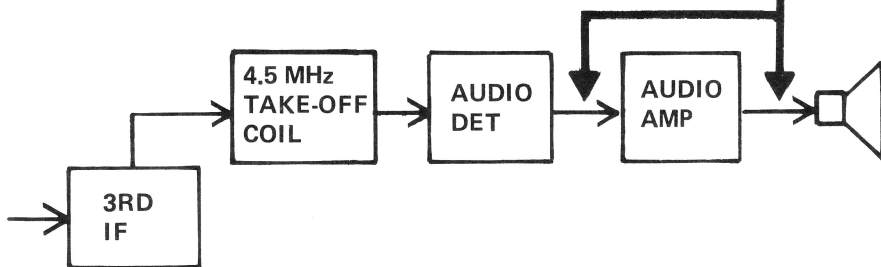
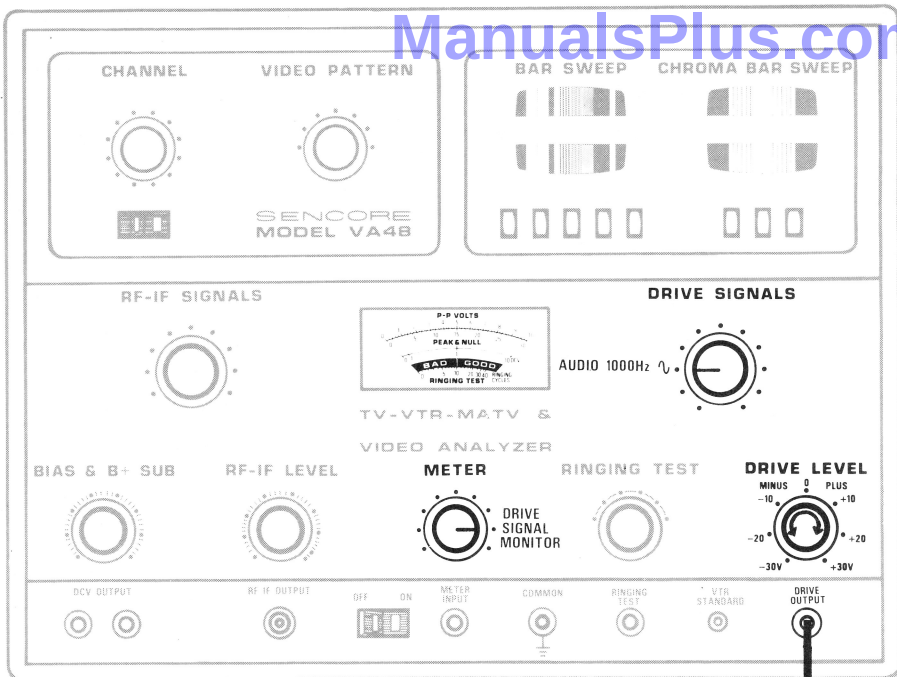
Audio amplifier, loud speaker

Pattern Required:

None

Special Applications:

Inject into any audio stage



WARNING: CHECK LEVEL BEFORE INJECTING SIGNAL.

Circuits Tested:

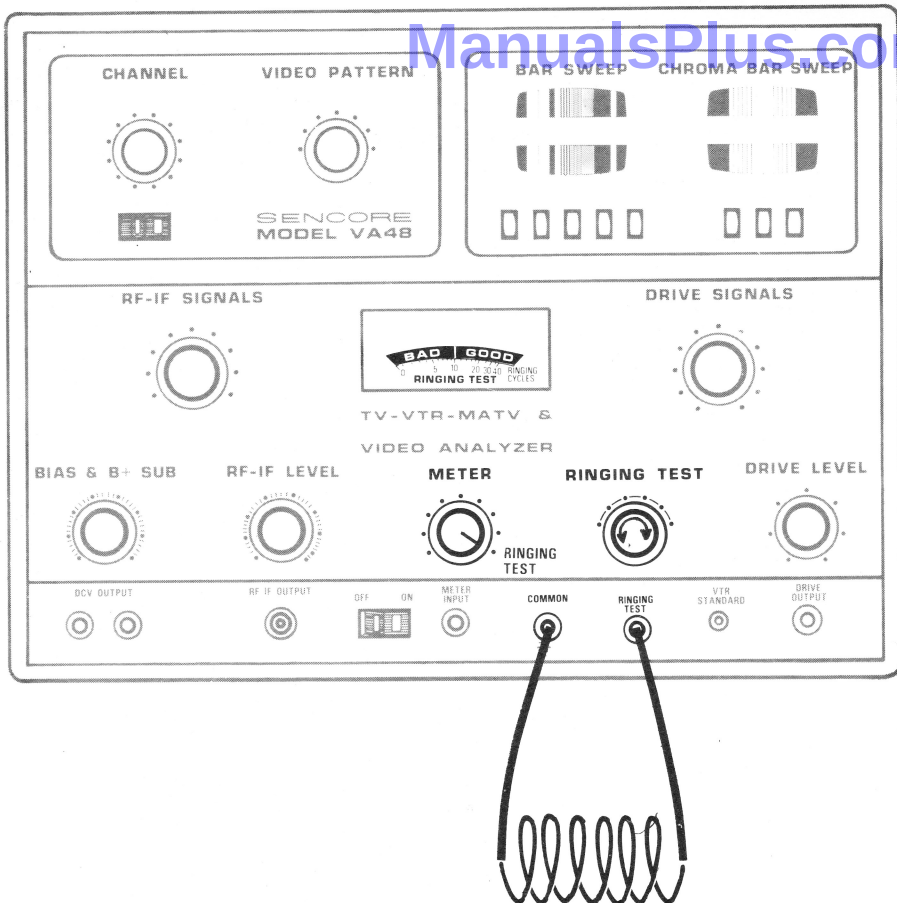
Horizontal yokes, flyback transformers, vertical yokes

SPECIAL NOTE:

Test only with power removed from set.

Instructions:

Connect across coil. Rotate ringing test switch. Highest reading on meter indicates condition. If one or more positions produce a good reading, coil is good.



WARNING: TURN OFF SET BEFORE TESTING COIL.

Circuits Tested:

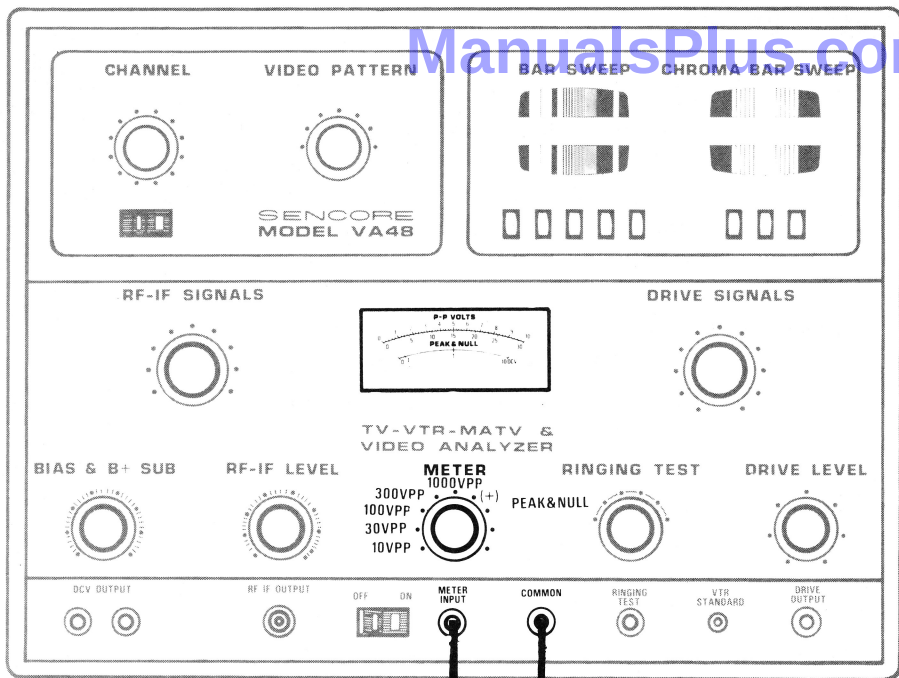
Any signal circuits to 1000 VP-P, DC peaking or nulling circuits

Pattern Needed:

Any

Instructions:

Use P-P meter to trace signal using scope waveforms, or peak and null to set traps.



**CIRCUIT
UNDER
TEST**



Circuits Tested:

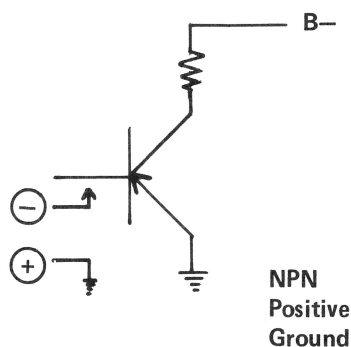
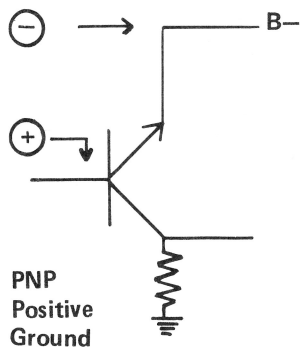
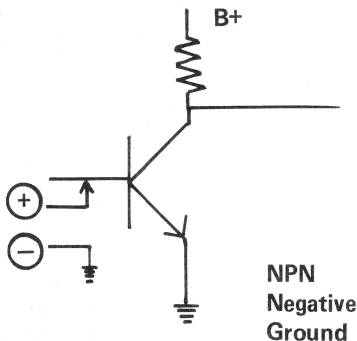
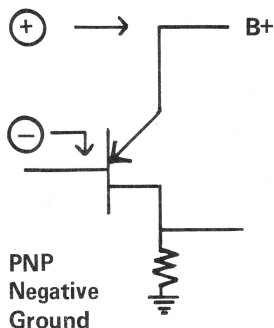
AGC, AFC, ACC, APC, AFT, horizontally derived power supplies direct coupled stages

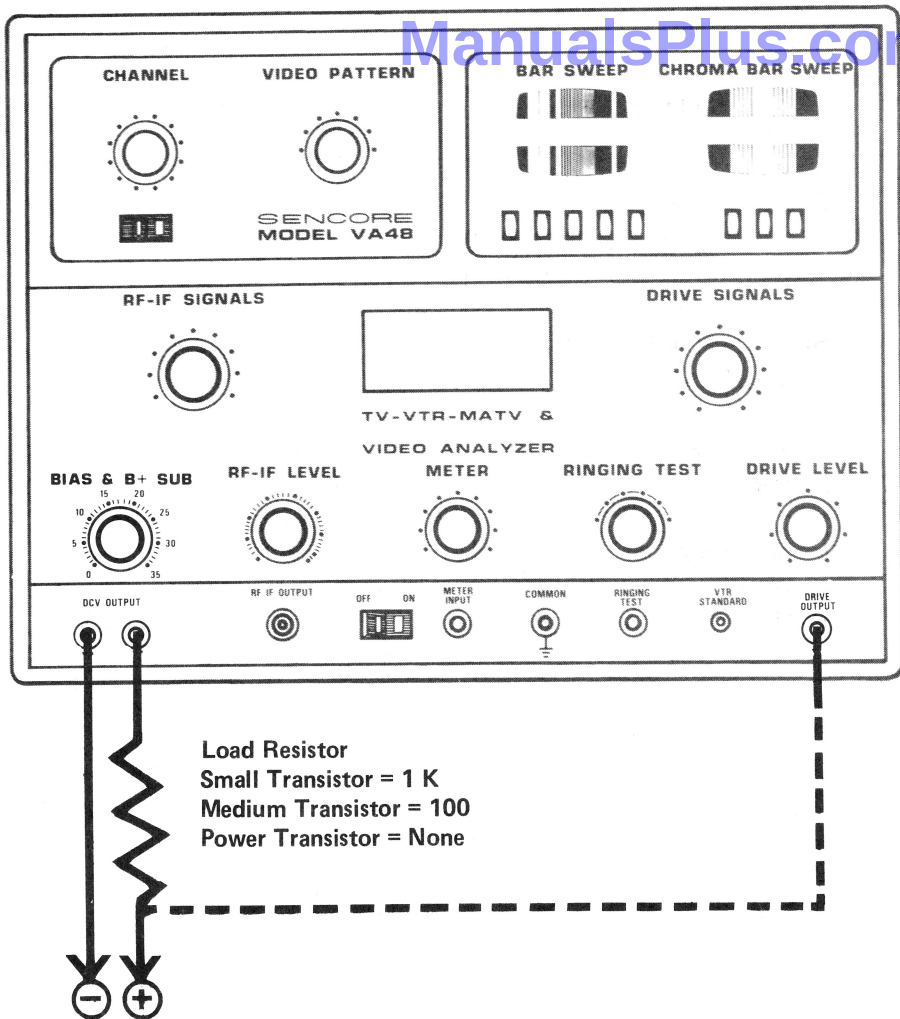
Pattern Needed:

Any

Special Applications:

Replace automatic feedback voltage, derived power supplies, direct coupled stages biased per following:





Circuits Tested:

All

Patterns To Use:

Color Bars and *Chroma Bar Sweep* for chroma processing stages, *Bar Sweep* for luminescence stages

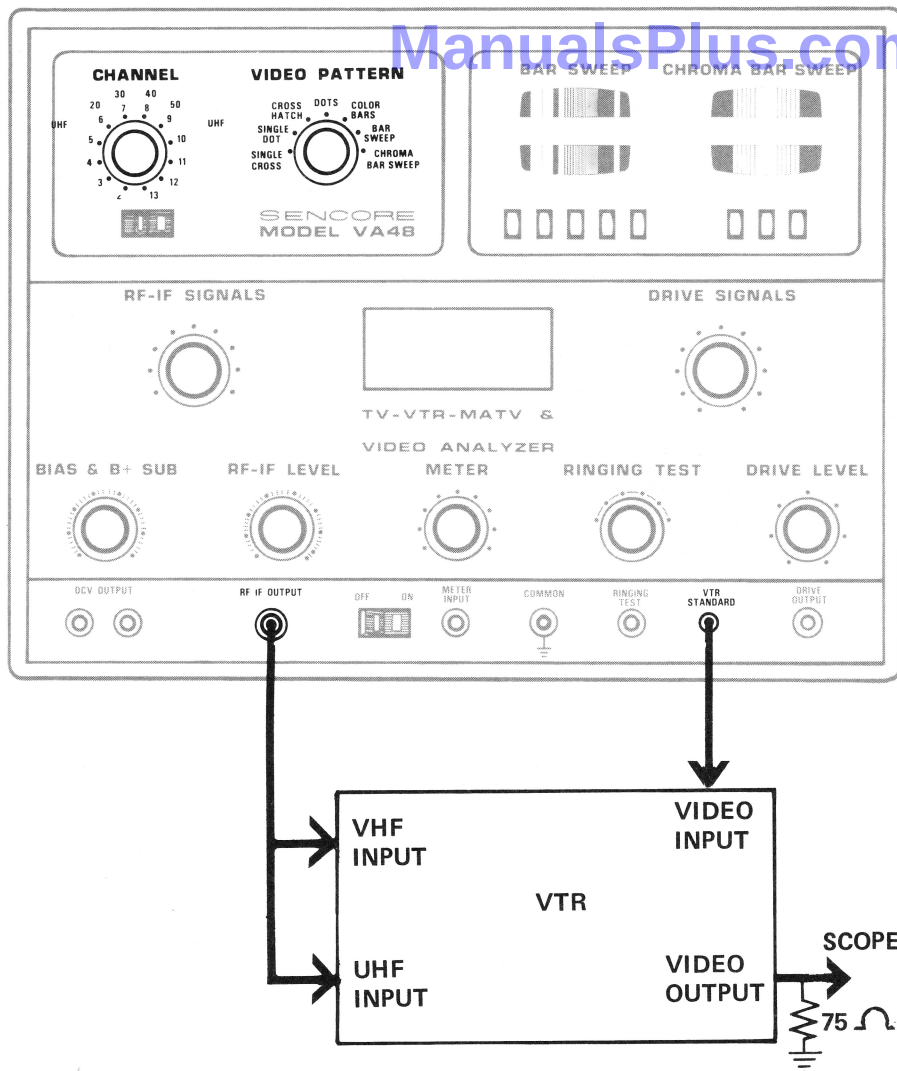
Special Applications:

TEST

1. Tuner and IF stages
2. Video amps
3. Servo circuits
4. Audio
5. Playback

INSTRUCTIONS

1. Use standard IF alignment
2. Use *Bar Sweep Pattern* to check frequency response
3. Use *Composite Sync* signals
4. Use *1000 Hz* signal
5. Use pre-recorded tape with *Bar Sweep* recorded to check playback frequency response



SENCORE

3200 SENCORE DRIVE, SIOUX FALLS, SOUTH DAKOTA 57107