BROADCAST engineering's

December 15, 1983/$15

A
Response Luma ..... To 3.6MHz
Response Chroma ..... To 1.2MHz
S/N Ratio Luma 47dB
S/N R 47dB

B
Sensitivity ..... 2000 lux, f/5.6, 90%
Resolution ..... >600TVL
Registration 0.5, 0.8, 1%
S/N Ratio 54dB

C
Phospor Dot Pitch 0.43mm
Resolution 600TVL
Convergence Accuracy 0.4mm
Raster Regulation ..... ± 2%

D
Wow/ ..... 0.04% NAB
Harm 1.5% 160nW/m 1kHz
S/N R ..... 55dB 3% THD
AF Re 3/30-15k

E
Frequency Range 10Hz, 110kHz
Input Level/Imped. 30μV, 110V, 200kΩ
Fundamental Rej ..... >110dB at 1kHz
Auto Null ..... Yes

F
Digital Design ..... Yes
Delay Range ..... 0.1s-100s, adj.
Stereo System ..... Yes
Bandwidth 8kHz

G
Typic 300ft
AF Re 0.75/100-12k
Harm 0.15%
Modu ..... Compression

H
Start Time 0.5s
Rumble ..... 70dB, DIN 45539
Wow/Flutter ..... 0.075%, DIN 45507
Platter Diameter ..... 12.9"

I
AF Response ..... – 0.5/20-20k
Harmonic Distortion ..... <0.1% + 20dBm 6dB L/C
S/N Ratio 89dB

J
Outpu ..... lal active
AF Re ..... t 1.5/40-16k
S/N Ra 8dB
Cross ..... - 50dB

K
Connections ..... Xfmr, active bal
AF Response 0.5/20-20k
Harmonic Distortion 0.2% 1kHz 27dBm
S/N Ratio ..... – 126 EIN

L
Tape Width ..... 1" C Video
Tape Speeds 9.606ips
Variable Speeds 6-11.2ips
Reel Size/Hub ..... 10.5"/NAB

M
Page I 0C/21L
Char. 1.25nsec
Chara ..... 'es, H & V
Italici ..... ly lines

N
Machine Controls ..... As required
Automation Ready ..... No
Input/Output Connection ..... Xfmr & active
AF Response 0.5/20-20k

O
Sample Rate/Bits 14.4MHz/8
Correction Window ..... 1 field
Video Bandwidth ..... ± 0.5dB/to 3MHz
S/N Ratio 56dB

P
MOD 5m/8.2ft
MOD a 5x49
Horizo... ..... 6°20' to 1°35'
Back Focal Distance 91.39

SPEC BOOK '83

Q
Sync Regeneration ..... TBC
Standards Conversion ..... NTSC/PAL/SECAM
Recommend Appl ..... Any
Video BW ..... 9MHz sampling

R
Output Channels 3
Video Response 0.3/to 4.2MHz
S/N Ratio 58dB
Differential ϕ/G ..... 1°/1%

S
Differential ϕ/G ..... 3°/3%
K Factor 2T 1%
Chroma Luma Delay 20nsec
Moire Rating ..... – 40dB

A special 13th issue of Broadcast Engineering featuring specifications for radio &TV equipment

T
Pattern Generator ..... 24 patterns
Rotary Wipes ..... No
Soft Wipe Capability ..... Yes
Spotlight ..... No

U
Monaural Baseband 30Hz-15kHz
Composite Baseband 1Hz-80kHz
Monaural Multiplex 22kHz-85kHz
Composite Multiplex 110kHz-185kHz

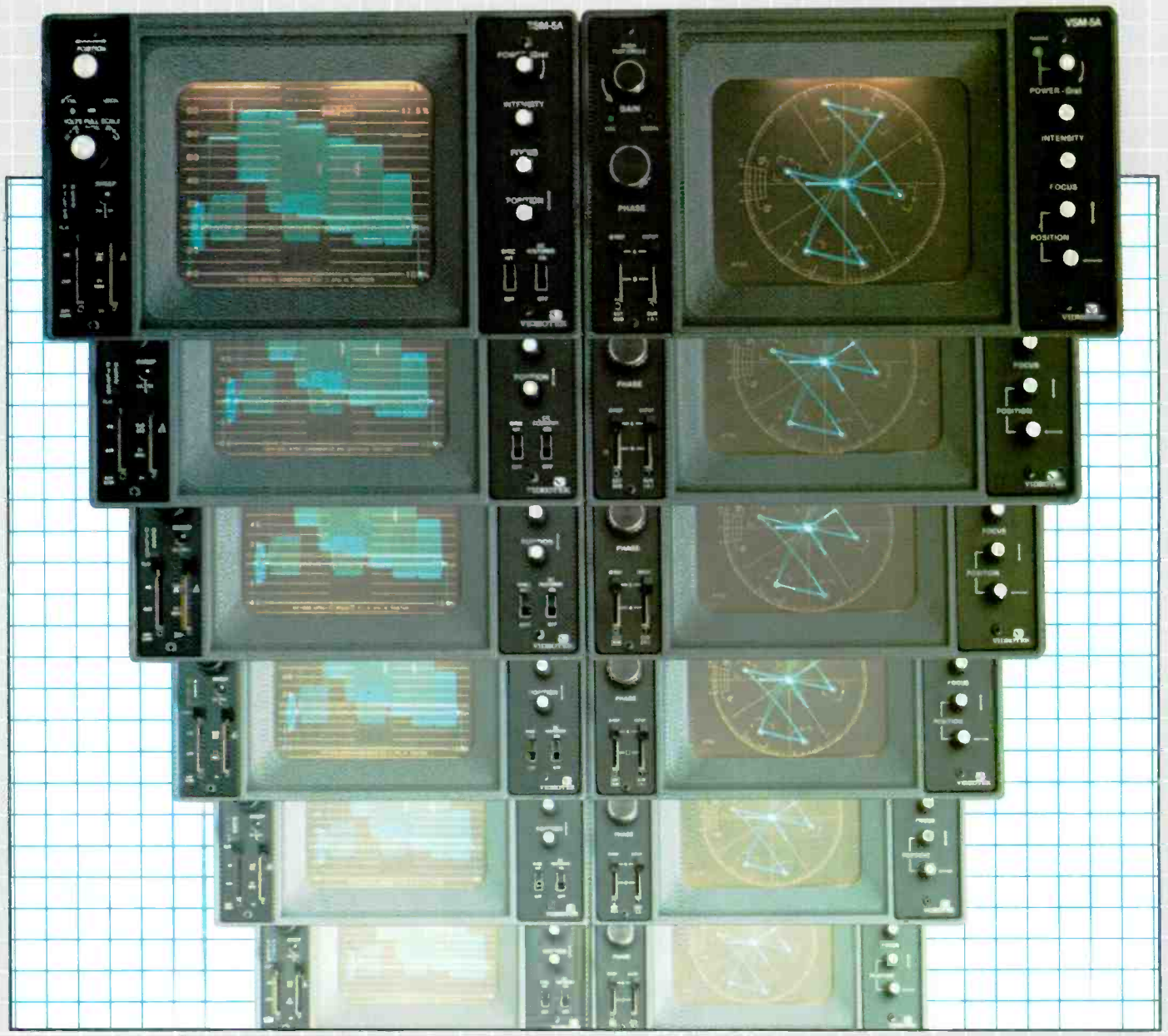
V
Number Rec/Play 1Rec/3Play
Microprocessor Ctl ..... Distributed
Event Storage ..... 300 events
Disc Event Storage ..... Floppy option

W
Sensitivity ..... 2500 lux, f/4
S/N Ratio 58dB
Resolution 600TVL
Registration 0.1, 0.2, 0.4%

X
Video Response 0.5/to 5MHz
S/N Ratio 65dB
Audio Response 0.5/40-15k
S/N Ratio 58dB

Y
Peak Level Adjust 0-199%
Residual AM ..... Built-in metering
Composite Output ..... Yes
Audio Output ..... + 10dB bal., L/R

Movin' up!



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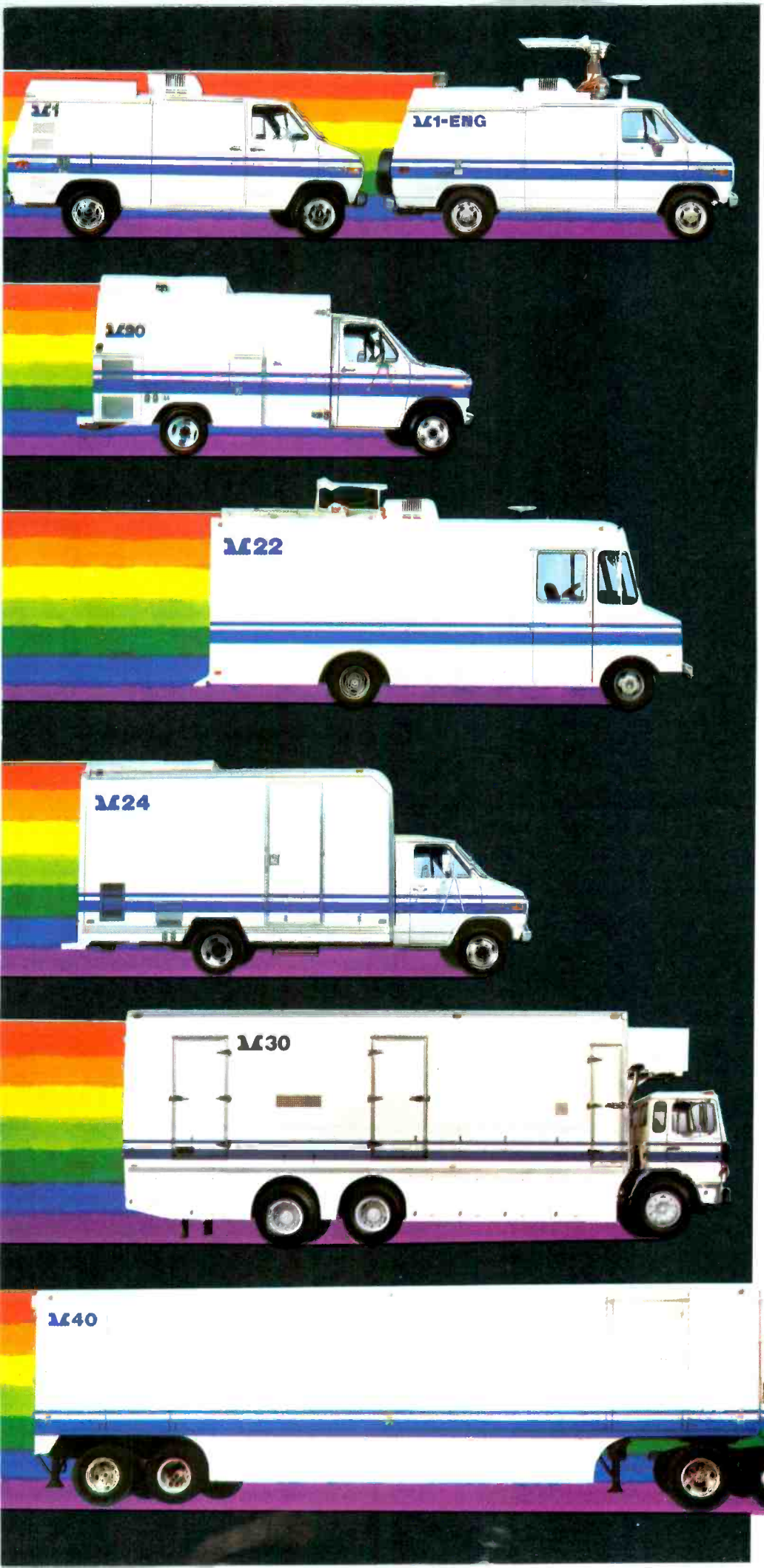

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BROADCAST engineering

Spec Book

Dec. 15, 1983 • Volume 25 • No. 13

FEATURES

AUDIO EQUIPMENT

VIDEO EQUIPMENT

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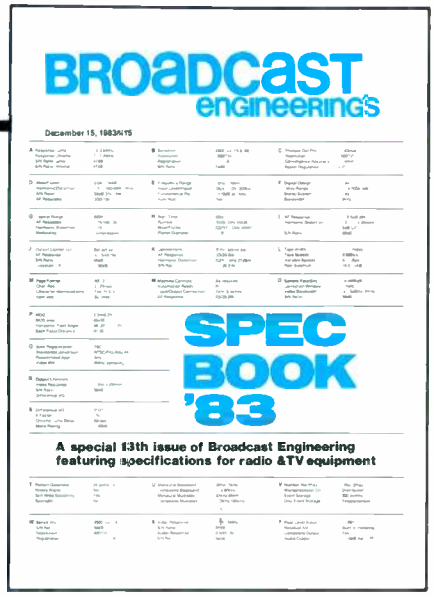

About the Cover

The cover design of this issue serves a dual purpose. First, it identifies the type of information that will be found in **Spec Book.** Second, the information on the cover could mean a great deal to you personally. Look closely at all of the excerpts of specification information, taken from this issue, then turn to the rules of our contest on page 1 & 2. GOOD LUCK!

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INTERTEC PUBLISHING CORPORATION

Spec Book

EDITOR'S LETTER

Dear Readers:

The concept of *Spec Book* is to provide equipment specifications in a format for easy comparison purposes. It is intended to be used as an initial step toward decision-making for eventual equipment purchases. After comparing some of the items of concern, users should contact the manufacturers for complete data on those products of interest. Reader service numbers are provided for each model for your convenience. Comments on the reader service card are invited as well.

Spec Book has been considered somewhat controversial, due to the many ways that specifications are sometimes given. For that reason, when the manufacturers were originally contacted for information for this 1983 issue, they were asked to state reference levels, frequencies or other pertinent notes for improved communications. In many cases, a greater amount of data reflects their willingness to work toward a better understanding in the industry.

Efforts have been made again to show the available range of products within a product category. Not every product of a particular company is shown, but related model notes reflect additional models of a series or closely related products.

The editorial features selected for this year's issue were chosen for their practical value. It is our hope that they will offer one or two ideas for better operation at your facility.

And finally, to all regular subscribers of *Broadcast Engineering,* that is station and production facility personnel (sorry, manufacturers and their representatives are not eligible), we invite you to read pages 1 and 2 carefully. You could be the winner of a digital audio disc player!

Carl Bentz
Technical Editor

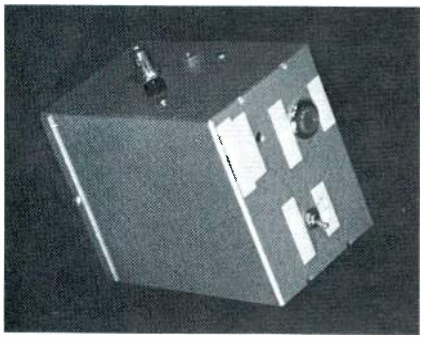
AUDIO EQUIPMENT

A Waveform Calibration Standard

By Don Freeman, engineering manager, WUSF-TV, Tampa, FL

High quality video depends on accurate measurement. For multiple measurement points within the video path. I suggest methods to make sure all waveform monitors are set up for standard horizontal and vertical deflections.

Although many waveform monitors have an internal calibration signal for adjusting vertical gain, unfortunately these sometimes disagree from one instrument to another. Even more difficult is resolution of disagreement between waveform monitors when making blanking width or pulse width measurements. Yet, there is an obvious need for accuracy when making time measurements.



This small metal box houses the batteries and electronic components for the 1V standard.

At first glance, there is less apparent need for absolute accuracy when measuring the peak-to-peak level of a video signal. Maintaining agreement between multiple waveform monitors seems more important. The difficulty is in choosing a *house standard* that everyone will agree to. Because use of an accurate voltage source as a standard appeals to most engineers, that is the approach taken here.

A frequency standard

The 3.58MHz (actually 3.579545MHz) color subcarrier has properties that make it attractive for use in sweep calibration. The frequency and period (time/cycle) are known with great precision. Also house subcarrier has a stable phase relationship with respect to house horizontal sync. Thus, house sync, applied to the external sync input of the waveform monitor, provides a stable display of several cycles of subcarrier.

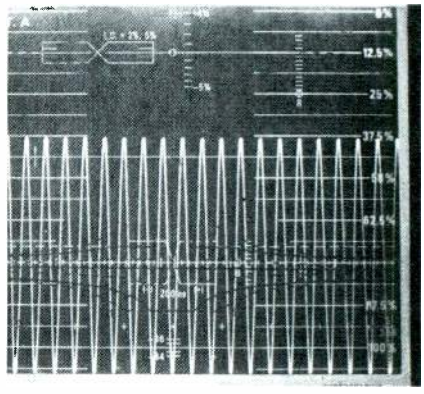
Apply the house sync to the external sync input of a picture monitor and display network video (locked to external sync). Any horizontal drift of the picture is the measure of difference in frequency between the network and house subcarrier, because the horizontal scan frequency of the NTSC TV signal is equal to its subcarrier frequency multiplied by two and divided by 455. If the picture appears stationary, the frequencies are close. If the time required for the picture to make one complete horizontal transit across the CRT is more than 25s, the error difference between the two subcarrier signals is about 8Hz. If the transit requires a minute or more, a vectorscope can be used for a closer check of the frequency difference.

To use the vectorscope, apply the house subcarrier to the external subcarrier reference, while displaying the network signal. The number of cycles per second rotation of the vectors is a direct measure of the frequency difference between the house and network subcarrier.

Even with the worst-case condition of a 10Hz error, use of the subcarrier for calibration of the horizontal timebase will result in an error of less than three parts/million, attributable to a subcarrier frequency error.

Sweep calibration

With the waveform monitor externally driven by the house sync, and the house 3.58MHz subcarrier fed to the video input, the number of horizontal divisions occupied by a certain number of cycles of subcarrier can be observed. With the sweep selection set for 1μs/div. scale, for example, 3,579,545 cycles/second multiplied by 9.5μs equals 34 cycles. If the sweep is correctly calibrated, you should be able to count 34 cycles appearing within 9.5 divisions on the CRT graticule. Similarly, for the 0.5μs/div sweep setting, 17 cycles must occupy the 9.5 divisions, if sweep calibration is correct. If these conditions are not met, the waveform monitor sweep circuits must be adjusted.



On the 0.5μs/div scale, 17 cycles of subcarrier should occupy 9.5 divisions. This waveform monitor shows a slight error (approximately 1%) with 17 cycles occupying 9.6 divisions.

An easy way to determine the number of cycles to use in the calibration involves a calculator. First, calculate the divisions/cycle, then add this number repeatedly until you accumulate a figure between 9 and 12.4 (assuming your instrument has 12.4 divisions on the graticule). My preference is to select a multiple that allows approximation using tenths of a division on the graticule without sacrificing accuracy.

For the 0.2μs/div range, determine the divisions per microsecond and divide by 3.579545 to find the divisions per cycle of subcarrier, and add that number

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Geometric linearity is 99.3% accurate. Convergence is also excellent, evident in the overall precision, sharpness, and pure color accuracy. Proton's superior precision-wound deflection yoke provides for the optimum electron beam control.

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PERFECT PLAYBACK

Circle (4) on Reply Card

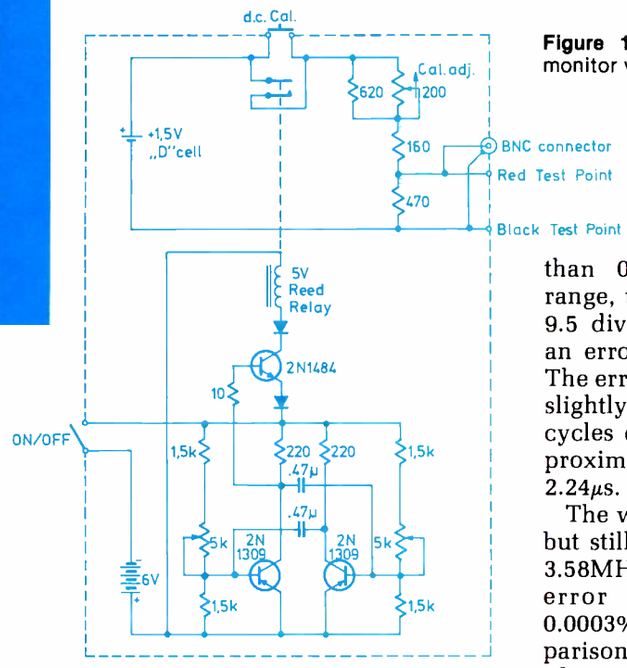


Figure 1. 1V standard for waveform monitor vertical deflection calibration.

repeatedly to find a convenient number of horizontal divisions between 9 and 12.4. Because each division represents 0.2µs, each microsecond occupies five divisions. Division by 3.579545 yields 1.3968256 div/cycle. Adding 1.3968256 eight times results in 11.174605, which is within 0.03 divisions of 11.2. Eight cycles of subcarrier should occupy 11.2 horizontal divisions on the 0.2µs/div sweep range.

Sources of error

It is estimated that the inherent limitations of measurement with a waveform monitor are approximately 0.5 IRE units vertically and 0.05 divisions on the horizontal axis. If the measurements are made with a full-deflection signal, the limitations are in the range of 0.35% to 0.4% and are the result of factors such as spot size or parallax.

For errors attributable to the standards, insufficient accuracy in the digital voltmeter used to set the calibration standard voltage divider would make the standard questionable. However, the DVM is a reasonably stable instrument with a possible long-term accuracy of 0.05% or better.

The approximations used to equate an integral number of cycles of 3.58MHz to the nearest 0.1 division should be considered. The 34 cycles occurring in 9.5 divisions (actually 9.4984µs or divisions), provides an error less than 0.02%. For the 0.5µs/div range, trying to fit 17 cycles into 9.5 divisions of 4.75µs produces an error within 0.02% of 4.75µs. The error on the 0.2µs/div range is slightly more, 0.2%, as eight cycles of 3.58 are used as an approximation of 11.2 divisions or 2.24µs.

The worst-case frequency error, but still within FCC limits, of the 3.58MHz signal is 10Hz. A 10Hz error equates to less than 0.0003%, insignificant in comparison to the limiting resolution of a waveform monit The signal should occupy at least two-thirds of the total deflection along the axis being calibrated. Therefore, the calibration signal should occupy at least two-thirds of the 12.4 divisions of graticule width for a sweep check.

Assuming the waveform monitor can be read to an accuracy limit of 0.05 divisions on the sweep axis. The 1µs/div range is selected and a check is made using five cycles of 3.58MHz to check 1.4 divisions. The error in reading the display is calculated by dividing 0.05 by 1.4, which is approximately equal to 3.6%. However, using 34 cycles as the signal over a 9.5 division trace gives an error of 0.05 divided by 9.5, which is approximately equal to 0.5%. Increasing from a display trace of 1.4 divisions to one of 9.5 divisions improves accuracy from a 3.6% error to a 0.5% error.

A voltage standard

The method for vertical deflection calibration of the waveform monitor is a dc voltage, precisely adjusted to 1Vdc and mechanically chopped. The availability of digital voltmeters permits the measurement of dc with a high degree of precision, allowing a voltage divider to be adjusted for an output of exactly 1V. A reed relay provides mechanical chopping in preference to electronic switching, avoiding semiconductor junction voltage drops. The relay contact resistance and associated voltage drop may be disregarded for practical purposes.

A multivibrator circuit used for relay drive is shown toward the bottom of Figure 1. Batteries were chosen as the power source for simplicity and portability. Battery life is approximately a year with normal use. Potentiometers allow adjustments to minimize point bounce and hash in the waveform monitor display. CAL ADJ allows the voltage divider to be set by connecting the digital voltmeter to the test jacks and pressing the DC CAL button.

Other designs may be used to drive the relay, and if a 1V output is not obtained with the CAL ADJ pot in the approximate center, the fixed resistors in the voltage divider network may need to be selected. A 15kΩ shunt loading is common in unterminated waveform monitor inputs and may cause an 11MV or 1.1% error. Check the instruction manual for your monitor unit. If the input is given as 15kΩ, connect a 15kΩ resistor between the red and black test points on the test box while adjusting the dc calibration control.

Vertical calibration

Having checked the 1V level out of the test box with a digital voltmeter, connect the test signal to the waveform monitor input through a short coaxial cable. Do not terminate looping inputs with 75Ω.

Disabling the dc restore circuit on the waveform monitor and using external sync may improve the display multivibrator circuit to reduce point bounce and hash in the display. The waveform on the screen should occupy exactly 140 IRE units, if the waveform monitor vertical deflection gain is correct.

Conclusions

Technical deregulation of broadcasting requires a greater care on the part of those responsible for signal quality. Consistency of measurement suggests some means of calibration to standards. Such standards are available at almost every TV broadcast facility in the form of the digital voltmeter and the subcarrier signal.

AUDIO DELAY SYSTEMS

Audio systems based upon time delaying of signals for on-air or production applications. Tape-loop systems are not included. Bandwidth is given for stereo operation unless otherwise noted. Time change range lists the amount of time compression (expansion) possible for a 1-minute segment without detectable pitch change.

Manufacturer	AKG Acoustics		Asaca/ShibaSoku	Audio & Design Recording	Fortel
Model Number	**BX25ED**	**TDU-7000**	**AAS-100**	**S24 Scamp Module**	**AS-1**
Functions	Plate/room simulation, multiple reverb	Talk show delay, phasing effects	A/V synchronizer	Multiple reverb	A/V signal sync ....
Digital Design	Yes, spring reverb	Yes	48kHz, 16-bit	No	Yes
Delay Range	60ms, adj	10.799s, adj	To 680ms	1.2ms-50ms, adj	.....
Stereo System	Yes	Yes	Yes	Yes	.....
Bandwidth	12kHz	16kHz	18kHz	20kHz	.....
Delay Catchup Feature	No	.....	No	No	.....
Factory-set Programs	.....	.....	No	No	.....
User Programmable	.....	.....	No	Yes	Yes
Time Change Range	....	....	0-680msec, 1msec steps	N.A.	±25 .....
Multiband Control	.....	.....	No	No	.....
Reader Service Number	**506**	**507**	**508**	**509**	**510**

Manufacturer	Fostex Corporation	Klark-Teknik Electronics	Lexicon		
Model Number	**3180**	**DN772**	**200**	**97**	**1200**
Functions	Multi reverb	Talk show delay	Plate/room simulation multi reverb	Phasing effects	Time compression .....
Digital Design	No, 3-spring & delay	Yes	Yes	Yes	Yes
Delay Range	24s pre-delay	7.15s, adj	Fixed	1.92s, adj	Fixed
Stereo System	Yes and stereo synth	Yes	Yes	No	Yes
Bandwidth	7kHz with reverb	16kHz	20kHz	20kHz mono	15kHz
Delay Catchup Feature	No	Yes	No	No	No
Factory-set Programs	Pre-delay	.....	Yes	Yes	Yes
User Programmable	For reverb mix	.....	Yes	Yes	Yes
Time Change Range	No	.....	.....	.....	45s, 80s
Multiband Control	No	.....	Choral effect	Choral effect	.....
Reader Service Number	**511**	**512**	**513**	**514**	**515**

Manufacturer	Lexicon	Marshall Electronics	MICMIX Audio Products	Orban Associates	Quantec Tonstudiotechnik GmbH
Model Number	**224X**	**440 M Memory Modulator**	**XL-121**	**111B Dual Reverb**	**QRS**
Functions	Plate/room simulation multi reverb phasing effects	Talk show delay plate/room simulation multi reverb A/V signal sync phasing effects	Plate/room simulation	Multi reverb	Plate/room simulation infinite reverb ....
Digital Design	Yes	Yes	No	No, 6-spring/channel	Yes
Delay Range	0.9s, adj	To 1.6s, adj	Fixed	30ms	0.1s-100s, adj
Stereo System	Yes	Yes	No	Yes or dual mono	Yes
Bandwidth	15kHz	15kHz	20kHz mono	Per EQ	8kHz
Delay Catchup Feature	No	Yes	No	No	No
Factory-set Programs	Yes	Yes	.....	No	Yes
User Programmable	Yes	Yes	.....	No	Yes
Time Change Range	.....	N.A.	.....	N.A.	N.A.
Multiband Control	Choral effect	No	.....	Quasi-parametric EQ	Yes
Reader Service Number	**516**	**517**	**518**	**519**	**520**

Manufacturer	TASCAM/Teac	Ursa Major		VSC Corporation	Yamaha Combo Products
Model Number	**RS-20 Dual Reverb**	**SST-282**	**8x32**	**TDM-8000**	**REV-1**
Functions	Multi reverb	Plate/room simulation multi reverb	Plate/room simulation multi reverb	Time compression pitch change	Multi reverb room simulator simple delay
Digital Design	No, 3-spring/channel	Yes	Yes	Partial	Yes
Delay Range	.....	3.5s, adj	20s, adj	....	Adjustable
Stereo System	Yes or dual mono	Yes	Yes	With 8200 slave	Yes
Bandwidth	8kHz	7kHz	8kHz	15kHz	To 16kHz
Delay Catchup Feature	No	No	No	.....	No
Factory-set Programs	N.A.	No	Yes	.....	30 functions
User Programmable	N.A.	Yes	Yes	Yes	Yes
Time Change Range	N.A.	N.A.	N.A.	1x to 2.55x	.....
Multiband Control	N.A.	Yes	Yes	.....	Parametric EQ
Reader Service Number	**521**	**522**	**523**	**524**	**525**

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Audio Delay Systems

AUDIO DISTORTION ANALYZER

Test equipment with audio distortion as a primary function.

Manufacturer	Amalgamated Wireless	Amber Electro Design		Asaca/ShibaSoku	
Model Number	S1100 System	3501	5500	725	1200A
Frequency Range	To 15kHz bandwidth	10Hz-100kHz	10Hz-100kHz	5Hz-110kHz	20Hz-20kHz (distortion)
Input Level/Impedance	+ 16dBu nominal/>30kΩ	– 30, + 40dBm/100kΩ	– 30, + 40dBm	0.1,100V/100kΩ	0.1,100V/600Ω, 100kΩ
Fundamental Rejection	.....	>100dB at 1kHz	>90dB at 1kHz	≥90dB overall	≥95dB overall
Auto Set Level	Yes	Yes	Yes	Yes	Yes
Auto Nulling	Yes	Yes	Yes	Yes	Yes
Minimum THD Reading	– 70dB + test tone level	0.008%	0.01%	0.0001%	0.1999% full scale
Reading Accuracy	± 0.5dB	± 0.1%	± 0.5%	.....	.....
IMD Measurement	– 64.3dB + test level	Option	Option	.....	.....
IMD Procedure per	CCIR	SMPTE, DIN, CCIR	SMPTE, DIN, CCIR	.....	.....
Other Functions:	IEEE-488, RS 232C	.....	IEEE-488, RS 232	GPIB adapter	GPIB interface
ac Voltmeter	Yes	Yes, selective mode	Yes	Yes	Yes, 10μV, 100V
Noise Meter	Yes, to – 88dB	To – 120dBm min.	Yes	Yes	Yes, 10μV, 100V
Signal Generator	Yes	Yes	Yes	.....	No
AM Detector	Yes	Option	Option	Frequency counter	.....
Metering Scales	dB on integral printer	dBm, dBV, true RMS	dBm, dBV, peak	%, dB, dBm, V	%
	.....	%THD	true RMS, %THD	.....	.....
	.....	.....	average	.....	.....
Scope Outputs	.....	Yes	Yes	Yes	.....
Chart Recorder Output	.....	No	Yes	Yes	Digital data
Reader Service Number	215	216	217	218	219

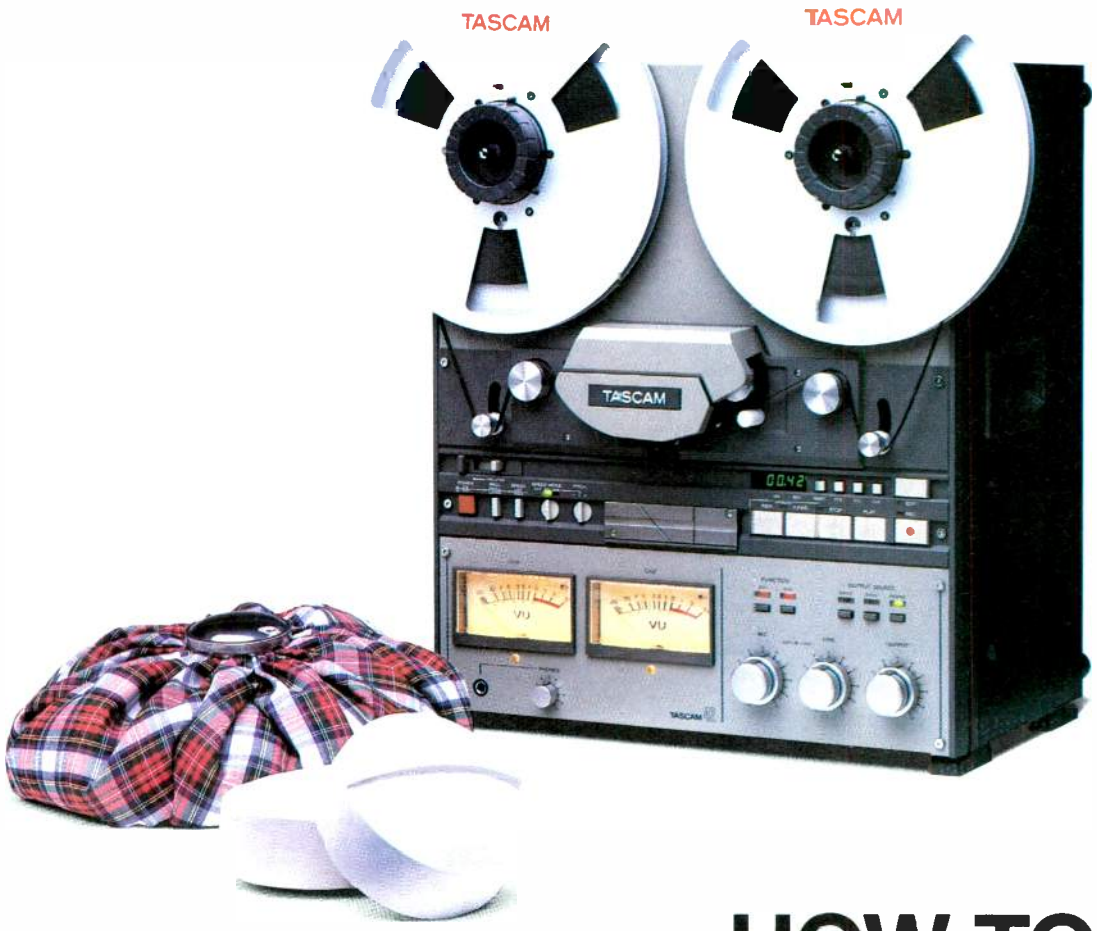
Manufacturer	Bruel & Kjaer Instruments	Neal Ferrograph	Hewlett-Packard	Leader Instruments	Potomac Instruments
Model Number	2010/1902	RTS2	Model 339A	LDM-170	AA-51
Frequency Range	2Hz, 200kHz	15Hz, 20kHz	10Hz, 110kHz	20Hz, 20kHz	20Hz, 20kHz
Input Level/Impedance	10μV,300V/1MΩ	100mV minimum/100kΩ	30mV,300Vrms/100kΩ	0.35,30Vrms/600Ω	0.1,80Vrms/500kΩ
Fundamental Rejection	.....	.....	>86dB overall	70dB overall	≥80dB overall
Auto Set Level	No	.....	Yes	No	Yes
Auto Nulling	No	.....	Yes	No	Yes
Minimum THD Reading	0.01%	<0.05%	0.0018%	0.03%	0.02%
Reading Accuracy	.....	.....	+ 1.5, – 4dB overall	0.05% full scale	± 5% full scale
IMD Measurement	Yes	.....	.....	No	Yes
IMD Procedure per	SMPTE, DIN, CCIR	.....	.....	.....	SMPTE
Other Functions:	.....	.....	.....	.....	.....
ac Voltmeter	Yes	Yes	Yes	Yes	Yes
Noise Meter	No	(Wow/Flutter)	No	Yes	Yes
Signal Generator	Yes	Yes	Yes	No	No
AM Detector	No	No	Yes	No	Option
Metering Scales	dBV, true RMS	dB, V, %THD, %Drift	VU, dBm, dBV, %THD	dBV, %THD, average	dBm, %THD, average,
	.....	W&F	true RMS	.....	ratio/phase
Scope Outputs	No	Yes	.....	Yes	Yes
Chart Recorder Output	Yes	No	.....	Yes	No
Reader Service Number	220	221	222	223	224

Manufacturer	RE Instruments	Rohde & Schwarz	Sound Technology	Technical Projects Ltd.	Tektronix
Model Number	RE 201 Dual Channel	SUN 2/U	1710A	401D	AA501 Analyzer
Frequency Range	20Hz, 25kHz	40Hz, 1kHz, 4.7kHz	10Hz, 110kHz	20Hz, 20kHz	10Hz-100kHz
Input Level/Impedance	6mV,35Vrms/600Ω	– 20, + 32dBm/20kΩ,	30μV,100V/200kΩ	200mV, 100V + /600Ω,	60mV, 200V/100kΩ
	.....	×MΩ	.....	100kΩ	.....
Fundamental Rejection	≥70dB, 1kHz	>65dB	>110dB at 1kHz	>100dB overall	100dB, 10Hz-20kHz
Auto Set Level	Yes	Yes	Yes	Yes	Yes, 70dB
Auto Nulling	Yes	No	Yes	Yes	Yes
Minimum THD Reading	0.003%	0.06%	0.002%	0.01% full scale	0.0025%
Reading Accuracy	1%	± 1dB	2%	± 2%	1dB
IMD Measurement	Yes	Yes	Option	Option	Option, auto-selection
IMD Procedure per	DIN	DIN	SMPTE, DIN	SMPTE, CCIR, DIN	SMPTE, DIN, CCIR
Other Functions:	IEEE-488 Option	.....	.....	IEEE-488 Option	IEEE-488
ac Voltmeter	Yes	Yes	Yes	Yes	Yes
Noise Meter	Yes	Yes	Yes	Yes	Yes
Signal Generator	Yes	No	Yes	Option, Frequency Ctr	With SG505
AM Detector	No	No	No	.....	.....
Metering Scales	VU, dBm, dBV, peak	dBm, peak, true RMS	dBm, dBV, peak,	dBm, dBU, V/mV,	dBm, dBV, true RMS
	true RMS, %THD,	db-THD	%THD, true RMS,	peak, true RMS,	%THD, average
	average ratio/phase	.....	average	average, %THD,	.....
	.....	.....	.....	phase (option)	.....
Scope Outputs	(Audio)	.....	Yes	Yes, with audio	Yes & spectrum
	.....	.....	.....	.....	analyzer
Chart Recorder Output	Yes	.....	No	Option	Yes & frequency
	.....	.....	.....	.....	counter
Reader Service Number	225	226	227	228	229

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Audio Distortion Analyzers
Leader Instruments 75



HOW TO RELIEVE TENSION IN THE CONTROL ROOM.

In the world of audio production, tension is a killer. Draining creative energy and making tight deadlines impossible. If you're still trying to do today's job with yesterday's technology we've just solved one of your headaches. Our prescription is a dose of our deuce, the TASCAM 42.

Everything you've considered to be a must is there, and a whole lot more. Balanced and unbalanced, with individual connector to interface with broadcast automation equipment and SMPTE control, the 42 fits in anywhere.

To more precisely control tape tension, and yours, our rugged transport is built with a full computer control on all three motors. Our autolocator function with Return-to-zero and Search-to-cue doesn't just start putting on the brakes when it hits the mark, it stops on the dime.

You also get a positive/negative real time counter and a precision splicing block mounted just below the plug-in fixed mount head assembly, where it belongs. That translates to faster, more accurate editing, and the peace of mind that comes with it.

To learn more about the hottest half-track in the under $2,500 class see your TASCAM dealer or write TASCAM Production Products, 7733 Telegraph Road, Montebello, CA 90640, (213) 726-0303.

TASCAM
TEAC Production Products

Circle (6) on Reply Card

AUDIO MIXING CONSOLE, Portable

For remote or portable use. Powering provided from dc supply or ac line. Units generally provide limited output facilities and are intended for connection to recorders or ENG microwave and telephone links.

Manufacturer	**Allen & Heath Brenell (AHB/MBI)**	**AUDIX**	**BFE**	**Broadcast Electronics**	**Cairec Audio**
Model Number	**System 8 Series**	**MXT500**	**BC10 Series**	**4S50P/4M50P**	**MiniMixer**
Modular System	No	.....	Yes	.....	Yes
No. of Mixing Channels	16	7	2 or 4	4	8 to 24
No. of Inputs (Mic/Line)	16/18	7	10/12	4/4	8-24/8-24
No. of Mixing Buses	14	2	2 or 4	1	4
No. of Mono Outputs	0	2	2 or 4	0	1
No. of Stereo Outputs	4	0	1 or 2	1 (4S50P)	5
Fader Type	P&G slider	Slider	P&G slider	Rotary	P&G slider
VCA Level Control	No	No	No	No	No
EQ & Filtering	Yes	Yes	Yes	No	Yes
Pan Pots	Yes	Yes	Yes	No	Yes
Integral Compressor/Limiter	No	No	Option	No	Yes
Integral Telephone Interface	No	No	No	No	No
Tone Oscillator	Yes	Yes	Yes	No	Yes
Cueing System	Yes	No	Yes	Yes	Yes
Talkback System	Yes	Yes	Yes	No	Yes
Echo/Foldback System	Yes	Yes	Yes	No	Yes
Metering Type	VU	VU, PPM	VU, PPM, LED	VU	Turner/Sifam
Phantom Mic Power	Option	Option	Option	No	Yes
AC Powering	Yes	240Vac	110/220Vac	110Vac	110/220Vac
Battery, External	±15Vdc	24Vdc	±15Vdc	No	12Vdc
Battery, Internal	No	No	Yes	No	No
System Weight (Pounds)	90 max	38	.....	24	Per system
Input/Output Connections	Active	Xfmr bal	Xfmr, active bal	Xfmr	XLR connectors
AF Response (±dB/Hz)	1/20-20k	0.5/20-20k	0.5/20-20k	0.5/20-20k	Data not available
Harmonic Distortion	0.01% 4dBm	0.1% 18dBm	0.2% 1kHz 27dBm	0.1% 400Hz 18dBm	.....
S/N Ratio	–125 EIN	–125 EIN	–126 EIN	70dB	.....
Crosstalk	60dB 4dBm	76dB 15kHz	80dB 15kHz 6dBm	.....	.....
Related Systems	.....	.....	Various BC systems	.....	.....
Reader Service Number	**893**	**894**	**895**	**896**	**897**

AUDIO MIXING CONSOLE, Portable

Manufacturer	**Comrex**	**Enertec/Schlumberger**	**Harrison Systems**	**Interface Electronics**	**Logitek**
Model Number	**SLX Sports Extender**	**UPS 6104**	**Pro-7**	**Model 200B**	**Audiorack**
Modular System	No	Yes	Yes	Yes	No
No. of Mixing Channels	4	10	16	8	6
No. of Inputs (Mic/Line)	4/2	.....	16/16	8/8	6/5 switchable
No. of Mixing Buses	1	5	2	2	2
No. of Mono Outputs	4	.....	2	.....	2
No. of Stereo Outputs	0	2	2	1	0
Fader Type	Plastic slider	Slider	P&G slider	Slider	AB plastic rotary
VCA Level Control	No	No	Yes	No	No
EQ & Filtering	No	Yes	Yes	Yes	No
Pan Pots	.....	Yes	Yes	Yes	No
Integral Compressor/Limiter	Yes	Yes	No	Yes	No
Integral Telephone Interface	For 3 phone lines	No	No	No	No
Tone Oscillator	Yes	Yes	Yes	Yes	Yes
Cueing System	Yes	Pre-listen	Yes	Yes	Yes
Talkback System	Yes	Yes	Yes	Yes	Yes
Echo/Foldback System	No	Yes	Yes	Yes	No
Metering Type	VU, peak	VU	VU, PPM, LED	VU	VU, peak LED
Phantom Mic Power	No	.....	Yes	Yes	No
AC Powering	110/220Vac	Yes	110/220Vac	Adapter	110Vac
Battery, External	Yes	Yes	No	12Vdc	12Vdc
Battery, Internal	No	.....	No	No	No
System Weight (Pounds)	15	50	60	22	23
Input/Output Connections	Bal	Bal	Active, bal	Xfmr	Active
AF Response (±dB/Hz)	0.5/50-15k	0.5, –1/30-20k	.....	±1/20-20k	±0.3/20-20k
Harmonic Distortion	0.5% overall	0.2% +12dBm overall	.....	0.03% 1kHz +3dBm	0.07% 1kHz +4dBm
S/N Ratio	127dBm EIN	125dBm EIN	.....	See Note 1	126dBm EIN
Crosstalk	Below noise	.....	.....	80dB 1kHz 0dBm	.....
Related Systems	.....	.....	.....	.....	.....
Reader Service Number	**898**	**899**	**900**	**901**	**902**

(1) Noise rating is 100dB below 0VU output with –30dBm input.

AUDIO MIXING CONSOLE, Portable

Manufacturer	MCI/Sony	MicroTrak	NEI	NEVE	Richmond Sound Design
Model Number	JH-800	Sport IV	164XM/244XM	5422	M82B
Modular System	Yes	No	No	Yes	Yes
No. of Mixing Channels	12	4	16/24	8	8 to 24
No. of Inputs (Mic/Line)	12/12	5/2	16/16, 24/24	8/8	8-24/16-48
No. of Mixing Buses	2	2	8	2	4
No. of Mono Outputs	1	1	2	1	6
No. of Stereo Outputs	2	0	4	1	0
Fader Type	Slider	Rotary	Alps slider	P&G slides or equiv.	Piher slider
VCA Level Control	Yes	No	No	No	Yes
EQ & Filtering	Yes	No	Yes	Yes	Yes
Pan Pots	Yes	No	Yes	Yes	No
Integral Compressor/Limiter	Yes	No	No	No	No
Integral Telephone Interface	No	Yes	No	No	No
Tone Oscillator	Yes	No	No	Yes	Option
Cueing System	Yes	Yes	Yes	Yes	Yes
Talkback System	Yes	To studio	No	Yes	Option
Echo/Foldback System	Yes	No	Yes	Yes	Yes
Metering Type	PPM, gas discharge	VU	LED	VU, PPM	VU
Phantom Mic Power	Yes	No	Yes	Yes	Option
AC Powering	110Vac	110Vac	110Vac	110/240Vac	110Vac
Battery, External	.....	No	.....	±15Vdc	30Vdc
Battery, Internal	No	Yes	No	.....	No
System Weight (Pounds)	75	7	68/88	40	24
Input/Output Connections	Active bal	Bal	Xfmr & active	Xfmr	Xfmr & active
AF Response (±dB/Hz)	0.75, – 1/20-20k	.....	±1/20-20k	±0.5/20-20k	±1/20-20k
Harmonic Distortion	.....	.....	0.2%	0.05% 1kHz +20dBm	0.5% 1kHz +4dBm
S/N Ratio	.....	.....	125dB EIN	125dBU EIN	126dBV EIN
Crosstalk	.....	.....	60dB	70dB 1kHz +20dBm	60dB 1kHz +4dBm
Related Systems	.....	.....	.....	.....	M82BX, M82A, M82I
Reader Service Number	**903**	**904**	**905**	**906**	**907**

AUDIO MIXING CONSOLE, Portable

Manufacturer	RTS Systems	Shure Brothers		Sonosax	Sony Corporation
Model Number	HPM-41	M267	FP31	SX-S	MX-670
Modular System	No	No	No	Yes	Expandable
No. of Mixing Channels	1	4	3	8	6
No. of Inputs (Mic/Line)	4/2	4/4	3/3	8/8	6
No. of Mixing Buses	1	1	1	5	1
No. of Mono Outputs	1	2	3	1	1
No. of Stereo Outputs	0	0	0	1	1
Fader Type	Bourns rotary	Rotary	Rotary	P&G slider	Slider
VCA Level Control	No	No	No	No	No
EQ & Filtering	Hi-pass	Lo-pass	Hi-pass	Yes	No
Pan Pots	No	No	No	Yes	No
Integral Compressor/Limiter	Yes	Yes	Yes	Yes	No
Integral Telephone Interface	No	No	No	No	No
Tone Oscillator	Yes	Yes	Yes	Yes	Yes
Cueing System	No	No	No	Yes	No
Talkback System	No	No	No	No	No
Echo/Foldback System	No	No	No	Yes	No
Metering Type	VU	VU, LED	VU, LED	VU, PPM, LED	VU
Phantom Mic Power	Yes	Yes	Yes	Yes	No
AC Powering	110Vac	Integral 110Vac	Adapter for 110Vac	Adapter 90-260Vac	No
Battery, External	±18Vdc	30Vdc	11-18Vdc	8-18Vdc	12Vdc
Battery, Internal	No	27Vdc	18Vdc	8-18Vdc	C cells
System Weight (Pounds)	10.1	5.2	2.2	6.3	11
Input/Output Connections	Xfmr	Xfmr	Xfmr	Xfmr & active	.....
AF Response (±dB/Hz)	0, – 3/7-40k	2/20-20k	2/20-20k	0.5/20-20k	1/30-35k
Harmonic Distortion	0.038% 1kHz +20dBm	0.35%	0.5% +4dBm	0.02% 10kHz +18dBm	.....
S/N Ratio	90dB	129dB EIN	125dB EIN	129.5dB(150) EIN	60dB below output
Crosstalk	.....	65dB	65dB	70dB 10kHz +18dBm	.....
Related Systems	.....	.....	.....	....	MX-510
Reader Service Number	**908**	**909**	**910**	**911**	**912**

AUDIO MIXING CONSOLE, Portable

Manufacturer	Sony Corporation	Soundcraft Electronics	Stellavox	Studer Revox America	
Model Number	**MX-P61**	**Series 200**	**AMI 48**	**069**	**169**
Modular System	Yes	Yes	No	Yes	Yes
No. of Mixing Channels	12	8,16,24	5	3	10
No. of Inputs (Mic/Line)	12 each	8, 16 or 24	5	2/3	10/10
No. of Mixing Buses	12	4	2	2	4 + 2 aux
No. of Mono Outputs	5	4	Yes	2	1
No. of Stereo Outputs	3	1	Yes	0	1
Fader Type	Sony slider	Alps slider	Slider	Studer/Waters slider	Studer/Waters slider
VCA Level Control	No	No	No	No	No
EQ & Filtering	Yes	Yes	Yes	Yes	Yes
Pan Pots	Yes	Yes	Yes	No	Yes
Integral Compressor/Limiter	Yes	No	Yes	Yes	Yes
Integral Telephone Interface	No	No	No	Yes, dial	No
Tone Oscillator	Yes	Yes	Yes	Yes	Yes
Cueing System	Yes	Yes	Yes	Yes	Yes
Talkback System	Yes	No	No	Yes	Yes
Echo/Foldback System	Yes	Yes	No	No	Yes
Metering Type	VU or PPM	VU	Peak meter	VU or PPM	VU or PPM
Phantom Mic Power	Yes	Yes	Yes	No	Yes
AC Powering	110/240Vac	110Vac	Adapter	110/220Vac	110/220Vac
Battery, External	12Vdc	15Vdc	12-20Vdc	8.5-24Vdc	12Vdc
Battery, Internal	No	No	AA cells	15Vdc	Yes
System Weight (Pounds)	40.3	35	9	19	55
Input/Output Connections	Active	Active	.....	Xfmr bal	Xfmr
AF Response (± dB/Hz)	0.5/20-20k	1/20-20k	1/20-20k	0.5, – 1/40-15k	0.5, – 1/40-15k
Harmonic Distortion	0.1% + 24dBm	0.006% 1kHz + 4dBm	0.05%	0.2% + 15dBu overall	0.1% + 6dBm overall
S/N Ratio	125dB EIN	.....	125dBm EIN	90dB	90dB
Crosstalk	70dB 15kHz	96dB 1kHz + 4dBm	80dB	78dB – 10dB 40-15k	75dB – 10dB 60-10k
Related Systems	.....	.....	.....	.....	.....
Reader Service Number	**913**	**914**	**915**	**916**	**917**

AUDIO MIXING CONSOLE, Portable

Manufacturer	TASCAM		UREI/JBL	Ward-Beck Systems Ltd.	Yamaha Int'l. Corporation
Model Number	**M-35**	**M-30**	**MOD ONE 210**	**T1202A**	**MQ Series (MQ1202)**
Modular System	Yes	Yes	Yes	Yes	No
No. of Mixing Channels	6	6	10	12	12
No. of Inputs (Mic/Line)	20/40	8/16	3/7	12/12	12/4
No. of Mixing Buses	4	4	4	2	8
No. of Mono Outputs	6	6	2	2	5
No. of Stereo Outputs	4	3	1	1	2
Fader Type	Alps slider	Alps slider	Slider	P&G slider	Slider
VCA Level Control	No	No	No	No	.....
EQ & Filtering	Yes	Yes	No	Yes	Yes
Pan Pots	Yes	Yes	Yes	Yes	Yes
Integral Compressor/Limiter	No	No	No	No	No
Integral Telephone Interface	No	No	No	No	No
Tone Oscillator	Yes	No	No	Yes	Yes
Cueing System	Yes	Yes	Yes	Yes	Yes
Talkback System	Yes	No	No	No	No
Echo/Foldback System	Yes	Yes	No	Yes	Yes
Metering Type	VU with peak LED	VU, peak LED	VU	VU, PPM, LED	Fluorescent bargraph
Phantom Mic Power	No	No	No	Yes	No
AC Powering	110Vac	110Vac	110Vac	110/230Vac	110Vac
Battery, External	24Vdc	24Vdc	± 24Vdc	No	No
Battery, Internal	No	No	No	No	No
System Weight (Pounds)	61	35.25	.....	98	35
Input/Output Connections	Xfmr, bal/unbal	Xfmr, bal/unbal	.....	Xfmr, active	.....
AF Response (± dB/Hz)	0.5, – 1/20-20k	2/20-20k	1/30-20k	0.5/20-20k	1, – 3/20-20k
Harmonic Distortion	0.05% 1kHz 0dBu	0.1% 1kHz – 10dBV	0.5% + 20dBm	0.25% + 18dBm overall	0.05% + 4dB
S/N Ratio	118dB EIN	116dB wtd	70dB below output	125dBm EIN	66dB nominal
Crosstalk	60dB 1kHz 0dBu	60dB 1kHz – 10dBV	60dB 10kHz	70dB + 18dBm overall	60dB 1kHz
Related Systems	.....	.....	.....	.....	.....
Reader Service Number	**918**	**919**	**920**	**921**	**1498**

AUDIO MIXING CONSOLE ON-AIR

Manufacturer	ADM Technology	AHB/MBI	AMEK Systems & Controls Ltd.	Auditronics	AUDIX
Model/Series	ST 160 II	Series 24A	M 1000	200 Series	MXT 1200
Modular System	Yes	Yes	Yes	Yes	Yes
No. of Mixing Channels	16	To 24	To 24	.....	To 24
No. of Inputs (Mic/Line)	To 46 total	24/48 stereo	8/24	24/24	.....
Mixing Buses	3	4	4	3	3
Stereo System	Yes	Yes	Yes	Yes	.....
Fader Type	Slider	Slider	Slider or rotary	Slider	Slider
Bus Switching	Push-button	Push-button	Push-button	Push-button	Push-button
Internal FET Switching	No	No	No	Yes	No
Machine Controls	For 32 machines	Yes	For 24 machines	For 9 machines	Option
Talkback Circuit	Yes	Yes	Yes	Yes	.....
Cueing Circuit	Yes	Yes	Yes	Yes	Option
Speaker Muting Circuit	Yes	Yes	Yes	Yes	Yes
Internal Cue Speakers	Yes	Yes	Yes	Yes	Yes
Internal Amplifiers	Pgm, Cue	Pgm, Cue, Mon	.....	Pgm, Cue, Mon	Pgm, Cue, Mon
Input/Output Connections	Xfmr, bal	Xfmr	Xfmr, active bal	Xfmr, active	Xfmr bal
AF Response (± dB/Hz)	1/20-20k	– 1/20-20k	0.1, – 1/20-20k	– 1/20-20k	0.5/20-20k
Harmonic Distortion	0.07% 1kHz 24dBm	0.02% 1kHz 8dBm	0.02 1kHz 10dBm	0.01% 1kHz	0.1% overall 18dBm
S/N Ratio	– 125.5 EIN	– 127 EIN	86dB	82dB	– 125 EIN
Crosstalk	72dB 10kHz 8dBm	.....	80dB 4dBm	85dB 1kHz	75dB to 15kHz
Special RF Shielding	Not required	Yes	Mechanical	....	No
Related Models	ST 100 II 10-channel	.....	.....	....	.....
	ST 200 II 20-channel	.....	.....	.....	.....
Reader Service Number	451	452	453	454	455

AUDIO MIXING CONSOLE ON-AIR

Manufacturer	Autogram	BFE	Broadcast Electronics	Gregg Labs	Hallikainen & Friends
Model/Series	IC-10	BC 20 12/4	10S350	Series 2000	TVA Series
Modular System	Yes	Yes	Yes	Yes	Yes
No. of Mixing Channels	10	10	10	.....	To 36
No. of Inputs (Mic/Line)	Any combination	10/12	10/12	To 14 total	36/36
Mixing Buses	4	3	4	4	3
Stereo System	Yes	Yes	Yes	Yes	No
Fader Type	Rotary	Slider	Slider	Slider	Rotary
Bus Switching	Key switch	Push-button	Push-button	Push-button	Key switch
Internal FET Switching	No	No	Yes	Yes	Dry Reed
Machine Controls	For 28 machines	For 10 machines	No	For 14 machines	Yes
Talkback Circuit	No	Yes	No	Yes	No
Cueing Circuit	Yes	Yes	Yes	Yes	Yes
Speaker Muting Circuit	Yes	Yes	Yes	Yes	Yes
Internal Cue Speakers	No	Yes	Yes	No	No
Internal Amplifiers	Pgm, Cue, Mon	Pgm, Mon, Cue	Pgm, Mon, Cue	Pgm, Cue, Phones	Pgm, Mon
Input/Output Connections	Xfmr	Xfmr, active bal	Xfmr	Active/resistive bal	Xfmr-in, active-out
AF Response (± dB/Hz)	0.5/20-20k	0.5/20-20k	0.5/20-20k	– 0.1/20-20k	1/20-20k
Harmonic Distortion	0.25% 1kHz 18dBm	0.2% 1kHz 27dBm	0.05% 400Hz 18dBm	0.02%	0.25% 400Hz 22dBm
S/N Ratio	– 125 EIN	– 126 EIN	70dB	85dB	– 118 EIN
Crosstalk	67dB 15kHz 18dBm	80dB 15kHz 6dBm	N.L.	75dB 10kHz	82dB 1kHz 8dBm
Special RF Shielding	Yes	Yes	Yes	Yes	Electrostatic shields
Related Models	AC-6 6-channel	BC 20 Series	10S250 10-channel	8-channel system	.....
	AC-8 8-channel	.....	8S250 8-channel	.....	.....
	.....	.....	Mono systems	.....	.....
Reader Service Number	456	457	458	459	460

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Advertisers who have related audio equipment are listed below. For more information, refer to their advertisement on the listed page number.

AUDIO MIXING CONSOLE, ON-AIR

Manufacturer	Harris Studio Division		Harrison Systems	Howe Audio Productions
Model/Series	Medalist	Micro Mac	Stereo 80	AIR-7	7012A
Modular System	No	Yes	No	Yes	No
No. of Mixing Channels	10	16	8	16	12
No. of Inputs (Mic/Line)	10/30	32/32 (2/input)	5/13	4/12	10/12
Mixing Buses	3	4	3	4	3
Stereo System	Yes	Yes	Yes	Yes	Yes
Fader Type	Slider or rotary	Slider, digital ctl	Step rotary	Slider	Rotary
Bus Switching	Push-button	Push-button	Key switch	Push-button	Key switch
Internal FET Switching	No	No	No	Yes	Yes
Machine Controls	For 30 machines	For 32 machines	No	Yes	Yes
Talkback Circuit	No	Yes	Yes	Yes	Yes
Cueing Circuit	Yes	Yes	Yes	Yes	Yes
Speaker Muting Circuit	Yes	Yes	Yes	Yes	Yes
Internal Cue Speakers	Yes	Yes	Yes	Yes	Yes
Internal Amplifiers	Pgm, Cue	Pgm, Cue, Aud, Aux, Mono Sum	Pgm, Mon, Cue	Cue	Cue
Input/Output Connections	Active	Active	Xfmr	Active, res, bal	Active, res, bal
AF Response (±dB/Hz)	−0.5/20-20k	0.25/20-20k	1/20-20k	.....	0.25/20-20k
Harmonic Distortion	0.05% 8dBm	0.1% +30dBm	0.5% 18dBm	.....	0.01% 1kHz 0dBm
S/N Ratio	−127 EIN	−125 EIN	−125 EIN	.....	−129 EIN
Crosstalk	90dB 8dBm	85dB 8dBm	80dB 8dBm	.....	85dB 1kHz 0dBm
Special RF Shielding	Yes	Yes	Yes	Yes	Yes
Related Models	Medalist-8	.....	.....	.....	7012
	Medalist-12	.....	.....	.....	.....
Reader Service Number	**461**	**462**	**463**	**464**	**465**

Manufacturer	Howe Audio Productions	ITAME, SA		Logitek	LPB
Model/Series	7512A	Series 70B Mod CM8	Series 80A CE6	Custom Audio Series	Signature II S-13C
Modular System	No	No	No	Yes	No
No. of Mixing Channels	12	8	6	5 to 12	8
No. of Inputs (Mic/Line)	10/12	19 total	15 total	5-12/10-28	6/18
Mixing Buses	3	3	3	3	3
Stereo System	Yes	No	Yes	Yes	Yes
Fader Type	Slider	Rotary	Rotary	Slider	Rotary
Bus Switching	Push-button	Key switch	Key switch	Push-button	Key switch
Internal FET Switching	Yes	No	No	Yes	No
Machine Controls	Yes	.....	.....	For 24 machines	No
Talkback Circuit	Yes	Yes	Yes	Yes	No
Cueing Circuit	Yes	Yes	Yes	Yes	Yes
Speaker Muting Circuit	Yes	Yes	Yes	Yes	Yes
Internal Cue Speakers	Yes	Yes	.....	Yes	Yes
Internal Amplifiers	Cue	Mon	Mon	Pgm, Cue, Phones	Pgm, Mon, Cue
Input/Output Connections	Active, res, bal	.....	.....	Active in/act, Xfmr out	Xfmr
AF Response (±dB/Hz)	0.25/20-20k	1/30-20k	1/30-20k	0.5/20-20k	0.5/20-20k
Harmonic Distortion	0.01% 1kHz 0dBm	0.5% 18dBm	0.5% 18dBm	0.04% 20kHz 27dBm	0.2% 18dBm
S/N Ratio	−129 EIN	−120 EIN	−120 EIN	−126 EIN	80dB
Crosstalk	85dB 1kHz 0dBm	70dB	70dB	Below noise	74dB 1kHz 8dBm
Special RF Shielding	Yes	.....	.....	Yes	Yes
Related Models	.....	.....	.....	.....	S-12, S-14A, S-15A,
	.....	.....	.....	.....	S-20, S-21B
Reader Service Number	**466**	**467**	**468**	**469**	**470**

Manufacturer	LPB		NEVE	Pacific Recorders & Engineering	Quantum Audio Labs
Model/Series	Monogram II M-8SL	Citation C-8SL	5322	BMX 18	Series 22
Modular System	No	No	Yes	.....	Yes
No. of Mixing Channels	8	8	16	18	.....
No. of Inputs (Mic/Line)	2/14	6/26	16/16	.....	28/28
Mixing Buses	2	3	7	4	4
Stereo System	Yes	Yes	Yes	Yes	Yes
Fader Type	Slider	Slider	Slider	Slider	Slider
Bus Switching	Push-button	Key switch	Push-button	Push-button	Push-button
Internal FET Switching	No	No	Yes	No	Yes
Machine Controls	For 7 machines	For 24 machines	Yes	1 machine/input	For cart machine
Talkback Circuit	No	No	Yes	Yes	Yes
Cueing Circuit	Yes	Yes	Yes	Yes	Yes
Speaker Muting Circuit	Yes	Yes	Yes	Yes	Yes
Internal Cue Speakers	Yes	Yes	Yes	Yes	No
Internal Amplifiers	Pgm, Mon, Cue	Pgm, Cue	Cue	Pgm, Cue	Cue
Input/Output Connections	Active	Xfmr	Active	Any available	Xfmr, active
AF Response (±dB/Hz)	−0.5/20-20k	1/20-20k	0.5/20-20k	−1/20-20k	0.5/20-20k
Harmonic Distortion	0.2% 18dBm	0.1% 1kHz 22dBm	0.05% 1kHz 20dBm	0.015% 1kHz 28dBm	0.01% 1kHz 24dBm
S/N Ratio	82dB	82dB	−125 EIN	84dB	80dB
Crosstalk	82dB 1kHz 8dBm	82dB 1kHz 8dBm	70dB 1kHz 20dBm	75dB 20kHz 28dBm	80dB 1kHz 8dBm
Special RF Shielding	Yes	Yes	Yes	Yes	Yes
Related Models	M-5M, M-5S, M-8S	C-8S, C-10S, C-10SL	.....	.....	.....
Reader Service Number	**471**	**472**	**473**	**474**	**475**


And now
a
message
on
Yamaha's new
RM1608
recording
mixer.

RM1608

SPECIFICATIONS

TOTAL HARMONIC DISTORTION (T.H.D.)
Less than 0.1% at +4dB *output, 20Hz to 20kHz (all Faders and controls at nominal)

HUM & NOISE (20Hz to 20kHz) Rs = 150 ohms
(INPUT GAIN "–60")

–128dB	Equivalent Input Noise (E.I.N.)
–95dB	residual output noise: all Faders down.
–80dB	(84dB S/N) PGM Master volume control at maximum and all CH PGM assign switches off.
–64dB	(68dB S/N) PGM Master volume control at maximum and one CH Fader at nominal level.
–73dB	(77dB S/N) STEREO Master Fader at maximum and all CH STEREO level controls at minimum level.
–64dB	(68dB S/N) STEREO Master Fader at maximum and one CH STEREO level control at nominal level.
–80dB	(70dB S/N) ECHO SEND volume at maximum and all CH ECHO volumes at minimum level.
–75dB	(65dB S/N) ECHO SEND volume at maximum and one CH ECHO volume at nominal level.

CROSSTALK
–70db at 1kHz: adjacent Input.
–70db at 1kHz: Input to Output.

MAXIMUM VOLTAGE GAIN (INPUT GAIN "–60")

PGM	74dB: MIC IN to PGM OUT.	ECHO	70dB: MIC IN to ECHO SEND.
	24dB: TAPE IN to PGM OUT.	C/R	74dB: MIC IN to C/R OUT.
	34dB: ECHO RETURN to PGM OUT.		24dB: 2 TRK IN to C/R OUT.
	14dB: PGM SUB IN to PGM OUT.	STUDIO	74dB: MIC IN to STUDIO OUT.
STEREO	74dB: MIC IN to STEREO OUT.		24dB: 2 TRK IN to STUDIO OUT.
	24dB: TAPE IN to STEREO OUT.		
	34dB: ECHO RETURN to STEREO OUT.		

CHANNEL EQUALIZATION
± 15 dB maximum
HIGH: from 2k to 20kHz PEAKING. MID: from 0.35k to 5kHz PEAKING. LOW: from 50 to 700 Hz PEAKING.

HIGH PASS FILTER –12dB/octave cut off below 80Hz.

OSCILLATOR Switchable sine wave 100Hz, 1kHz, 10Hz

PHANTOM POWER 48V DC is applied to XLR type connector's 2 pin and 3 pin for powering condenser microphone.

DIMENSION (W x H x D) 37-1/2" x 11" x 30-1/4" (953 mm x 279.6 mm x 769 mm)

Hum and Noise are measured with a –6dB/octave filter at 12.47kHz; equivalent to a 20 kHz filter with infinite dB/octave attenuation.
*0dB is referenced to 0.775V RMS.
• Sensitivity is the lowest level that will produce an output of –10dB (245mV), or the nominal output level when the unit is set to maximum gain.
• All specifications subject to change without notice.

The specs speak for themselves. But they can't tell you how natural, logical and easy the RM1608 is to work. All the controls and switches are logically arranged to help you get the job done quickly and accurately.

And in the tradition of Yamaha's sound reinforcement mixers, the RM1608 sets new standards of reliability as well as ease of operation. For complete information, write: Yamaha International Corporation, P.O. Box 6600, Buena Park, CA 90622. In Canada, Yamaha Canada Music Ltd., 135 Milner Ave., Scarborough, Ont. M1S 3R1.

YAMAHA

Circle (7) on Reply Card

AUDIO MIXING CONSOLE, ON AIR

Manufacturer	Radio Systems	Sonosax	Soundcraft	UREI	Ward-Beck Systems
Model/Series	AudioMetrics ESA-10	SX-B/SX-B Radio	Series 400	1653	R2100
Modular System	No	No	Yes	No	Yes
No. of Mixing Channels	10	.....	.....	5	12
No. of Inputs (Mic/Line)	10/36	2/5 or 8/8	48/24 stereo	2/8	.....
Mixing Buses	3	.....	Multiple	2	4
Stereo System	Yes	Yes	Yes	Yes	Yes
Fader Type	Slider	Slider	Slider	Slider	Slider
Bus Switching	Push-button	Key switch	Push-button	Push-button	Push-button
Internal FET Switching	Yes	No	Yes	Yes	No
Machine Controls	For 10 machines	Yes	Yes	Yes	As required
Talkback Circuit	No	Yes	Yes	No	Yes
Cueing Circuit	Yes	No	Yes	Yes	Yes
Speaker Muting Circuit	Yes	Option	Yes	Yes	Yes
Internal Cue Speakers	Yes	Yes	No	Yes	Yes
Internal Amplifiers	Pgm, Cue	Pgm, Mon	Pgm, Mon, Cue	Mon, Cue, Phones	Cue
Input/Output Connections	Active	Xfmr and active	Xfmr, active bal	Active-in/Xfmr out	Xfmr, active
AF Response (±dB/Hz)	0.1/20-20k	0.2/20-20k	1/20-20k	1/20-20k	0.5, – 1/20-20k
Harmonic Distortion	0.03% 22dBm	0.02% 10kHz 20dBm	.....	0.25% 24dBm	0.25% 18dBm
S/N Ratio	90dB	– 128 EIN	.....	90dB	– 125 EIN
Crosstalk	88dB 22dBm	70dB 10kHz 20dBm	.....	70dB 1kHz 24dBm	70dB 18dBm
Special RF Shielding	Yes	.....	Yes	Yes	Yes
Related Models	.....	.....	.....	1651, 1652, 1681, 1682, 1683	.....
	.....	.....	.....	.....	.....
Reader Service Number	476	477	478	479	480

AUDIO MIXING CONSOLES, Studio/Production

For studio or production use, mic levels from – 70 to – 30dBm and line levels from – 20 to + 8dBm are considered typical. Ac power is required. Modular system refers to single or multiple mixing channel blocks, rather than individual amplifier cards which are exchangeable from one location to another. Multiple outputs are not necessarily intended for use with multitrack recording equipment.

Manufacturer		ADM Technology		Allen & Heath Brenell	AMEK Systems & Controls Ltd.
Model/Series	2483 (2400 Series II)	VP 1603 Series	9032 Series	Syncon Series	M5000
Modular System	Yes	Yes	Yes	Yes	Yes
No. of Mixing Channels	24	16	32	To 44	24
No. of Inputs	168	32	276	To 88	To 96
No. of Mixing Buses	4	2	8	32	24 + 8
No. of Multitrack Outputs	4	2	8	26	24
Stereo Mix Output	Yes	Yes	Yes	Yes	Yes
Fader Type	ADM Slidex	ADM Slidex	ADM Slidex	P&G slider	P&G slider
VCA Level Control	No	Group, channel	Channel, master	No	Channel, group, master
EQ & Filtering	4-band shelf, peak	4-band shelf, peak	4-band shelf, peak	5-band shelf, etc.	4-band swept
Panpots	Yes	Yes	Yes	Yes	Yes
No. of Groups	2	.....	2	26	11
No. of Echo Send/Returns	1/1 pre & post	1/1 pre & post	5/2, pre & post	4/24 pre or post	8/8 pre & post
Solo Bus	PFL	No	In-place	In-place, AFL, PFL	In-place, PFL, AFL
Cue System	Yes	Yes	Yes	Yes	Yes
Speaker Muting Circuit	2, programmable	.....	4, programmabale	Programmable	Programmable
Tone Oscillator	Option	Option	Yes	Yes	Yes
Metering Type(s)	VU or PPM	VU or PPM	VU or PPM	LED	VU, PPM, LED, CRT
Machine Controls	For 6 machines	No	For 6 machines	No	For 8 machines
Automation Ready	No	Yes	Yes	Option for Travis	Yes
Input/Output Connections	Xfmr bal	Xfmr bal	Active bal	Xfmr/unbal output	Xfmr & active bal
AF Response (±dB/Hz)	1/20-20k	1/20-20k	1/20-20k	0, – 1/20-20k	0.5, – 1/20-20k
Harmonic Distortion	0.07% 1kHz + 24dBm	0.07% 1kHz + 24dBm	0.07% 1kHz + 24dBm	0.005% 1kHz + 4dBm	0.02% 1kHz + 10dBm
S/N Ratio	125.5dB EIN	125.5dB EIN	125.5dB EIN	122dB EIN	86dB
Crosstalk	72dB 10kHz + 8dBm	72dB 10kHz + 8dBm	72dB 10kHz + 8dBm	60dB 10kHz + 4dBm	80dB 1kHz + 4dBm
Special RF Shielding	Not required	Not required	Not required	Yes	Mechanical
Related Models	3200 Series II 1600 Series II	VP 1203 12-channel VP 803 8-channel	9028 to 9048 with 28 to 48-channel capability	8 through 44-input models	Angela, M1000, M2500, M3000, M4000
	.....	.....	.....	.....	.....
Reader Service Number	922	923	924	925	926

fyi...

Spec Note:
Performance specs are not directly comparable due to variations in references used by manufacturers in determining those specifications values. Equipment performance should be discussed with the manufacturers' representatives before making final decisions.

AUDIO MIXING CONSOLES, Studio/Production

Manufacturer	Arrakis Systems	Auditronics			AUDIX
Model/Series	2000R Series	Series 300	110 Series	700 Series	Assignable Audio Mixer
Modular System	Yes	Yes	Yes	Yes	Yes
No. of Mixing Channels	8	4 or 8 + 2 + 1	4 or 8	24 + 2 + 2x1	To 75
No. of Inputs	32	32	26	48	2/channel
No. of Mixing Buses	2 typical	4 or 8 + 2 + 1	4 or 8	24	As required
No. of Multitrack Outputs	None	4 or 8	4 or 8	24	As required
Stereo Mix Output	Yes	Yes	Yes	Yes	Yes
Fader Type	Rotary	P&G slider	P&G slider	P&G slider	Slider
VCA Level Control	Yes	Channel, group, master	No	Channel, group	Group, channel, master
EQ & Filtering	3-band	Swept, shelf, peak	Swept, shelf	Swept, shelf, peak	4-band peak, shelf
Panpots	Yes	Yes	Yes	Yes	Yes
No. of Groups	Available	4 optional	.....	To 9	As required
No. of Echo Send/Returns	None	4/2, pre, post	2/2	4/4 pre, post	As required
Solo Bus	No	In-place, PFL, AFL	PFL, AFL	AFL	No
Cue System	Yes	Yes	Yes	Yes	Yes
Speaker Muting Circuit	Yes	Programmable	.....	No	Yes
Tone Oscillator	No	Option	Yes	Yes	Option
Metering Type(s)	VU	VU, PPM	VU, PPM	VU, PPM	Various options
Machine Controls	Yes	Yes	Yes	No	Option
Automation Ready	No	No	No	Yes	No
Input/Output Connections	Bal	Active bal	Xfmr, active bal	Xfmr, active bal	Xfmr bal
AF Response (± dB/Hz)	1/20-20k	0, – ½/20-20k	1/20-20k	1/20-20k	0.5/20-20k
Harmonic Distortion	0.1% + 18dBm	0.01% 1kHz	0.01% 1kHz + 18dBm	0.01% 1kHz	0.1% + 18dBm, 40-20k
S/N Ratio	73dB below + 8dB	80dB	75dB	80dB	126dBm EIN
Crosstalk	60dB 16kHz	85dB 1kHz	80dB 1kHz	76dB 1kHz	75dB 20-20k
Special RF Shielding	.....	.....	.....	No	No
Related Models	1000R, 500R	.....	.....	.....	Custom-built to customer's specific requirements.
	.....	.....	.....	.....	
	.....	.....	.....	.....	
Reader Service Number	**927**	**928**	**929**	**930**	**931**

AUDIO MIXING CONSOLES, Studio/Production

Manufacturer	AUDIX	Autogram	BFE	Broadcast Audio Corporation	
Model/Series	MXT 1200	MICROGRAM	BFE 16/8/2	System R	System 20
Modular System	Yes	Yes	No	No	Yes
No. of Mixing Channels	To 36	16	8	8	20
No. of Inputs	2/input	64	16	8 std, 14 optional	66
No. of Mixing Buses	8 main, 4 aux	7	8	2 stereo	4
No. of Multitrack Outputs	.....	3	8	None	.....
Stereo Mix Output	Yes	Yes	Yes	Yes	Yes
Fader Type	Slider	Slidex slider	P&G slider	Rotary	Slider
VCA Level Control	No	Channel	No	Yes	No
EQ & Filtering	4-band shelf, peak	No	3-band parametric	No	7-band
Panpots	Yes	No	Yes	No	Yes
No. of Groups	2, 4, 8	.....	8	.....	Yes
No. of Echo Send/Returns	Pre or post	.....	2/2 pre, post	.....	No
Solo Bus	PFL or AFL	No	PFL	No	Possible
Cue System	Yes	Yes	Yes	Yes	Dual
Speaker Muting Circuit	Yes	Programmable	2	Yes	2
Tone Oscillator	Option	No	Option	.....	Option
Metering Type(s)	VU, PPM, LCD, gas	VU	VU, PPM, LED	VU	VU
Machine Controls	Option	For 64 machines	No	Yes	Yes
Automation Ready	No	Yes	No	No	No
Input/Output Connections	Xfmr bal	Xfmr, active bal	Xfmr, active bal	Xfmr	.....
AF Response (± dB/Hz)	0.5/20-20k	0.5/20-20k	0.5/20-20k	0.5/20-20k	0.3/20-20k
Harmonic Distortion	0.1% + 18dBm 40-20k	0.25% 1kHz + 18dBm	0.2% 1kHz 27dBm	0.05% 1kHz	0.09% + 8dBm
S/N Ratio	125dBm EIN	125dB EIN	126dB EIN	125dBm EIN	125dBV EIN
Crosstalk	75dB 20-20k	67dB 15kHz + 18dBm	80dB 15kHz + 6dBm	.....	70dB
Special RF Shielding	No	Canned amp modules	Yes	Yes	Yes
Related Models	.....	.....	BFE 24/8/2	.....	System 14, 14A
Reader Service Number	**932**	**933**	**934**	**935**	**936**

Schlumberger's

Know-how

Turnkey installations

(studios - broadcasting centres)

Equipment for :

- ***O.B. vans***
- ***professional sound***
- ***broadcasting***
- ***television***

etc...

- ***Switching grid matrices***
- ***Talkback systems***
- ***Master F 462 tape recorders***
- ***F 500 tape recorders***
- ***UPS 5000 sound mixing desks***
- ***UPS 6000 sound mixing consoles***

IFE 2444

ENERTEC
Schlumberger

ENERTEC DEPARTEMENT AUDIO-PROFESSIONNEL
1 rue Nieuport B.P. 54
78140 Velizy-Villacoublay Cedex France
TEL. (3) 946.96.50 TELEX ENERSON 697430 F

Circle (8) on Reply Card

AUDIO MIXING CONSOLES, Studio/Production

Manufacturer	Broadcast Electronics	Cetec Broadcast	Continental	Electro-Voice	Enertec/Schlumberger
Model/Series	ML-4000	8000 Console	Rock 10	72/74 Series	UPS 5168
Modular System	Yes	Yes	No	Yes	Yes
No. of Mixing Channels	12	16	10	8 to 32	16
No. of Inputs	24	48	30	16 to 64	3/channel
No. of Mixing Buses	2	3	2	5 to 9	4 main, 4 aux
No. of Multitrack Outputs	.....	No	No	None	4 possible
Stereo Mix Output	SL-4000	Yes	Yes	Yes	Yes
Fader Type	Slider	P&G slider	Rotary	Slider	Slider
VCA Level Control	No	No	No	No	No
EQ & Filtering	No	No	No	Shelf, peak	Yes
Panpots	No	No	No	Yes	Yes
No. of Groups	N.A.	0	0	2 to 4	4-main, 4 aux
No. of Echo Send/Returns	.....	0	0	3/3, pre, post pre/post	Yes
Solo Bus	No	No	No	PFL	.....
Cue System	Yes	Yes	Yes	No	Yes
Speaker Muting Circuit	4 programmabale	Yes	Yes	No	Yes
Tone Oscillator	.....	No	No	No	Yes
Metering Type(s)	VU	VU	VU	VU Fluoroscan	VU
Machine Controls	No	Yes	Yes	No	.....
Automation Ready	No	Yes	No	No	No
Input/Output Connections	Xfmr	Bal	Bal	Xfmr output option	.....
AF Response (± dB/Hz)	0, – 1/50-15k	0, – 1/20-20k	0.5/50-15k	0.5/20-20k	0.5, – 1/30-20k
Harmonic Distortion	0.5% 400Hz + 8dBm	0.008% + 27dBm	0.25%	0.2% + 4dBu 20-20k	0.2% + 12dBm 30-20k
S/N Ratio	65dB	125dBV EIN	125dB EIN	130.5dBV EIN	125dBm EIN
Crosstalk	N.L.	.....	.....	.....	70dB overall
Special RF Shielding	Yes	Yes	Yes	Ferrite beads	.....
Related Models	.....	2000 Console	Mark 8	7208, 7212, 7216,	.....
	.....	.....	.....	7224, 7232, 7408,	.....
	.....	.....	.....	7416, 7424, 7432	.....
Reader Service Number	**937**	**938**	**939**	**940**	**941**

AUDIO MIXING CONSOLES, Studio/Production

Manufacturer	Enertec/Schlumberger	Harris Studio Division	Harrison Systems		Interface Electronics
Model/Series	UPS 5248	M90 Modular	TV-3-40-28M/4SL	TV-4-16/12/2P	#550
Modular System	Yes	Yes	Yes	Yes	Yes
No. of Mixing Channels	24	18 to 48	32	14	16 to 48
No. of Inputs	3/channel	304	32	12	288
No. of Mixing Buses	8	4	32	2 stereo	8
No. of Multitrack Outputs	4 possible	4	24	0	8
Stereo Mix Output	Yes	Yes	Yes	Yes	Yes
Fader Type	Slider	P&G slider	P&G slider	P&G slider	Slider
VCA Level Control	.....	No	Channel, group	Channel, group	No
EQ & Filtering	Yes	3-band peaking	Parametric, shelf, peak	3-band swept, shelf, peak	3-band peaking
	.....	.....			.....
Panpots	Yes	Yes	Yes	Yes	Yes
No. of Groups	4 main, 4 aux	.....	8 stereo	8	.....
No. of Echo Send/Returns	Yes	To 48/2	4 send, pre, post	4 send, pre, post	2/2
Solo Bus	.....	In-place PFL or AFL	In-place PFL, AFL	PFL, AFL	In-place
Cue System	Yes	Yes	Yes	Yes	Yes
Speaker Muting Circuit	Yes	2 to 10 programmable	2 programmable	2 programmable	6
Tone Oscillator	Yes	Option	Yes	Yes	Yes
Metering Type(s)	VU	VU or PPM	Various	Various	VU or LED
Machine Controls	.....	Option for 48	No	No	No
Automation Ready	No	No	Yes	Yes	No
Input/Output Connections	.....	Xfmr or active	Active, resistive bal	Active, resistive bal	Xfmr
AF Response (± dB/Hz)	0.5, – 1/30-20k	1/20-20k	0, – 1.1/20-20k	0.2, – 2/20-20k	1/20-20k
Harmonic Distortion	0.2% + 12dBm 30-20k	0.1% + 18dBm 30-20k	0.18% 1kHz + 24dBm	.....	0.03% 1kHz 0dBm
S/N Ratio	125dBm EIN	124dBV EIN	129dBm EIN	129dBm EIN	90dB below 0VU
Crosstalk	70dB overall	80dB 1kHz + 18dBm	90dB 1kHz + 20dBm	.....	80dB 1kHz 0dBm
Special RF Shielding	.....	Yes	Yes	Yes	Yes
Related Models	.....	.....	TV-3 series	TV-4 series	550A w/o equalizers
Reader Service Number	**942**	**943**	**944**	**945**	**946**

AUDIO MIXING CONSOLES, Studio/Production

Manufacturer	Logitek	LPB	McCurdy Radio	MCI/Sony	
Model/Series	CAS Series	B-2000 Benchmark	SS8900	J-500D Series	J-600 Series
Modular System	Yes	Yes	Yes	Yes	Yes
No. of Mixing Channels	5 to 12	To 16	To 32	56	54
No. of Inputs	28	96	96	.....	104
No. of Mixing Buses	2	12	14	.....	16
No. of Multitrack Outputs	2	Yes	8	32	24
Stereo Mix Output	Yes	Yes	Yes	Yes	Yes
Fader Type	P&G3600 slider	P&G slider	Slider	Slider	Slider
VCA Level Control	No	Digital DPT	No	Yes	Yes
EQ & Filtering	3-band	Yes	3- or 4-band	Yes	3-band
Panpots	Yes	Yes	Yes	Yes	Yes
No. of Groups	.....	As required	8	8	8
No. of Echo Send/Returns	.....	2	Possible	6	6
Solo Bus	No	Yes	Yes	Yes	Yes
Cue System	Yes	Yes	Yes	Yes	Yes
Speaker Muting Circuit	3 programmable	4 programmable	Possible	Yes	Yes
Tone Oscillator	Option	Option	Yes	Yes	Yes
Metering Type(s)	VU	VU, PPM, peak LED	VU, PPM	VU, PPM bargraph	VU, PPM
Machine Controls	For 24 machines	Option	Possible	.....	.....
Automation Ready	Yes	Option	.....	Yes	Yes
Input/Output Connections	In active/out xfmr/act	Bal	Bal	Bal	Bal
AF Response (± dB/Hz)	0.3/20-20k	0.5/20-20k	1/20-20k	0.5/20-20k	0, – 0.5/25-18k
Harmonic Distortion	0.04% 20kHz + 24dBm	0.2% + 18dBm	0.5% + 18dBm	0.5% max	0.05%
S/N Ratio	126dBm EIN	75dB below output	125dBm EIN	129dBV EIN	129dBV EIN
Crosstalk	Below noise	70dB	65dB 15kHz	45dB 18kHz	70dB 16kHz
Special RF Shielding	Yes	Yes	Yes	Yes	Yes
Related Models	Custom Audio Series supplied to fit requirements	B-3000	SS8800	....	....
Reader Service Number	**947**	**948**	**949**	**950**	**951**

AUDIO MIXING CONSOLES, Studio/Production

Manufacturer	Neve			Op-Amp Labs	Pacific Recorders & Engineering
Model/Series	5104	542 Series	8128	1204-TV	ABX 34
Modular System	Yes	Yes	Yes	No	Yes
No. of Mixing Channels	12-36	6-16	32-56	12	.....
No. of Inputs	72	32	112	24	34
No. of Mixing Buses	4	6	24/32/48	4	4 stereo
No. of Multitrack Outputs	24	8-16	32/48/56	4	8
Stereo Mix Output	Yes	Yes	Yes	No	Yes
Fader Type	P&G slider	P&G slider	P&G slider	Duncan slider	P&G slider
VCA Level Control	Yes	No	Yes	No	No
EQ & Filtering	2 & 4-band	3-band	4-band	2-band shelf, peak	3-band parametric
Panpots	Yes	Yes	Yes	No	Yes
No. of Groups	4	4	24/43/48	0	.....
No. of Echo Send/Returns	6 send pre, post	2/2 pre, post	4/8 pre, post	1/1 pre	4/4 pre, post
Solo Bus	In-place PFL, AFL	PFL, AFL	In-place AFL	No	In-place AFL
Cue System	Yes	Yes	No	Yes	Yes
Speaker Muting Circuit	Programmable	No	.....	Yes	Programmable
Tone Oscillator	Yes	Yes	Yes	Yes	Yes
Metering Type(s)	VU, PPM	VU, PPM	VU, PPM gas discharge	VU	VU, PPM, gas discharge
Machine Controls	For 4 machines	For 16 machines	For 4 machines	No	2 machines/input
Automation Ready	Optional NECAM	Optional NECAM	For NECAM	No	No
Input/Output Connections	Xfmr/active bal/unbal	Xfmr	Xfmr/active bal/unbal	Xfmr	Xfmr/active bal/unbal
AF Response (± dB/Hz)	½/20-20k	½/20-20k	½/20-20k	2/20-20k	0, – 1.5/20-20k
Harmonic Distortion	0.05% 1kHz + 20dBm	0.05% 1kHz + 20dBm	0.05% 1kHz + 20dBm	0.25% 1kHz + 22dBm	0.015% 1kHz + 28dBm
S/N Ratio	125dBu EIN	125dBu EIN	125dBu EIN	127dBm EIN	84dB
Crosstalk	70dB 1kHz + 20dBm	70dB 1kHz + 20dBm	75dB 1kHz + 20dBm	75dB 10kHz + 20dBm	85dB 1kHz + 28dBm
Special RF Shielding	Yes	Yes	Yes	No	Yes
Related Models	12, 16, 24 & 36 input versions	6, 8, 12 & 16 input versions	32, 48, 56 input versions	802-TV, 1604-TV	ABX 18, ABX 26 .....
Reader Service Number	**952**	**953**	**954**	**955**	**956**

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Audio Mixing Consoles

*BC – Back Cover

AUDIO MIXING CONSOLES, Studio/Production

Manufacturer	Quad-Eight Electronics		Quantum Audio Labs	Ramko Research	Richmond Sound Design	Ramsa/Panasonic
Model/Series	248 Component Series	Ventura MS-2882VC-28/16	Series 22	DC38-10S	M82A/8	WR8816
Modular System	Yes	Yes	Yes	No	Yes	Yes
No. of Mixing Channels	32, expandable	28	.....	10	8 to 24	16
No. of Inputs	32, expandable	28	48	40	62	32
No. of Mixing Buses	2, 4, 8	8	4	2	14	4
No. of Multitrack Outputs	Each input direct	24	1/input	None	8	.....
Stereo Mix Output	Yes	Yes	No	Yes	Yes	Yes
Fader Type	P&G slider	P&G slider	P&G slider	Rotary	Piher slider	Slider
VCA Level Control	No	Channel, group	No	Yes	Channel, group	No
EQ & Filtering	3-band, swept, param	3-band, shelf, peak	3-band, shelf, peak	No	3-band, shelf, peak	3-band
Panpots	Yes	Yes	Yes	No	Yes	Yes
No. of Groups	8	6	.....	None	8	4
No. of Echo Send/Returns	4 send pre, post	4 send pre, post	1/2 post	No	2/10 pre, post	Yes
Solo Bus	PFL, AFL	In-place AFL	PFL	No	PFL	Yes
Cue System	Yes	Yes	Yes	Yes	Yes	Yes
Speaker Muting Circuit	Yes	Multiple	Programmable	Yes	2 Optional	Yes
Tone Oscillator	Yes	Yes	.....	Yes	Option	Yes
Metering Type(s)	VU	VU, PPM, LED	VU	LED	VU	LED
Machine Controls	Optional	Optional	Yes	Option	No	No
Automation Ready	No	No	Option	No	Yes	No
Input/Output Connection	Active bal	Xfmr/active bal	Xfmr/active	Bal	Xfmr or active	.....
AF Response (± dB/Hz)	1/20-20k	1/20-20k	0.5/20-20k	0, – 2/20-20k	1/20-20k	1/20-20k
Harmonic Distortion	0.03% 1kHz + 24dBm	0.05% 1kHz + 24dBm	0.01% 1kHz + 24dBm	0.5%	0.5% 1kHz + 4dBm	0.5% + 20dBm
S/N Ratio	129dBm EIN	129dBm EIN	80dB	63dB below + 8dBm	122dBV EIN	128dB EIN
Crosstalk	60dB 15kHz + 24dBm	75dB 10kHz + 24dBm	80dB 1kHz + 8dBm	70dB 1kHz	60dB 1kHz + 4dBm	60dB 1kHz
Special RF Shielding	Yes	No	Yes	.....	14ga steel	.....
Related Models	Combinations per customer request	Coronado, Pacifica	....	DC-12 series	M82A/4	....
Reader Service Number	957	958	959	960	961	962

AUDIO MIXING CONSOLES, Studio/Production

Manufacturer	Solid State Logic	Sonomax	Soundcraft	Spectra Sonics	Studer Revox	
Model/Series	SL 6000 E	SX-A	1600	1024	900	389
Modular System	Yes	Yes	Yes	Yes	Yes	Yes
No. of Mixing Channels	24	48	16, 24, 32	To 24	To 56	32
No. of Inputs	3/channel	48	32	48	448	.....
No. of Mixing Buses	.....	12	8	24x24 matrix	24	8 max
No. of Multitrack Outputs	24	4 to 48	16	24	48	8
Stereo Mix Output	Yes, 3 mixes	Yes	Yes	Yes	Yes	Yes
Fader Type	Slider	Slider	Alps slider	Cermet slider	Studer/Waters slider	Studer/Waters slider
VCA Level Control	Yes	Yes	No	No	Yes	No
EQ & Filtering	4-band parametric	2-band swept shelf	4-band swept shelf	Yes	4-band parametric	3-band shelf, peak
Panpots	Yes	Yes	Yes	Yes	Yes	Yes
No. of Groups	6	8	8	Yes	2 to 24 + 10VCA	8
No. of Echo Send/Returns	Multiple	6 send pre, post	8/8 2 pre, 2 post	Yes	5 send pre, post	6/8 pre, post
Solo Bus	Yes	PFL	PFL, AFL	Yes	In-place PFL, AFL	In-place, PFL, AFL
Cue System	Yes	Yes	Yes	Yes	Yes	Yes
Speaker Muting Circuit	Yes	Option	No	Yes	Yes	Yes
Tone Oscillator	Yes	Option	Yes	Yes	Yes	Option
Metering Type(s)	VU, PPM, CRT	VU, PPM, LED	VU	VU	VU, PPM	VU or PPM
Machine Controls	.....	.....	No	Yes	Option	Option
Automation Ready	Yes	Yes	No	No	Yes	No
Input/Output Connections	Various	Xfmr, active	Active	Bal	Xfmr or active	Xfmr
AF Response (± dB/Hz)	0, – 0.5/20-20k	0.2/20-20k	1/20-20k	0.2/20-20k	0.5, – 1/20-20k	0.5, – 1/20-20k
Harmonic Distortion	0.05% 50-20k	0.02% 10kHz + 20dBm	0.005% 1kHz + 4dBm	0.01% + 18dBm	0.1% 0dBm 31.5-16k	0.1% + 6dBm 60-10k
S/N Ratio	84dB below + 4dBV	129.5dBm EIN	80dB	82.5dB + dBm	100dB	90dB
Crosstalk	70dB 1kHz + 4dBV	70dB 10kHz + 20dBm	56dB 1kHz + 4dBm	90dB typically	85dB 0dBm 31.5-16k	75dB – 10dBm 60-10k
Special RF Shielding	.....	On request	Yes	Not required	.....	Operates in high RF
Related Models	SL 4000E	....	2400 series, 400B series	1026, 1032	Versions for multi-track production	269 (14-18) input .....
Reader Service Number	963	964	965	966	967	968

AUDIO MIXING CONSOLES, Studio/Production

Manufacturer	TASCAM		Trident Audio	Tore Seem	UMC Electronics	Ward-Beck Systems
Model/Series	M-50	M-16	Trimix	SEEMIX	Beau-Master BC-16-8	L2042/L3242
Modular System	Yes	Yes	Yes	Yes	Yes	Yes
No. of Mixing Channels	12	6	8	24 to 48	16 max	20/32
No. of Inputs	12	24	32	2/channel	48	20/32
No. of Mixing Buses	8	8	24	8	4	4/2/4
No. of Multitrack Outputs	16	16	24	Yes	3	0
Stereo Mix Output	Yes	Yes	Yes	Yes	Yes	Yes
Fader Type	Alps slider	Alps slider	Slider	Slider	Slider	P&G slider
VCA Level Control	No	No	Yes	Yes	No	No
EQ & Filtering	3-band swept	4-band swept	4-band	Yes	3-band	Parametric, shelf, peak
Panpots	Yes	Yes	Yes	Yes	No	Yes
No. of Groups	8	8	8	8	1	6
No. of Echo Send/Returns	30/20 pre, post(1)	60/40 pre, post(1)	4	Yes	None	2 send pre, post
Solo Bus	In-place PFL, AFL	In-place PFL, AFL	PFL	Yes	In-place	PFL, AFL
Cue System	Yes	Yes	Yes	PFL	Yes	Yes
Speaker Muting Circuit	Yes	Yes	Yes	.....	Yes	Programmable
Tone Oscillator	Yes	Yes	Yes	.....	No	Yes
Metering Type(s)	VU peak LED	VU, peak LED	Options	Bargraph	PPM	VU, PPM, LED
Machine Controls	No	No	Option	.....	For 8 machines	As required
Automation Ready	No	No	Possible	.....	Yes	No
Input/Output Connections	Active bal and unbal	Xfmr, bal and unbal	.....	Bal	Xfmr bal	Xfmr & active
AF Response (± dB/Hz)	1/20-20k	1/20-20k	.....	0.5/20-20k	1/20-20k	0.5/20-20k
Harmonic Distortion	0.025% 1kHz +4dBm	0.025% 1kHz +4dBm	0.05% +20dBm	0.2% 15kHz +20dBu	0.07% 1kHz 0dBm	0.25% +18dBm 20-20k
S/N Ratio	120dB EIN	120dB EIN	75dBm	80dBu	123dB EIN	125dBm EIN
Crosstalk	60dB 1kHz +4dBm	60dB 1kHz +4dBm	65dB	.....	68dB 1kHz 0dBm	70dB +18dBm 30-15k
Special RF Shielding	No	No	Available	.....	Yes	Entire console balanced
Related Models	.....	M-35	.....	.....	Beau-Pro BC-8-6	L2042A, L3242A
Reader Service Number	**969**	**970**	**971**	**972**	**973**	**974**

(1) Includes all available and bus send/receive capabilities.

AUDIO PROCESSOR, Level Control

Systems for general level control of audio signals, including compression, limiting, clipping and expansion function. All systems are available in rack-mount configurations.

Manufacturer	Advancing Technology Corporation		Aphex Systems Ltd.	Audio & Design Recording	
Model Number	Discriminate Audio Processor III	Maximod Digital Peak Limiter	CX-1 Compressor Expander	F769X-R Stresser	Transdynamic Processor
Function(s):					
Compression	Yes	Yes	Yes	Yes	Yes
Wideband Limit	No	Yes	.....	Yes	Yes
Peak Limit	No	Yes	.....	Yes	Yes
Assymetric Limit	No	Yes	.....	No	Yes
Expansion	Yes	.....	Yes	Yes	Yes
AGC Action	No	No	Yes	Yes	Yes
Stereo Tracking	w/2 units	Option	.....	w/2 units	Yes
Multiband Process	3-band	No	No	No	3-band
Metering Types	Gas discharge	LEDs	LEDs	Meter mvmt.	Meter mvmt.
Attack Time	0.2-20msec	Minus seconds	.....	Adj, pgm dep	Adj, pgm dep
Release Time	0.1-2sec	User adjust	.....	2msec-3.2sec	Pgm dependent
Compression Ratio	2:1-30:1	2:1-30:1	Adj	1:1-20:1	1:1-20:1
Expansion Ratio	.....	.....	Adj	1:2-1:20	1:2-1:20
AF Response (±dB/Hz)	0-0.5/20-20K	0.25/20-20K	– /20-20k	– 0.5/20-20k	– 0.5/20-20k
Harmonic Distortion	0.03% +8dBm 10dB L/C	0.03% +8dBm out	0.1%	<0.1% +20dBm 6dB L/C	<0.2% +8dBm 6dB L/C
Signal/Noise Ratio	84dB	>84dB	85dB	89dB	82dB
Reader Service Number	**686**	**687**	**688**	**689**	**690**

Manufacturer	Audio & Design Recording		Audio Technology	Audio Processing Plus	Broadcast Controls
Model Number	SCAMP System	F601 Super-Dynamic	Emph-a-sizer	IMP 3 Processor	1000A Audio Mate
Function(s):					
Compression	Yes	No	Yes	Yes	Yes
Wideband Limit	Yes	Yes	Yes	.....	.....
Peak Limit	Yes	Yes	.....	Safety clip	.....
Assymetric Limit	No	Yes	.....	Yes	.....
Expansion	Yes	No	.....	Selected band	.....
AGC Action	Yes	Yes	.....	.....	.....
Stereo Tracking	Yes	Yes	.....	Yes	.....
Multiband Process	4-band	No	.....	3-band	.....
Metering Types	LED	LED	LED	Meter, LED	Meter
Attack Time	Adj, pgm dep	Adj, pgm dep	.....	Factory set	Adj
Release Time	25msec-2sec	Adj	.....	Adj	Adj
Compression Ratio	1:1-10:1	20:1-Inf:1	1:1-20:1	Pgm dep	Adj
Expansion Ratio	1:2-1:20	.....	.....	6dB range	.....
AF Response (± dB/Hz)	– 0.5/20-20K	– 0.5/20-20k	0.25/30-20k	0.5/50-15k	0.5/10-20k
Harmonic Distortion	0.1% +20dBm 6dB L/C	0.08% +10dBm 6dB Lim.	0.2% +22dBm output	0.4%	0.25% .....
Signal/Noise Ratio	84dB	100dB	110dBm EIN	69dB operating	75dB
Reader Service Number	**691**	**692**	**693**	**694**	**695**

AUDIO PROCESSOR

Level Control

Manufacturer	Broadcast Electronics		Circuit Research Labs		Comrex Corporation
Model Number	AM500 Compressor Limiter Expander	FM601 AGC Limiter	AM-4 System	FM-2 System	AGA Auto Gain Adjuster
Function(s):					
Compression	Yes	Yes	Yes	Yes	.....
Wideband Limit	.....	.....	Yes	Yes	.....
Peak Limit	Peak clip	Yes	Yes	Yes	.....
Assymetric Limit	Yes	.....	Option	Yes	.....
Expansion	Yes	Yes	.....	.....	.....
AGC Action	.....	Yes	Yes	Yes	Yes
Stereo Tracking	.....	Yes	Possible	Yes	.....
Multiband Process	.....	No	Yes	Yes	.....
Metering Types	Meter	Meter mvmt.	.....	LED	.....
Attack Time	Fixed	Adj	Pgm dep	Pgm dep	33msec
Release Time	Adj	Adj	Pgm dep	Pgm dep	Pgm dep
Compression Ratio	30:1 max	30:1 max	Adj	.....	30:1
Expansion Ratio	Gated	0-20dB	.....	.....	.....
AF Response (±dB/Hz)	1/30-15k	0.5/20-20k	1/50-10k	1/50-15k	1/20-15k
Harmonic Distortion	0.5% +20dBm output	0.5% +20dBm output, 0dB comp/lim	<0.4% operating	0.4% operating	<0.3% .....
Signal/Noise Ratio	60dB	70dB	60dB operating	63dB operating	70dB 30dB gain
Reader Service Number	**696**	**697**	**698**	**699**	**700**

Level Control

Manufacturer	dbx Professional Products		Dorrough Electronics	Elcom-Bauer	EMT-Franz
Model Number	165A Compressor Limiter	903 Processor	Discriminate Audio Processor 610	AP50 InstaPeak II	EMT 266 Transient Limiter
Function(s):					
Compression	Yes	Yes	Yes	Yes	Yes
Wideband Limit	Yes	Yes	Yes	Yes	.....
Peak Limit	Yes	No	.....	Yes	Yes
Assymetric Limit	No	No	.....	.....	.....
Expansion	Yes	No	Yes	.....	.....
AGC Action	Yes	Yes	Yes	Yes	Yes
Stereo Tracking	w/2 units	w/2 units	w/2 units	.....	Yes
Multiband Process	No	No	3-band	2-band	Adaptive
Metering Types	Meter, mvmt	LED	LED	Meter	LED
Attack Time	Adj, pgm dep	Pgm dep	Adj	Fixed	Controlled
Release Time	Adj	.....	Adj	Pgm dep	Controlled
Compression Ratio	1:1-∞	1:1-1:1	100-1	Adj	.....
Expansion Ratio	.....	.....	Adj	.....	.....
AF Response (±dB/Hz)	0, – 1/20-20k	1/20-20k	– 0.5/20-15k	1/50-15k	0.3, – 0.5/30-15k
Harmonic Distortion	0.05%, 0dBm	0.05%, 0dBm ∞ C/L	0.3% +18dBm 24dB C/L	1%	<0.2%
Signal/Noise Ratio	90dBm EIN	88dBm EIN	69dB	65dB	75dB unwtd
Reader Service Number	**701**	**702**	**703**	**704**	**705**

Level Control

Manufacturer	Eventide Clockworks 2830	Gregg Labs	Harris Broadcast		
Model Number	OmniPressor	2540 Series	MSP-90 AM Limiter	MSP-90 FM Limiter	MSP-90 Tri-Band AGC
Function(s):					
Compression	Yes	Yes	.....	.....	Yes
Wideband Limit	Yes	Yes	Yes	Yes	No
Peak Limit	Yes	Yes	Yes	Yes	No
Assymetric Limit	No	Yes	Yes	No	No
Expansion	Yes	No	No	No	Yes
AGC Action	Yes	Yes	Yes	Yes	Yes
Stereo Tracking	w/2 units	Yes	Yes	Yes	w/2 units
Multiband Process	No	5-band	No	No	3-band
Metering Types	Meter, LED	LED	LED	LED	LED
Attack Time	Adj	Pgm dep	Adj, pgm dep	Adj, pgm dep	Adj, pgm dep
Release Time	Adj	.....	Adj	Adj	Adj
Compression Ratio	0-10:1	.....	18:1	30:1	24:1-3:1
Expansion Ratio	0-10:1	.....	.....	.....	2:1
AF Response (±dB/Hz)	– 1/15-20k	1/40-12k	1/20-20k	1/20-20k	1/20-20k
Harmonic Distortion	.....	0.5%	1% +10dBm 10dB C/L	1% +10dBm 10dB C/L	0.5% +10dBm 10dB C/L
Signal/Noise Ratio	90dBm EIN	70dB	70dB	70dB	70dB
Reader Service Number	**706**	**707**	**708**	**709**	**710**

MANUFACTURERS' ADDRESSES

For addresses of manufacturers whose products are listed in this edition, refer first to the advertisers' index on page 114 and obtain address from the advertisement. For non-advertisers and companies that do not show an address on their advertisement, refer to company name and address listing in the **BE** *Buyers' Guide* (annual September issue).

AUDIO PROCESSOR

Level Control

Manufacturer	Inovonics Inc.		ITAME, S.A.	LPB Inc.	Marti Electronics
Model Number	250 Programmed Limiter	MAP II Model 231	PA80A Processor	S-2 Limiter Compressor	CLA-40A Compressor Limiter
Function(s):					
Compression	Yes	Yes	Yes	Yes	Yes
Wideband Limit	No	No	Yes	Yes	.....
Peak Limit	Yes	Yes	Yes	Yes	Yes
Assymetric Limit	Yes	Yes	Yes	Yes	Yes
Expansion	No	No	.....	No	.....
AGC Action	Yes	Gated	Yes	No	Yes
Stereo Tracking	Yes	w/2 units	No	w/2 units	w/2 units
Multiband Process	5-band	8-band	No	No	No
Metering Types	LED	Meter	Meters	Meter	Meter
Attack Time	Pgm dep	Fixed	Fixed	Fixed	Adj
Release Time	Adj	.....	.....	Fixed	Adj
Compression Ratio	.....	Pgm dep	.....	Adj	12:1
Expansion Ratio	.....	.....	.....	.....	.....
AF Response (± dB/Hz)	0.5/10-15k	1/50-15k	1/30-20k	0, – 0.7/20-20k	0.5/50-15k
Harmonic Distortion	0.2% + 15dBm 10dB C/L	<1% + 20dBm 10dB C/L	0.55%	<0.25% + 19dBm 40dB C/L	1% + 20dBm 10dB C/L
Signal/Noise Ratio	70dB	60dB	60dB	84dB	68dB
Reader Service Number	**711**	**712**	**713**	**714**	**715**

Level Control

Manufacturer	McMartin Industries	Modular Devices	Moseley Associates		Orban Associates
Model Number	BFM-1514R	7833 Control	TGR-340	TFL-280 Limiter	Model 424A
Function(s):					
Compression	Yes	Yes	Yes	.....	Yes
Wideband Limit	Yes	Yes	.....	Yes	Yes
Peak Limit	Yes	Yes	.....	Yes	Yes
Assymetric Limit	.....	.....	Yes	.....	.....
Expansion	.....	.....	Yes	.....	.....
AGC Action	Yes	.....	Yes	.....	Yes
Stereo Tracking	Yes	.....	Yes	Yes	Yes
Multiband Process	2-band	.....	Yes	Yes	No
Metering Types	Meter	Meter	Meter	Meter	Meter
Attack Time	Fixed	Fixed	2msec	Adj	Pgm dep
Release Time	Adj	Pgm dep	Adj	Adj	Adj
Compression Ratio	.....	Adj	60dB range	.....	2:1-∞:1
Expansion Ratio	.....	.....	.....	.....	.....
AF Response (± dB/Hz)	1/30-15k	0.5/20-20k	1/30-15k	1/50-15k	0.025/20-20k
Harmonic Distortion	0.5%	1% 30dB control	<0.7% w/compression	0.03% + 4dBm 15dB C/L	<0.7% w/limiting .....
Signal/Noise Ratio	70dB	– 91dBm EIN	>70dB	>70dB	85dB
Reader Service Number	**716**	**717**	**718**	**719**	**720**

Level Control

Manufacturer	Orban Associates			Protech Audio	RCA Broadcast
Model Number	8100A Optimod-FM	8182A Optimod-TV	9100A Optimod-AM	66303 Compressor Limiter	BA-146 Limiter
Function(s):					
Compression	Yes	Yes	Yes	Yes	Yes
Wideband Limit	Yes	Yes	Yes	Yes	Yes
Peak Limit	Yes	Yes	Yes	Yes	.....
Assymetric Limit	No	No	No	No	Yes
Expansion	.....	No	No	No	.....
AGC Action	Yes	Yes	Yes	No	.....
Stereo Tracking	Yes	.....	Yes	w/2 units	.....
Multiband Process	3- or 6-band	3-band	6-band	No	.....
Metering Types	Meters	Meters	Meters	Meters	LED
Attack Time	Pgm dep	Pgm dep	Pgm dep	Adj	Fixed
Release Time	Fixed, adj	Fixed, adj	Pgm dep	Adj	Adj
Compression Ratio	10:1	10:1	>10:1	2:1	50:1
Expansion Ratio	.....	.....	.....	.....	.....
AF Response (± dB/Hz)	0.75/50-15k	0.75/50-15k	1/50-7.5k	0.5/20-20k	1/20-15k
Harmonic Distortion	0.1% + 20dBm 15dB C/L	0.1% + 20dBm 15dB C/L	0.1% + 20dBm 15dB C/L	0.2% + 27dBm 10dB C/L	1% overall .....
Signal/Noise Ratio	85dB	85dB typical	85dB	83dB	70dB
Reader Service Number	**721**	**722**	**723**	**724**	**725**

Level Control

Manufacturer	Richmond Sound	Spectra Sonics		Thomson-CSF Broadcast	
Model Number	VCA-4	610 Complimiter	601 Compressor Limiter	4300 Volumax	4450A Audimax
Function(s):					
Compression	Yes	Yes	Yes	.....	Yes
Wideband Limit	No	Yes	Yes	Yes	Yes
Peak Limit	Yes	Yes	Yes	Yes	.....
Assymetric Limit	No	No	No	Yes	.....
Expansion	.....	No	No	.....	Yes
AGC Action	Yes	Yes	Yes	.....	Yes
Stereo Tracking	Yes	Yes	No	.....	Yes
Multiband Process	No	No	No	.....	.....
Metering Types	None	Yes	No	Meter	Meter
Attack Time	Adj	Auto variable	Auto variable	Pgm dep	.....
Release Time	Adj	Adj	Adj	Fixed	.....
Compression Ratio	20:1	1.1:1-100:1	1.1:1-100:1	.....	Pgm dep
Expansion Ratio	.....	.....	.....	.....	Pgm dep
AF Response (± dB/Hz)	1/20-20k	0.5/20-20k	0.1/10-50k	0.5/50-15k	0.5/50-15k
Harmonic Distortion	0.5% + 4dBm 0dB C/L	0.1% 30dB compress	<0.1% 30dB compress	1%	0.5% + 16dBm .....
Signal/Noise Ratio	80dB	>80dB	>80dB	>70dB	>70dB
Reader Service Number	**726**	**727**	**728**	**729**	**730**

AUDIO PROCESSOR

Level Control

Manufacturer	UREI		Valley People		TTC/Wilkinson
Model Number	LA-4 RMS Limiter Compressor	1176LN Peak Limiter Compressor	610 Dual Compressor Expander	Gain Brain II	LA2-C Limiter
Function(s):					
Compression	Yes	Yes	Yes	Yes	Yes
Wideband Limit	Yes	Yes	.....	Yes	.....
Peak Limit	No	Yes	.....	Yes	Yes
Assymetric Limit	No	No	.....	.....	Yes
Expansion	No	No	Yes	.....	.....
AGC Action	No	No	Yes	Yes	.....
Stereo Tracking	w/2 units	1178LN stereo	Yes	.....	Model LA2-CS
Multiband Process	No	No	.....	.....	.....
Metering Types	VU meter	VU meter	LED bargraph	LED	Meter
Attack Time	Pgm dep	Adj	Switched	Adj	Fixed
Release Time	.....	Adj	Adj	Adj	Level dep
Compression Ratio	2:1 to 20:1	4:1 to 20:1	1:1-60:1	1.3:1-∞	35:1
Expansion Ratio	.....	.....	1:2 and 1:20	.....	.....
AF Response (±dB/Hz)	0.5/20-20k	1/20-20k	.....	2/5-100k	1/50-20k
Harmonic Distortion	<0.25% +24dBm 0dB C/L	<0.5% +24dBm 5dB C/L	0.015% dynamic THD	0.01%	2% 15dB limiting .....
Signal/Noise Ratio	114dBm	81dBm	89dB typical	112dB +21dBv output	....
Reader Service Number	731	732	733	734	735

Equipment designed to extend low frequency response of audio interconnect circuits through frequency shifting. Elimination of low frequency noise components is a result. System requires a transmitter and receiver unit.

Manufacturer	C N Rood B V		Comrex Corporation	
System Number	BAX 110/111	BAX 112	PLX	SLX
Frequency Offset	+350, −2150Hz	−350, −2150Hz	250Hz	250Hz
AF Response (±dB/Hz)	−/50-5k	−/50-5k	0.5/50-15k	0.5/50-15k
Translation Accuracy	.....	.....	0.02Hz	0.02Hz
Transmitter Model	**BAX 110M/111M**	**BAX 112M**	**PLX Portable**	**SLX Sports**
Audio Input Level	−6, +6dBm	−6, +6dBm	Mic & tape	Mic, line, tape
Audio Input Impedance	600Ω	600Ω	150Ω/10kΩ	150Ω/600Ω/10kΩ
Output Level	−12, +12dBm	−12, +12dBm	−10dBm	+8, −10dBm
Output Impedance	−600Ω, xfmr output	−600Ω, xfmr output	600Ω	600Ω
Packaging	19" rack-mount	Portable	Portable	4-channel console
Powering Requirement	110-220Vac	110-220Vac, 6Vdc	ac/battery	ac/battery
Receiver Model	**BAX 110D**	**BAX 111D**	**RLX**	**RLX**
Input Level	−30, +17dBm	−30, +17dBm	−40/−4, +10dBm	−40/−4, +10dBm
Input Impedance	600Ω, xfmr input	600Ω, xfmr input	600Ω	600Ω
Audio Output Level	0, +12dBm	0, +12dBm	+8, −10dBm	+8, −10dBm
Audio Output Impedance	600Ω	600Ω	600Ω	600Ω
Packaging	19" rack-mount	19" rack-mount	19" rack-mount	19" rack-mount
Powering Requirement	110/220Vac	110-220Vac	ac	ac
Reader Service Number	162	163	164	165

Manufacturer	Comrex Corp.	dbx Inc.	Kahn Communications	McCurdy Radio
System Number	TLX	Subharmonic Synthesizer	Lines Plus	ST1913/1916
Frequency Offset	250Hz	.....	+300Hz, −2.1kHz	250Hz
AF Response (±dB/Hz)	0.5/50-15k	1/20-20k	2/50-5k, notch at 2.5kHz	−/50-10k
Translation Accuracy	0.02Hz	.....	±1Hz	0.002%
Transmitter Model	**TLX Studio**	.....	.....	**ST1913**
Audio Input Level	−4, +10dBm	.....	0dBm	−60/−20, +8dBm
Audio Input Impedance	600Ω	.....	600Ω	150Ω/600Ω
Output Level	+8, −10dBm	.....	0dBm	−10dBm
Output Impedance	−600Ω	.....	600Ω	600Ω
Packaging	Rack	.....	Portable case	Portable
Powering Requirement	ac	.....	.....	Battery
Receiver Model	**RLX**	**Model 500**	.....	**ST1916**
Input Level	−40, −4, +10dBm	300mV,7Vrms max	−20dBm	Compensates losses
Input Impedance	600Ω	47kΩ	600Ω	600Ω
Audio Output Level	+8, −10dBm	7Vrms max	0dBm	+8dBm
Audio Output Impedance	600Ω	470Ω	600Ω	600Ω
Packaging	19" rack-mount	Rack-mount	Rack-mount	Rack-mount
Powering Requirement	ac	110Vac, 10W	110Vac	ac
Reader Service Number	166	167	168	169

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Audio Processors

AUDIO RECORDER, Cartridge

Stereo recorder/reproducer system for NAB "AA" size endless-loop, ¼-inch tape cartridges. Remote control and 1kHz cue tone and 7.5ips play speed are standard. Performance specs referred to a record level of 160nWb/m at 1kHz, unless otherwise stated.

Manufacturer	Audi-Cord	Audio Projects Ltd.	Broadcast Electronics		
Model Number	A Series, S Series	APL Series	2100 RPS	3200 RPS	5300B/5310
Other Cart Sizes	BB	No	BB, CC	BB	BB
Control System	CMOS logic	μP	TTL logic	TTL logic	TTL logic
Relay Inhibit Circuit	Yes	Yes	Yes	Yes	Yes
Recording Timer	Yes	Yes	No	No	No
Sec/Tertiary Tones	Yes	Yes	Yes	Option	Option
Stereo Phase Correction	No	Yes	No	No	No
Capstan Motor Type	ac sync	dc servo	ac sync	ac sync	ac sync
Capstan Drive Type	Direct	Direct	Direct	Direct	Direct
Other Play Speeds	None	None	3.75ips	3.75, 22.5ips	None
Cue Output Form	Solid-state	Solid-state	Relay	Relay	Relay
Metering Type	VU simulated	PPM, VU	VU	VU	VU
Related Mono R/P	S21-S26	.....	2100RP	3200RP	5301B/5309
Related Play Only	S11-S16	Replay only	2100P/2100PS	3200P/3200PS	5302, 5304
Related Multideck	A30, A31, A35, A36	Triple replay	5300B	5300B	5302B/5304B
Input Connection	Bal xfmr	Bal active (Xfmr opt.)	Bal resistive	Bal xfmr	Bal xfmr
Output Connection	Bal xfmr	Bal xfmr	Bal active	Bal xfmr	Bal xfmr
AF Response (±dB/Hz)	±2/50-15k	±1/40-15k	±2/50-15k	±2/50-15k	±2/50-15k
S/N Ratio	per NAB 1976	≥50dB	−52dB	−52dB	−52dB
Crosstalk Pgm-Pgm	−50dB	−50dB, 10kHz	−50dB, 0dBm	−50dB, +8dBm	−50dB, 0dBm
Crosstalk Cue-Pgm	−50dB	−80dB	−55dB, 0dBm	−55dB, +8dBm	−50dB, 0dBm
Harmonic Distortion	1%	0.6%	<2%	<2%	<2%
Flutter (ANSI S4.3)	0.15% per NAB 1976	0.12%	0.15%	0.15%	0.15%
Reader Service No.	**836**	**837**	**838**	**839**	**840**

Manufacturer	International Tapetronics	3M	Pacific Recorders & Engineering	Ramko Research
Model Number	Delta Series DI/DIV	Series 99B RPSE	PD-II Series (Mono)	Tomcat	Primus Series RP-18
Other Cart Sizes	BB, CC	.....	.....	None	Yes
Control System	μP	μP	Transistor logic	μP	μP
Relay Inhibit Circuit	Yes	Yes	No	Yes	No
Recording Timer	No	No	No	No	Option
Sec/Tertiary Tones	Yes	Yes	No	Yes	Yes
Stereo Phase Correction	No	Yes	No	Yes	No
Capstan Motor Type	dc servo	dc servo	ac sync	dc servo	dc servo
Capstan Drive Type	Direct	Direct	Direct	Direct	Direct
Other Play Speeds	3.75, 15ips	3.75, 15ips	None	15ips	15ips
Cue Output Form	Relay or solid-state	Relay or solid-state	Solid-state	Solid-state	Relay
Metering Type	Taut band, A scale	Taut band, A scale	Taut band A scale	C 16.5-1954ANS-VU	Bargraph
Related Mono R/P	DI/DIV, DII/DIV	99B RPM, RPME	.....	....	RP-1m
Related Play Only	DI, DII	99B PM, PS	PD-II	Yes	P-1m
Related Multideck	DIII	.....	.....	.....	No
Input Connection	Bal xfmr or active	Bal xfmr, resistive	Bal xfmr	Bal active	Bal active
Output Connection	Bal xfmr or active	Bal xfmr, resistive	Bal xfmr	Bal xfmr	Bal active
AF Response (±dB/Hz)	±2/50-16k	±1/315-16k	±2/50-12k(1)	+0.5, −1/40-15k(2)	±1.5/50-16k
S/N Ratio	≥50dB	53dB	50dB	−64dB	60dB
Crosstalk Pgm-Pgm	−50dB	≤48dB	−50dB	<−50dB	−50dB
Crosstalk Cue-Pgm	−50dB	≤50dB	−50dB	<−60dB	−50dB
Harmonic Distortion	1.5%	0.8%	2%	<0.7%	0.9%
Flutter (ANSI S4.3)	0.15% DIN (R-to-P)	0.15% DIN (R-to-P)	0.2%	<0.1%	0.095%
Reader Service No.	**841**	**842**	**843**	**844**	**845**

(1) Referenced to 400Hz. (2) Referenced to 250nWb/m at 0VU.

Manufacturer	Ramko Research	Sonifex Ltd.	Telex Communications	UMC Electronics		
Model Number	PhaseMaster RPS-1	Micro HS 200R	MC-II Series	Type 100	Type 200	Type 300 Triple
Other Cart Sizes	Yes	None	BB	None	BB, CC	None
Control System	μP	CMOS logic	TTL logic	TTL	TTL	TTL
Relay Inhibit Circuit	No	Yes	Yes	Yes	Yes	No
Recording Timer	Yes	None	No	No	No	No
Sec/Tertiary Tones	Yes	Yes	Yes	Option	Option	Option
Stereo Phase Correction	Yes	None	No	Option	Option	No
Capstan Motor Type	dc servo	dc servo	dc servo	ac sync	ac sync	ac sync
Capstan Drive Type	Direct	Belt	Belt	Direct	Direct	Direct
Other Play Speeds	15ips	None	3.75ips	None	None	None
Cue Output Form	Relay, solid-state	Solid-state	Relay	Relay or solid-state	Relay or solid-state	Relay or solid-state
Metering Type	Bargraph	VU	VU	VU	VU	.....
Related Mono R/P	.....	Micro HS 100R	MC-P3, MC-PR3	#102-113-034	#202-113-034	#302-111-039
Related Play Only	PS-1	Micro HS 200	MC-PS3, MC-PRS3	#101-123-034	#201-123-034	#301-123-039
Related Multideck	No	3-stack	.....	#301-123-039	.....	.....
Input Connection	Bal active	Bal active	Bal xfmr	Bal xfmr	Bal xfmr	Bal xfmr
Output Connection	Bal active	Bal active	Bal xfmr	Bal xfmr	Bal xfmr	Bal xfmr
AF Response (±dB/Hz)	±1.5/50-16k	±1.5/40-16k	±1/50-15k	+0.5, −1.5/40-20k	+0.5, −1.5/40-20k	+0.5, −1.5/40-20k
S/N Ratio	68dB	48dB	50dB	50dB	50dB	50dB
Crosstalk Pgm-Pgm	−50dB	−50dB	−50dB	50dB, 1kHz & 10kHz	50dB, 1kHz & 10kHz	50dB, 1kHz & 10kHz
Crosstalk Cue-Pgm	−50dB	−50dB	−50dB	50dB	50dB	50dB
Harmonic Distortion	0.3% amplifier	<1.0%	0.5%	0.06%	0.06%	0.06%
Flutter (ANSI S4.3)	0.095% DIN	0.07%	0.05%	0.10%	0.10%	0.06%
Reader Service No.	**846**	**847**	**848**	**849**	**850**	**851**

AUDIO RECORDER, CASSETTE

Recorder/player systems using Philips-type cassette tape materials. Stereo systems include the capability of remote control and are suitable for use in broadcast facilities as a program source.

			Tascam		
Manufacturer	**Neal/Lee James**	**Studer/Revox**			
Model Number	**330(3-track)**	**A710**	**B 710 Mk II**	**122B**	**133B(3-track)**
Tape Speed (ips)	1⅞	1⅞	1⅞	1⅞(3¾)	3¾(1⅞)
Fast Wind Time/C-60	<50 sec	45 sec	45 sec	90 sec	90 sec
Capstan Motor Type	.....	dc servo	dc servo	dc servo	dc servo
Reel Motor Type	.....	dc servo	dc servo	dc	dc
Number of Heads	.....	3	3	3	2
Line Input	100mV/20kΩ, phono	+4dBm, 5kΩ bal	70mV, 10kΩ unbal	+4dBm bal	+4dBm bal
Line Output	600mV, 1kΩ, phono	+4dBu 600Ω bal	0.775 20kΩ unbal	+4dBm 100Ω bal	+4dBm 100Ω bal
Equalization	.....	3180 + 120 or 70μsec	3180 + 120 or 70μsec	3180 + 70 (3180 + 35)μsec	3180 + 35μsec
	.....	.....	.....	.....	.....
Wow/Flutter	0.09% DIN wtd.	0.06% DIN wtd.	0.06% DIN wtd.	0.06%(0.04%) NAB	0.04% NAB
Harmonic Distortion	.....	1.5% 200nWb/m	1.5%, 200nWb/m	1.2%, 160nWb/m, 1kHz	1.5%, 160nWb/m, 1kHz
S/N RAtio	64dB, Dolby, Chrome	72dB II, IV tape	72dB, II, IX tape	58dB, 3%THD 1kHz	55dB, 3%THD 1kHz
AF Response (±dB/Hz)	1, −3/35-15k	2, −3/30-20k	2, −3/30-20k	2/35-14k, metal	3/30-15k
Crosstalk (Adj. channel)	40dB, 1kHz	40dB	40dB	>35dB, 1kHz	>45dB
Integral Noise Reduction	Dolby	Dolby B,C	Dolby B,C	Dolby, dbx II option	Dolby, dbx II option
Cueing Facility	.....	No	No	.....	Yes
Reader Service Number	**888**	**889**	**890**	**891**	**892**

AUDIO RECORDER, Reel-to-Reel

Record/play decks using open reels. Remote controlled units use analog techniques. Tape material widths include ¼-, ½-, 1- and 2-inch formats. Standard operating speeds include A−3.75ips, B−7.5ips, C−15ips and D−30ips.

			Consolidated Electronic Industries
Manufacturer	**AEG-Telefunken**		
Model/Series	**M15A-MS**	**M21-2**	**77MKVIG**
Number of Tracks	2	2	2
Tape Width (inches)	¼	¼	¼
Tape Speeds	B/C	Any two	A/B, B/C
Variable Speed Range	±50% w/SZ15A option	±10%	n.a.
Reel Size Max/Hub Type	10"/NAB, DIN, CINE	12.5"/NAB, DIN, CINE	10.5"/NAB
Number of Heads	.....	.....	.....
Capstan Motor Type	dc servo	dc servo	ac hyst. sync.
Reel Motor Type	ac hyst. sync.	dc servo	ac
Metering Types	.....	.....	.....
Equalization	NAB, CCIR	NAB, CCIR	IEC
Editing Function	Yes	Yes	Yes
SMPTE/Editor Interface	No	No	No
Tape Timer	Electronic	Electronic	Electronic
Cueing Feature	AL15A auto-locate	Search zero, cue	.....
	.....	.....	
Input Connection	Bal, floating	Bal	.....
Output Connection	Bal, floating	Bal	.....
AF Response (±dB/Hz)	1.5/30-15k, 15ips	.....	2/30-20k[3]
Harmonic Distortion	1% 400nWb/m, 1kHz[1]	0.6% 510nWb/m + 6dB[1]	≤1.5% 160nWb/m + 6dB
S/N Ratio (R-to-P)	65dB A wtd	68dB A wtd 15ips	>65dB ANSI wtd 570nWb/m
	.....	.....	
Crosstalk (Adj. Tracks)	−48dB min	−60dB min	−55dB 510nWb/m 1kHz
Related Models	Series includes models from 1 to 32 tracks, with and without Telcom C4 noise reduction	1 and 2 track units	77MKVG ....
Reader Service Number	**401**	**402**	**405**

(1) Measurements referenced to 1kHz. (2) Ref 1040nWb/m, 500Hz, 15ips. (3) Ref to Ampex 406 tape.

Manufacturer	**Enertec/Schlumberger**		**Ferrograph**	**Fostex**	**ITC/3M**
Model/Series	**F462**	**F500**	**SP7S**	**A-Series**	**770 Series**
Number of Tracks	1, 2, 4	1, 2	4	2, 4, 8	2
Tape Width (inches)	¼, ½	¼	¼	¼	¼
Tape Speeds	A/B, B/C, C/D	A/B/C	A/B/C	B/C (C only on 8-Tr)	A/B/C
Variable Speed Range	−50%, +100% Option	±7 halfton	2-16ips	±10%	No
Reel Size Max/Hub Type	11.4"/CCIR, DIN, NAB	11.5"	10.5"/NAB, EIA	7"	10.5"/NAB, EIA
Number of Heads	2	2	3	3	3
Capstan Motor Type	dc servo	dc servo	dc servo	servo	dc servo
Reel Motor Type	dc servo	dc servo	.....	dc	Induction
Metering Types	VU	VU	VU	VU	Tautband A scale
Equalization	NAB, CCIR	NAB, CCIR	NAB, DIN, CCIR, IEC	IEC, NAB	NAB
Editing Function	No	No	No	No	No
SMPTE/Editor Interface	Yes	No	No	No	No
Tape Timer	Electronic	Electronic	Mechanical	Electronic	No
Cueing Feature	Search zero	No	.....	Search zero	No
Input Connection	Bal, xfmr	Bal	Bal	Unbal	Bal xfmr or active
Output Connection	Bal, xfmr	Bal	Bal	Unbal	Bal xfmr or active
AF Response (±dB/Hz)	1/50-12k	1/60-16k, 15ips	2/30-20k, 15ips	<3/45-18k	+2, −3/15-35k[4]
Harmonic Distortion	.....	≤1% NAB 165nWb/m	2%	<1% 0VU 1kHz	0.5%
S/N Ratio (R-to-P)	70dB NAB unwtd	60dB NAB 1040nWb/m	60dB	>63dB	52dB
Crosstalk (Adj. Tracks)	≤−40dB 2-Tr 10kHz	−40dB 2-Tr 10kHz	−75dB 1kHz	−55dB	≤−55dB 1kHz
Related Models	.....	.....	.....	.....	.....
Reader Service Number	**406**	**407**	**408**	**409**	**410**

(4) Ref to 185nWb/m, 400Hz, 7.5ips

AUDIO RECORDER, Reel-to-Reel

Manufacturer	Leevers Rich	Lyrec Manufacturing A/S			MBI/AHB
Model/Series	Proline 1000SC	TR-55	Free Editor "FRED"	TR 532	Series M
Number of Tracks	1, 2	2	2	24	16, 24
Tape Width (inches)	¼	¼, ½	¼	2	2
Tape Speeds	A/B/C	B,C,D	B/C	C/D	C, D
Variable Speed Range	Yes	−50%, +100%	7.5-45ips	7.5-60ips	−50%, +100%
Reel Size Max/Hub Type	11"	14"/NAB, DIN, CINE	10.5"/NAB	10.5"/NAB	14"
Number of Heads	.....	.....	1	3	3
Capstan Motor Type	dc servo	dc servo	dc servo	dc servo	dc servo
Reel Motor Type	dc servo	dc servo	ac hyst sync	dc servo	dc servo
Metering Types	VU	.....	.....	VU	LED ½dB resolution
Equalization	NAB, DIN	NAB, CCIR	CCIR	NAB, CCIR	NAB, IEC, AES
Editing Function	No	Yes	Yes	Yes	.....
SMPTE/Editor Interface	No	Yes	No	Yes	.....
Tape Timer	Mechanical	Electronic	Electronic	Electronic	Electronic
Cueing Feature	.....	Search cue, zero;	No	Search cue, zero;	Search cue, zero;
	.....	auto-locate	.....	auto-locate	auto-locate
Input Connection	.....	.....	.....	Bal floating	Bal active
Output Connection	.....	.....	.....	Bal floating	Bal active
AF Response (±dB/Hz)	1/100-10k, 15ips	1/60-18k, 15ips	.....	1/60-16k, 15ips	2/30-20k, 15ips
Harmonic Distortion	1%, 15ips	.....	.....	.....	1% 320nWb/m[5]
S/N Ratio (R-to-P)	58dB, 2-TR, 15ips	68dB, 15ips	,,,,,	63dB, RMS A wtd	65dB 510nWb/m
	.....	.....	.....	15ips	.....
Crosstalk (Adj. Tracks)	× +55dB, 1kHz	−40dB, 510nWb/m,	.....	−46dB, 1kHz	−50dB, 1kHz
	.....	1kHz	.....	.....	.....
Related Models	Proline 1000	.....	.....	.....	.....
	Proline 2000	.....	.....	.....	.....
Reader Service Number	**411**	**412**	**413**	**414**	**415**

(5) Ref with 1kHz and Ampex 456 tape.

Manufacturer		MCI/Sony		Mechlabor/ Electroimpex	Nagra/Kudelski
Model/Series	JH-110B-3LB	JH-110B Series	JH-24 Series	300 Series	T-Audio
Number of Tracks	3	1, 2, 4	8, 16, 24	2	1, 2
Tape Width (inches)	1" C Video	¼, ½	to 2	¼	¼
Tape Speeds	9.606ips	B/C/D	C/D	B/C	A/B/C/D
Variable Speed Range	6-11.2ips	±20%	±20%	No	±6%
Reel Size Max/Hub Type	10.5"/NAB	14"/NAB	11.8"/NAB, AEG	../DIN, NAB, CINE	11.8"/NAB, AEG
Number of Heads	3	3	3	.....	4
Capstan Motor Type	dc servo	dc servo	dc servo	ac	dual dc servo
Reel Motor Type	.....	dc servo	dc servo	ac	.....
Metering Types	VU	VU	VU	.....	VU
Equalization	NAB	NAB, IEC	NAB, IEC	NAB or CCIR	NAB, CCIR
Editing Function	.....	No	Electronic	No	Servo ctl option
SMPTE/Editor Interface	Yes	Yes	Yes	No	Option
Tape Timer	Electronic	Electronic	Electronic	.....	Electronic
Cueing Feature	Auto-locate	Auto-locate	Auto-locate	Manual w/cue amp	Yes
Input Connection	Bal	Bal	Bal	.....	Bal floating
Output Connection	Bal	Bal	Bal	.....	Bal floating
AF Response (±dB/Hz)	0.75, −1.5/30-20k	0.75, −2/30-24k, 15ips	1.5, −3/36-24k	−/30-15k, 15ips	1/30-20k
Harmonic Distortion	.....	<0.52%, 1020nWb/m	0.35%	.....	0.7% NAB, 15ips
S/N Ratio (R-to-P)	61dB	>64dB, 2-Tr	67dB, 30ips	67dB, 15ips	>73.5dB NAB, 15ips
Crosstalk (Adj. Tracks)	.....	.....	.....	.....	<−40dB, 10kHz
Related Models	.....	JH-110C-8 8-Track	.....	.....	.....
Reader Service Number	**416**	**417**	**418**	**419**	**420**

Manufacturer	Nagra/Kudelski	Otari Corporation			
Model/Series	E Portable	MX5050 BQ-II	MTR-10	MTR-90-II	MX 7800
Number of Tracks	1	2, 4	2, 4	8, 16, 24	8
Tape Width (inches)	¼	¼	¼, ½	1, 2	1
Tape Speeds	B	A, B, C	A, B, C, D	C/D	B/C/D
Variable Speed Range	No	±0.2%	±20%	±20%	±15%
Reel Size Max/Hub Type	10.5"/NAB	10.5"/NAB	10.5"/NAB	14"/NAB	10.5"/NAB
Number of Heads	3	4	.....	.....	.....
Capstan Motor Type	dc servo	dc servo	dc servo	dc servo	dc servo
Reel Motor Type	.....	ac sync	dc servo	dc servo	ac servo
Metering Types	VU	VU	VU	VU	.....
Equalization	NAB, CCIR	NAB	NAB, IEC	NAB, DIN, IEC, CCIR	NAB, IEC
Editing Function	No	No	No	Electronic	Yes
SMPTE/Editor Interface	Yes	No	Note 6	Note 6	Yes
Tape Timer	.....	Electronic	Electronic	Electronic	Electronic
Cueing Feature	Yes	No	Search zero;	Search zero;	Search zero
	.....	.....	auto-locate	auto-locate	.....
Input Connection	.....	Unbal active	Bal active	Bal active	.....
Output Connection	.....	Unbal active	Bal active	Bal active	.....
AF Response (±dB/Hz)	2/50-15k	2/30-20k[7]	0.5,-2/55-26k[9]	1.5,-3/42-29kHz[9]	.....
Harmonic Distortion	<0.9%	0.7%	0.2%	0.1%	0.7%, 185nWb/m, 1kHz
S/N Ratio (R-to-P)	62dB wtd	66dB 3% THD	75dB 3% THD	75dB, 3% THD	72dB unwtd, 30ips
Crosstalk (Adj. Tracks)	n.a.	−55dB, 1kHz	−45dB, 12kHz	−55dB, 1kHz	50dB, 185dB, 1kHz
Related Models	.....	MX5050B-II	.....	.....	.....
	.....	5050 Mark III[8]	.....	.....	.....
Reader Service Number	**421**	**422**	**423**	**424**	**425**

(6) Adams-Smith, Audio Kinetics, BTX, Convergence and EECO interfaces available. (7) Ref. to 250nWb/m, 15ips. (8) 5050 Mark III is 2, 4, 8-track and does have auto-locate cueing. (9) Ref. 250nWb/m, 30ips.

AUDIO RECORDER, Reel-to-Reel

Manufacturer	L J Scully Mfg. Corporation	Solidyne s.r.l.	Soundcraft Electronics	Stellavox	
Model/Series	LJ-7	GMS-202	SCM760	SP8 Portable	TD88
Number of Tracks	2	2	24	1, 2, 3	8 max
Tape Width (inches)	¼	¼	2	¼	¼, ½, 16mm
Tape Speeds	A, B, C, D	A/B/C	C, D	B	A/B/C/D, 24/25fps
Variable Speed Range	3-36ips	±20%	+10%, −50%	±10%	Yes
Reel Size Max/Hub Type	11.5"/NAB, EIA	10.5"	.....	5"	14"/NAB, DIN, CINE
Number of Heads	5 positions	.....	.....	3 or 4	.....
Capstan Motor Type	dc servo	dc servo	dc servo	dc servo	dc servo
Reel Motor Type	dc servo	dc servo	dc servo	.....	Patented
Metering Types	VU, peak LED	.....	.....	.....	.....
Equalization	NAB, IEC	NAB, IEC, CCIR	NAB, DIN, IEC, CCIR, AES	Option	NAB option
	.....	.....	.....	.....	.....
Editing Function	No	Yes	.....	No	No
SMPTE/Editor Interface	Via accessory conx	CP-900	Type D only	SQS Option	Yes
Tape Timer	Electronic	Electronic	Electronic	Mechanical	Electronic
Cueing Feature	Search zero	Search cue, zero; auto-locate	Search cue, zero; auto-locate	No	No
	.....	.....	.....	.....	.....
Input Connection	Bal active	.....	Bal active	Bal	Bal floating
Output Connection	Bal active	.....	Bal active	Bal	Bal floating
AF Response (±dB/Hz)	1, −2/30-24K[10]	−/to 15k	1, −2/40-20k[11]	2/30-18k	2/30-20k
Harmonic Distortion	0.75%	0.05%, 400Hz	.....	2%	1%, 15ips
S/N Ratio (R-to-P)	65dB 510nWb/m	74dB ANSI wtd	.....	67dB	65dB, 15ips
Crosstalk (Adj. Tracks)	−60dB	60dB, 1kHz	−55dB	45dB, 1kHz	.....
Related Models	.....	.....	.....	.....	.....
Reader Service Number	**426**	**427**	**428**	**429**	**430**

(10) Ref. 200nWb/m, 1kHz, 15ips. (11) Ref. 320nWb/m, 1kHz, 15ips.

Manufacturer	Studer Revox America			TASCAM	
Model/Series	**A810**	**PR99**	**A800 Mk III**	**32**	**58**
Number of Tracks	1, 2	1, 2	8, 16, 24	2	8
Tape Width (inches)	¼	¼	1, 2	¼	½
Tape Speeds	A, B, C, D	A/B C/D	C, D	B/C	B, C
Variable Speed Range	±45%	±30%	±45%	±12%	±15%
Reel Size Max/Hub Type	11.1"/NAB, EIA, DIN IEC, CCIR, AEG, CINE	10.5"/NAB, DIN	14"/NAB, EIA, DIN	10.5"/NAB, EIA	10.5"/NAB .....
Number of Heads	3	3	3	.....	3
Capstan Motor Type	ac servo	ac servo	ac servo	dc servo	dc servo
Reel Motor Type	2 ac servo	2 ac servo	2 ac servo	dc	servo ctl dc
Metering Types	VU/PPM switchable	VU, peak LED	VU	.....	VU, peak LED
Equalization	NAB, CCIR	NAB, CCIR	NAB, CCIR	NAB	IEC
Editing Function	Yes	Yes	Yes	Yes	Dump
SMPTE/Editor Interface	Yes	No	Yes	No	Yes
Tape Timer	Electronic	Manual	Electronic	Electronic	Electronic
Cueing Feature	Search cue, zero; Auto-locate	No	Search cue, zero; Auto-locate	Search zero	Search cue, zero; Auto-location option
Input Connection	Bal xfmr or active	Bal xfmr	Bal xfmr or active	.....	Bal active
Output Connection	Bal xfmr or active	Bal xfmr	Bal xfmr or active	.....	Bal active
AF Response (±dB/Hz)	1/20-30k[12]	2, −3/30-22k[13]	2/30-20k[12]	.....	3/40-24k[13]
Harmonic Distortion	1%	0.1%	1%	0.8%, 250nWb/m 1kHz	0.8% Note 14
S/N Ratio (R-to-P)	72dB 2-tr, Ref + 6dB	66dB, 500nWb/m	70dB 8-tr, 1020nWb/m	68dB, NAB A wtd	69dB NAB wtd
Crosstalk (Adj. Tracks)	−70dB	−60dB 225nWb/m	−40dB, 80Hz-12kHz	50dB, 250nWb/m 1kHz	≤ −55dB, 1kHz
Related Models	.....	.....	.....	34 − 4-Track	Model 48
	.....	.....	.....	38 − 8-Track	Model 44 ¼" 4-Track
Reader Service Number	**431**	**432**	**433**	**434**	**435**

(12) Ref. 510nWb/m, 1kHz, 15ips. (13) Ref. 250nWb/m, 1kHz, 15 ips. (14) 3% THD is Ref + 13dB, 1kHz.

Manufacturer	TASCAM	Technics/Panasonic	Telex Communications		Trident
Model/Series	**52**	**RS-10A02**	**Model 3000**	**1400**	**TSR Series**
Number of Tracks	2	2	1, 2, 4	1, 2, 4	24, 16
Tape Width (inches)	¼	¼	¼	¼	2
Tape Speeds	B, C	A, B, C	A, B, C	A/B/C & 1⅞	C/D, B/C option
Variable Speed Range	±15%	±6%	No	No	8-42ips
Reel Size Max/Hub Type	10.5"/NAB	10.5"/NAB, EIA	10"/NAB	10"/NAB, EIA	14"/NAB
Number of Heads	3	3	To 4	.....	.....
Capstan Motor Type	dc servo	dc servo	ac sync	dc servo	dc servo
Reel Motor Type	dc servo ctl	dc	ac sync	ac	dc servo
Metering Types	VU, peak LED	.....	.....	.....	VU
Equalization	NAB, IEC, CCIR	NAB, IEC, CCIR	NAB, EIA, DIN, IEC, CCIR	NAB, EIA	.....
	.....	.....	.....	.....	.....
Editing Function	Dump	No	Dump	Yes	Yes
SMPTE/Editor Interface	Yes	No	No	No	Yes
Tape Timer	Electronic	Mechanical	Mechanical	.....	Electronic
Cueing Feature	Search cue, zero;	.....	Search cue	Search cue	Auto-locator
Input Connection	Bal active	.....	Bal xfmr	.....	Bal
Output Connection	Bal active	.....	Bal xfmr	.....	Bal
AF Response (±dB/Hz)	2/30-24k[13]	3/20-20k, 7.5ips	3/30-18k[15]	.....	2/40-20k, 15ips
Harmonic Distortion	0.8% Note 14	0.8% 185nWb/m	0.2% 160nWb/m	1%	0.5%, 1kHz 250nWb/m
S/N Ratio (R-to-P)	70dB NAB wtd	67dB A wtd	55dB 160nWb/m	60dB NAB wtd	63dB, 15ips 520nWb/m
Crosstalk (Adj. Tracks)	−60dB, 1kHz	−50dB, 1kHz	50dB 250nWb/m	50dB	−50dB, 1kHz
Related Models	Model 42 with mic/line input mixing	....	....	....	....
Reader Service Number	**436**	**437**	**438**	**439**	**440**

(15) Ref 160nWb/m, 1kHz, 7.5ips.

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Audio Recorders
Entertec Schlumberger 23
Tascam 13

PHONOGRAPH TURNTABLE

Non-automatic, suitable for the broadcast/production studio environment. Platter typically aluminum. Operation from 115Vac, 60Hz. Tonearm and cartridge not included. Mounting method dependent upon installation.

Manufacturer	Broadcast Electronics		EMT-Franz/Gotham		LPB Inc.
Model Number	**Galaxy II**	**12C**	**EMT 950(1)**	**EMT 948(1)**	**S-7A**
Drive System	Rim idler	Rim idler	Direct	Direct	Rim Idler
Motor Type	dc Hall effect	ac synchronous	dc servo	dc servo	ac synchronous
Speeds(rpm):	Variable(15-85)	3(78,45,33⅓)	3(78,45,33⅓)	Variable & 3 fixed	3(78,45,33⅓)
Speed Display	LED	Lever position	Lighted push-button	Switch position	Position of lever
Pitch Control	±10% of speed	No	Limited	Possible	No
Start Time(33⅓rpm)	0.1s	0.125s	0.2s	0.5s	1/16rev.
Rumble	−38dB per NAB	−38dB per NAB	70dB, weighted	70dB, DIN 45539	−48dB per NAB
Wow/Flutter	0.14%/0.14%	0.1%/0.1%	0.05%, DIN 45507	±0.075%, DIN 45507	0.1%
Platter Diameter/Weight	11.9"/5 lb	11.9"/5.5lb	13"	12.9"	12"/5.5 lb
Speed Change Control	Electronic	Mechanical lever	Push-button	Electronic	Mechanical lever
Base Size	16.4"Wx17.1"D	15"Wx15.5"D	27.6"Wx18.4"Dx13.2"H	18.3"Wx18.9"Dx9.4"H	15.5"Wx15.5"D
Clearance	2.5" below tabletop	5" below frame	.....	6.2" below panel	5" below chassis
Tonearm Included	No	No	EMT 929	Yes	No
Reader Service Number	**200**	**201**	**202**	**203**	**204**

(1) EMT systems include preamp electronics.

PHONOGRAPH TURNTABLE

Manufacturer	McMartin Industries	MicroTrak		Ramko Research	
Model Number	**TT-12C**	**740**	**720**	**SL-1200MK2/Technics**	**SP-10MKII/Technics**
Drive System	Rim idler	Rim idler	Rim idler	Direct	Direct
Motor Type	ac synchronous	ac synchronous	ac synchronous	dc servo	dc servo
Speeds(rpm)	3(78,45,33⅓)	3(78,45,33⅓)	3(78,45,33⅓)	2(45,33⅓)	3(78,45,33⅓)
Speed Display	Position of lever	Position of lever	Position of lever	LED	.....
Pitch Control	No	No	No	±9.9%, 0.1% steps	.....
Start Time(33⅓rpm)	1/16rev.	1/16rev.	1/16rev.	0.7s	1/12rev.
Rumble	−48dB per NAB	−36dB per NAB	−36dB per NAB	−73dB per DIN B	−70dB per DIN B
Wow/Flutter	0.1%	0.3%	0.3%	0.02%	0.025%
Platter Diameter/Weight	12"/5.5 lb	12"/6.5 lb	12"/5.5 lb	.....	.....
Speed Change Control	Mechanical lever	Mechanical lever	Mechanical lever	Electronic	Electronic
Base Size	15"Wx15.5"D	15.5"Wx15.5"D	15.5"Wx15.5"D	.....	.....
Clearance	.....	7.5" below chassis	6.5" below chassis	.....	.....
Tonearm Included	No	MicroTrak 303	MicroTrak 303	Yes	No
Reader Service Number	**205**	**206**	**207**	**208**	**209**

PHONOGRAPH TURNTABLE

Manufacturer	Russco		Technics/Panasonic		Thorens/Gertatewerk
Model Number	**Mark V Broadcast**	**Studio-Pro**	**SL-1015**	**SL-1025**	**TD126 Mk III**
Drive System	Belt-isolated rim	Rim idler	Direct	Direct	Belt
Motor Type	dc Hall effect	ac synchronous	dc heteropole	dc brushless	dc servo
Speeds(rpm)	2(45,33⅓)	2(45,33⅓)	3(78,45,33⅓)	2(45,33⅓)	3(78,45,33⅓)
Speed Display	LED	Indicator lamps	LED	Strobe indicator	.....
Pitch Control	±10%	No	±9.9%	±6%	.....
Start Time(33⅓rpm)	1/36rev.	1/16rev.	0.4s	0.7s	.....
Rumble	−68dB per DIN B	−38dB per NAB	−78dB per DIN B	−78dB per DIN B	−72dB per DIN
Wow/Flutter	0.075%	0.2%	0.008%	0.01%	0.04%
Platter Diameter/Weight	12"/6.5 lb	12"/6.5 lb	13.3"/5.9 lb	13.3"/4.4 lb	12"/4.73 lb
Speed Change Control	Electronic	Mechanical lever	Electronic	Electronic	Push-button
Base Size	15.5"Wx15.5"D	15.5"Wx15.5"D	22"Wx18"D	20.7"Wx16.5"D	.....
Clearance	4" below tabletop	7.5" below chassis	.....	.....	.....
Tonearm Included	No	No	EPA-A501H	EPA-A250	TP16 MkIII
Reader Service Number	**210**	**211**	**212**	**213**	**214**

WIRELESS MICROPHONE SYSTEM

FM-modulated carrier system. Typical equipment uses hand-held, body-pack or pocket-sized transmitting units with rack-mounted or tabletop receiving sets for in-studio or limited distance on-set requirements. Intended for program audio quality.

		Cetec Vega			
Manufacturer	**Eugen Beyer**				
Model Number	.....	**77B/R-41**	**T-81/R-31**	**T-83/R-42**	**77B/66**
RF Frequency Band	150-225MHz(US)(1)	150-216MHz	150-216MHz	150-216MHz	150-216MHz
Diversity Receiving	NE 185.11 option	No	No	Yes	No
Simultaneous Channels	1 (3 optional)	2 in receiver	2 in receiver	1	1
Typical Range	.....	800 ft	800 ft	800 ft	800 ft
AF Response (± dB/Hz)	– 2/40-20k	0.75/100-12k	0.75/100-12k	0.75/100-12k	0.75/100-12k
Harmonic Distortion	0.5%	0.15%	0.2%	0.15%	0.2%
Modulation Control	Limiting, compander	Compression	Dynex compression	Dynex compression	Compression
Transmitter Number	**S185 US Hand-held**	**77B Dynex II**	**T-81 Hand-held**	**T-83 Hand-held**	**77B Dynex II**
RF Power Output	35mW	50mW	50mW	50mW	50mW
FM Deviation (±)	13kHz	15kHz	15kHz	15kHz	15kHz
Microphone	Adapts to various	External	SM58 element	AKG C535 element	External
Line Input	No	No	No	No	No
Level Control	.....	Manual	Manual	Manual	Manual
Power Requirement	9Vdc	9Vdc	9Vdc	9vdc	9Vdc
Operating Weight	360g	5 oz w/battery	13 oz w/battery	9 oz	5 oz w/battery
Receiver Number	**NE 185**	**R-41**	**R-31**	**R-42**	**66 Portable**
Sensitivity	1μV	0.7μV, 20dB quieting	0.7μV, 20dB quieting	0.7μV, 20dB quieting	0.7μV, 20dB quieting
Spurious Rejection	– 75dB	– 95dB	– 85dB	– 95dB	– 85dB
AF Line Output	+ 6dBm	+ 20dBm	+ 10dBm	+ 20dBm	+ 10dBm
AF Mic Output	– 20dBm	– 60dBm	– 60dBm	– 60dBm	– 52dBm
Carrier Indicator	Yes	Yes	Yes	Yes	Yes
Power Requirement	117Vac, 15-27Vdc	115Vac, 15Vdc	115Vac, 12Vdc	115Vac, 15Vdc	12Vdc
Antenna	.....	Whip included	Whip included	Dipoles included	Whip
Reader Service Number	**260**	**261**	**262**	**263**	**264**

(1) UK version allows ±65kHz deviation in 135-190MHz spectrum.

	Coherent		Edcor		**HM Electronics**	**Nady Systems**
Manufacturer	**Communications**					
Model Number	**Model A/J**	**E COM Highband**	**E COM Highband**		.....	**VHF700**
RF Frequency Band	150-240MHz	150-216MHz	150-216MHz		150-216MHz	150-216MHz
Diversity Receiving	No	No	Yes		Option	Yes
Simultaneous Channels	1	1	1		1	1
Typical Range	¼-mile	¼-mile	¼-mile		¼-mile	¼-mile
AF Response (± dB/Hz)	2/80-20k	2/200-16k	2/200-16k		3/50-15k	3/25-20k
Harmonic Distortion	2% max	1%	1%		1%	0.6%
Modulation Control	.....	Soft compression	Soft compression		Dynamic expansion	Compansion
Transmitter Number	**Model A**	**E COM 1 Lavaller**	**E COM 1 Hand-held**		**TX852 Hand-held**	**VHF900**
RF Power Output	50mW	100mW	100mW		50mW	50/125mW
FM Deviation (±)	12kHz	7.5kHz	7.5kHz		15kHz	15kHz
Microphone	Dynamic or electret	Various	EV 671 element		Internal	Any external
Line Input	.....	No	No		No	.....
Level Control	Manual	Manual	.....		Automatic	.....
Power Requirement	9Vdc	9Vdc	12Vdc		9Vdc	9Vdc
Operating Weight	10.5 oz	0.66 lb w/o battery	8.7 oz w/o battery		11 oz w/battery	4 oz
Receiver Number	**Model J**	**E COM 3 (2)**	**E COM 5**		**RX 722**	**VHF 700**
Sensitivity	0.8μV, 12dB SINAD	1μV, 12dB SINAD	1μV, 20dB quieting		1μV, 30dB quieting	.....
Spurious Rejection	– 85dB	– 70dB	– 70dB		– 50dB	– 100dB
AF Line Output	+ 10dBm	Yes	3Vp-p		+ 18dBm	0dBm
AF Mic Output	Std. mic level	100mV	100mV		± 3dB	– 52dBm
Carrier Indicator	Yes	Yes	Yes		Yes	Yes
Power Requirement	9Vdc	115Vac, 12Vdc	115Vac, 12Vdc		12-30Vdc	120Vac, 12-18Vdc
Antenna	.....	Telescoping, included	Yes		Telescoping	2 whips
Reader Service Number	**265**	**266**	**267**		**268**	**269**

	RF Technology		Sennheiser		Sony Corporation
Manufacturer					
Model Number	**RM-102**	**RM-100**	**SK1010-9/EM1010-4**	**SK1007/EM1026**	**WRT27A/WRR-37**
RF Frequency Band	947-952MHz	947-952MHz	181/205MHz(TV8-12)	30-45MHz	947-952MHz
Diversity Receiving	Yes	Yes	w/2 EM1010-4	Possible	Yes
Simultaneous Channels	1	5	5	6	2 possible
Typical Range	500 ft	500 ft	.....	.....	to 300 ft w/WP-27 amp
AF Response (± dB/Hz)	1/50-10k	1/50-10k	3/40-20k	3/40-20k	0.5/200-15k
Harmonic Distortion	1% w/AGC	1% w/AGC	3%	1.5%	<0.3%
Modulation Control	Soft limiting	Soft limiting	Compression	Limiting	.....
Transmitter Number	**Standard unit**	**Standard unit**	**SK1010-9**	**SK1007**	**WRT27A (w/WP-27 Amp)**
RF Power Output	50mW	50mW	50mW	100mW	30mW (500mW)
FM Deviation (±)	50kHz	50kHz	16kHz	40kHz	150kHz
Microphone	External	External	MKE2010,MKE4010	MK12	Various
Line Input	No	No	.....	.....	.....
Level Control	Manual	Manual	Manual	Manual	Manual
Power Requirement	.....	.....	9Vdc	9Vdc	9Vdc
Operating Weight	12.5 oz w/battery	12.5 oz w/battery	8 oz w/battery	14 oz	7 oz
Receiver Number	**RM-102**	**RM-100**	**EM1010-4**	**EM1026**	**WRR-37**
Sensitivity	.....	.....	2.5μV	.....	.....
Spurious Rejection	– 70dB	– 70dB	.....	.....	.....
AF Line Output	.....	+ 8dBm	1.55V	1.55V	.....
AF Mic Output	– 50dBm	– 50dBm	.....	.....	– 64dBm
Carrier Indicator	.....	.....	Yes	Yes	Yes
Power Requirement	115Vac, 12Vdc	115Vac, 12Vdc	110Vac, dc	110Vac	On-board battery
Antenna	2 for diversity	2 for diversity	TA203 included	GZA1000	Supplied
Reader Service Number	**270**	**271**	**272**	**273**	**274**

WIRELESS MICROPHONE SYSTEM

Manufacturer	Swintek		Telex Communications		
Model Number	**Mark 3-50A VHF**	**Mark 2L/50-dB UHF**	**dB-S 5000 Series**	**WT-100/FMR-1**	**WHM-300/FMR-1(2)**
RF Frequency Band	174-216MHz	400-470MHz	174-216MHz	150-216MHz	150-216MHz
Diversity Receiving	Mark 9-2 Option	Mark 9-2 Option	Mark 9-2 Option	Yes	Yes
Simultaneous Channels	1	1	1	1	1
Typical Range	ca. 2000 ft	ca. 2000 ft	ca. 2000 ft	1200 ft	1000 ft
AF Response (±dB/Hz)	2/30-10K	2/30-10K	2/30-12K	2/50-15K	2/50-15K
Harmonic Distortion	0.7%	0.7%	0.7%	1%	1%
Modulation Control	Compress/limit	Compress/limit	Compression	Compress/limit	Compress/limit
Transmitter Number	**WMS-111-50A**	**RMS-111-TS/UHF**	**Mark 50A/dBs**	**WT-100**	**WHM-300(2) Hand-held**
RF Power Output	.....	25mW	50mW	50mW max	15mW
FM Deviation (±)	10kHz	10kHz	10kHz	12kHz	12kHz
Microphone	Various	Various	Various	WLM-100 or Low Z	Electret, contained
Line Input	No	No	Yes	.....	.....
Level Control	Manual	Manual	Manual	Manual	Manual
Power Requirement	9Vdc	9Vdc	9Vdc	9Vdc	9Vdc
Operating Weight	5 oz	10 oz	5 oz	5.4 oz	.....
Receiver Number	**Mark 3**	**2L/UHF/dBs**	**Mark I dBs**	**FMR-1**	**FMR-1**
Sensitivity	0.25μV, 12dB SINAD	0.4μV, 12dB SINAD	0.25μV, 12dB SINAD	<1μV, 12dB SINAD	<1μV, 12dB SINAD
Spurious Rejection	.....	70dB	70dB	>70dB	>70dB
AF Line Output	6dBV, 100Ω bal.	10dBV, 100Ω bal.	To 10dBV, 100Ω	+10dBm	+10dBm
AF Mic Output	−30dBV, 250Ω bal	−30dBV, 250Ω bal.	−36dBV, 250Ω bal.	−50dB	−50dB
Carrier Indicator	Yes	Yes	Yes	Yes	Yes
Power Requirement	12Vdc int/ext	110Vac, ext. dc	115Vac, ext. dc	110Vac, 12Vdc	110Vac, 12Vdc
Antenna	Various	Various	Various	5/8λ included	5/8λ included
Reader Service Number	**275**	**276**	**277**	**278**	**279**

(2) WHM-400 transmitter uses self-contained dynamic microphone.

WIRELESS MICROPHONE SYSTEM

Remote Pickup Unit. Portable and/or carriable transmitter equipment, battery-operated or ac-powered, for transmission of program audio from a remote location to receiving equipment at the studio.

Manufacturer	Comrex Corporation		Marti		
Model Number	**450 TA**	**HHT-1KA**	**RPT2/RR-100**	**RPT25/RR-100**	**RPT-15/RR-100**
RF Frequency Band	450-451, 455-456MHz	450-451, 455-456MHz	450MHz	450MHz	150/450MHz
Diversity Receiving	No	No	Option	No	Option
AF Response (± dB/Hz)	1/100-6k	1/100-6k	1.5/50-15k	1.5/50-15k	1.5/50-15k
Signal/Noise Ratio	60dB	60dB	58dB	58dB	58dB
Harmonic Distortion	1%	1%	1%	1%	1%
Modulation Control	Automatic	Automatic	Compress/limit	Compress/limit	Compress/limit
Typical Useful Range	0.5 miles	2 miles	.....	.....	.....
Transmitter Model Number	**450 TA**	**HHT-1KA**	**RPT2**	**FPT-25**	**RPT-15**
RF Power Output	150mW	1W	2.5W	25W	15W
Deviation (±)	5kHz	5kHz	17.5kHz	17kHz	17.5kHz
Mic Impedance	150Ω	Built-in electret	External	External	External
Line Input	No	Yes	Yes	Yes	Yes
Level Control	.....	.....	Automatic	Automatic	Automatic
Power Requirement	9Vdc	9Vdc	112Vac, 12.6Vdc	112Vac, 12.6Vdc	13Vdc, 120Vac
Operating Weight	11 oz	14 oz	5.25 lb	20 lb	9.25 lb
Receiver Model Number	**450 RA**	**RRB**	**RR-100**	**RR-100**	**R-100**
Sensitivity	1μV	1μV	0.5μV, 20dB quieting	0.5μV, 20dB quieting	0.5μV, 20dB quieting
Spurious Rejection	80dB	80dB	90dB	90dB	90dB
AF Output Line Level	.....	−10,0dBm	+6dBm	+6dBm	+6dBm, balanced
AF Output Mic Level	−50dBm, 150Ω	.....	No	No	No
Carrier Indicator	.....	Yes	Yes	Yes	Yes
Power Requirement	2 9Vdc alkaline	110Vac, 12Vdc	115Vac, 13Vdc	115Vac, 13Vdc	110Vac, 13Vdc
Antenna	1/4 whip or external	External	Rubber duck	Option	Option
Reader Service Number	**280**	**281**	**282**	**283**	**284**

WIRELESS MICROPHONE SYSTEM

Manufacturer	McMartin		Moseley		Sennheiser
Model Number	**RPU-1403/RPU-1450R**	**RPU-1103/RPU-1150R**	**RPL-3A**	**RPL-4A(1)**	**SER1-4/ER-3**
RF Frequency Band	450-470MHz	150-175MHz	148-174MHz	450-470MHz	25-110MHz
Diversity Receiving	No	No	Possible	Possible	No
AF Response (± dB/Hz)	1/30-10k	0.75/50-7.5k	1.5/30-7.5k	1.5/30-7.5k(1)	3/30-12k
Signal/Noise Ratio	60dB	60dB	55dB min	55dB min	60dB
Harmonic Distortion	1%	1%	<1.3%, 1kHz	<1.3%kHz	3%
Modulation Control	Compression	Compression	Limiter	Limiter	Limiter
Typical Useful Range	.....	.....	To 20 miles	To 20 miles	.....
Transmitter Model Number	**RPT-1403**	**RPU-1103**	**RPL-3A**	**RPL-4A**	**SER1-4**
RF Power Output	3W	3W	10W, 13W max	10W, 13W max	10W
Deviation (±)	10kHz	5kHz	5kHz	5kHz	15kHz
Mic Impedance	Low Z	50, 150, 600Ω	150Ω	150Ω	Low Z
Line Input	Yes	Yes	Yes	Yes	Yes
Level Control	.....	.....	Yes	Yes	Yes
Power Requirement	12Vdc	12Vdc	110Vac, 13.5Vdc	110Vac, 13.5Vdc	15Vdc
Operating Weight	6 lb	6 lb	16 lb	16 lb	9.7 lb
Receiver Model Number	**RPU-1450R**	**RPU-1150R**	**RPL-3A**	**RPL-4A**	**ER-3**
Sensitivity	0.5μV, 20dB quieting	0.5μV, 20dB quieting	1μV, 20dB quieting	1μV, 20dB quieting	2.5μV, 26dB quieting
Spurious Rejection	65dB	65dB	65dB below carrier	65dB below carrier	80dB
AF Output Line Level	+10dBm, balanced	+10dBm, balanced	+10dBm	+10dBm	1.5V, 300Ω bal.
AF Output Mic Level	.....	.....	.....	.....	.....
Carrier Indicator	Yes	Yes	Yes	Yes	Yes
Power Requirement	120Vac	120Vac	110Vac	110Vac	12-16Vdc
Antenna	50Ω	50Ω	Not provided	Not provided	50Ω
Reader Service Number	**285**	**286**	**287**	**288**	**289**

(1) RPL-4B provides response of 30Hz-10kHz, with special option to 15kHz.

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Wireless Microphones

VIDEO EQUIPMENT

Guide to buying a video editor

The obvious reason to purchase an electronic video editor is to increase production quality and quantity, while decreasing production time. Even though editing systems are expensive, money can be saved in post-production if time-saving off-line/on-line editing techniques are used. The cost of a system can range from a few thousand dollars to more than $100,000. The less expensive and less sophisticated system may save money at purchase time, but only with an added increase in operating time.

A second reason to purchase a video editor is to enhance creativity of the operating editor. It is the operator's skill that is of prime importance. The degree to which he uses the skill depends upon the tools provided to accomplish the job.

What kind should I buy?

One factor in deciding what editing system to purchase depends upon the intended use and work performed at the facility. If your work is purely off-line, then a basic 2-machine editor may well be satisfactory. If you work off-line for later on-line assembly, then a 2- or 3-machine editor with memory and edit list capability would be more suitable. For purely on-line work, a system for three or more machines with switcher control, memory, auto assembly and list management is recommended. Off-line/on-line vs. on-line editing is an economic debate; the former approach does not tie up personnel and equipment during the creative process. Full capacity, however, is not usually available.

A second factor in selecting an editing system depends upon your facility:

- A small TV station requires simple straight cuts, key-in titles, insert commercials and news program editing. The larger station may offer full post-production capability for commercial and program production. Network facilities or their affiliates may require an in-house, full-scale production setup.
- The major post-production facility, selling services, needs the entire range of capabilities of a super editor.
- Smaller specialty-oriented post-production facilities usually involve ¾-inch and ½-inch material ultimately for the consumer market. Special purpose designs for such an editing system are available.
- Corporate communications departments need something capable of high volume output with operational simplicity.
- Educational facilities' needs vary from minimal sophistication for how-to instructions to full-scale, post-production systems.

Another important factor for consideration is growth needs. An editing system should provide for present requirements but allow for expandability for the future. The product should allow for growth from one operational stage to another in hardware and software structures, accommodate new innovations in technology, changes to videotape recorders, switchers or other external devices which it is expected to control. Expandability should be identified at the outset as a means to protect the initial investment and to allow additional charges to be made for added capabilities, not rebuilding of the basic unit.

Finally, budget is also a determining factor in the purchase. The more spectacular the editing effect, the more spectacular the dollars invested in the editing system.

Buying considerations

Compare the capabilities and features of various editing systems of the same general price category. (Table I lists what you might expect on a top-of-the-line system, but with realistic limits to aid in comparing any system.)

- Separate essential capabilities and features and their costs from the non-essential "bells and whistles."
- Do not confuse product-pricing with product-value. One product may cost more than another in the same price category.
- Compare repeatability of edit points. Quality editing requires a return to or location of precise, predetermined points.
- Evaluate quality of construction.
- Verify good engineering practices. Look for proper ventilation and expandability. Will the power supply support continuous operation?
- Has maintenance been considered, with the use of modular construction and component identification on the circuit boards?
- Inquire about components. Are replacements available locally.
- Study operational complexity. How many operations are required to finish one task? Are the steps logical? How many key strokes are required for one function?
- Does the system include custom interfaces and proper length cables for the intended installation?
- Does the system price include installation and training.
- Become familiar with warranty details.
- Separate fact from fiction in function, construction, reliability and specific value.
- Is the manufacturer customer-oriented? Is factory/field service available when problems occur? Are repair parts available on short notice?

Capabilities and features to expect for your dollar

Edit modes—At any price range, the buyer should expect assemble and insert capability. Some current systems may involve insert or assemble, but not both.

Table I.
Items to consider when comparing editing controller equipment

Standard:	
Controller for	At least 3 VTRs
Number of recorders	Any #
Number of players	Any #
Edit event storage	999
Microprocessor control	Yes
CRT edit data display	Yes
Assemble editing mode	Yes
Insert editing mode	Yes
Frame trimming	Yes
Control track reference	Yes
VTR speed control	Yes
Editing accuracy	± 0 frames
On-the-fly marking	Yes
Printer output (RS232)	Yes
Drop/non-drop frame	Yes
SMPTE time code reference	Yes
SMPTE time code reader	Yes
VTR search control	Yes
Additional signal sources	Yes
Color standards 24, 25, 30NDF, 30DF	Yes
Disc system storage	Yes
Papertape storage	Yes
Animation editing mode	Yes
A/B roll editing	Yes
A and B editing	Yes
Color framing	Yes
Expandability to 8 VTRs	Yes
Jam-sync	Yes
Diagnostic program	Yes
Event scroll	Yes
Event recall	Yes
Automatic assembly	Yes
Automatic assembly reel #	Yes
SMPTE time code generator	Yes
Video switcher interface	Yes
Audio mixer interface	Yes
Audio edit track	1,2,3
Mix DF/NDF capability	Yes
Sync roll	Yes
BVB, VFV, VVV	Yes
Edit backtiming	Yes
Event assignment	Yes
Manual record	Yes
Replay (review)	Yes
List management	Yes
Block moves	Yes
Insert	Yes
Delete	Yes
Copy	Yes
Comments	Yes
Event # ripple	Yes
Change with ripple	Yes
Master slave record	Yes
Switcher control mix amps 1,2,3,	Yes
Audio rate, indep. of video rate	Yes
Optional:	
VTR interfaces	# over 3
ATR interfaces	Up to 8
Battery back-up	
Slow motion editing	
Other timing reference	

Edit point control—Edit points should be markable on-the-fly while the tape is in motion or in a stationary mode. Capability of moving the edit points should also be provided.

Color framing—Exact frame edits with color framing requires SMPTE time code.

Guaranteed frame accuracy with color framing and control track timing is suspect.

Number of VTRs—Two VTRs allow cuts-only editing. Three machines are required for true A/B roll. Seldom is a system used with more than five VTRs on-line.

Split edits—Independent control of audio and video should allow different start and stop times in a single operation.

Audiotape interface—Building audio tracks independently simplifies music and effects for later mix-down.

VTR-plug compatibility—Machine interfaces should require a minimum amount of machine modification. The most reliable require no modification of the equipment. On the other hand, some manufacturers provide editing systems that work only with their VTRs. Equipment selection may be limited as a result.

Types of video/audio recorders—Many can, but not all editing control systems function with any combination of 2-inch, 1-inch C, 1-inch B, ¾-inch and ½-inch formats and audio recorders.

Special equipment control—Effects switching, analog disc and digital effects are additional equipment that can often be controlled by SMPTE time code editors.

Search capability—Variable search and jog allow ease in edit-point selection, as does automatic location finding. Accurate point location ensures precise tape recorder parking, faster servoing and auto assembly operation.

Auto assembly—A computer-assisted editor retains edit decisions in memory for later assembly. When required the system translates and performs each edit and/or effects transition in sequence. Auto assembly may include sequential and/or source reel per source reel operation.

Auto special effects switcher control—Interfacing for effects switchers vary, but should include a selection of individual crosspoints, ramp voltages for fade control accurate to the frame, a selection of different wipes or effects and control of keying effects. The capability should include audio crosspoints and control independently of video.

Memory—Event memory varies widely with each model. Be certain that memory size is sufficient

List management—List management arranges memory-stored edits into a logical sequence and allows changes in the decision list capabilities should provide deletion, insertion and changes to an event with or without ripple, including single and block moves with corrections for over-recordings.

Status display—Low-end systems generally use lamps to indicate status, perhaps with several-character, alpha-numeric readouts. The full-scale systems typically include a CRT display of parameters in either a fixed or variable format. Most operators find that a fixed display screen, with needed feedback in a predefined location, allows faster operation.

Decision list compatibility—If a list prepared off-line is to be used in an on-line operation, compatibility is essential. Most systems offer some form of industry pseudo-compatibility in a punched tape format.

Expandability—The original design should allow for eventual upgrading of hardware and software at the customer's site.

Conclusion

The functions and features of editing control systems currently available are varied and numerous. Once the decision to purchase a system has been made, the extra time taken to determine exactly which of the many systems will be installed will pay off in greater editing productivity and quality. To slight the research of equipment capability vs. need may result in a very costly mistake. |:(:-)))|

Editor's Note: Copies of the booklet *Guide to Buying a Video Editor* are available by writing to United Media, 4075 Leaverton Court, Anaheim, CA 92807. For your convenience in receiving a copy, you may use reader service number (1500). The guide is not an advertisement.

CAMERA TUBES

Vacuum tube pickup devices for TV camera and telecine systems. Tube requirements must be discussed with the manufacturer/supplier prior to purchase. Special designators may be in use for characteristics such as extended red, infrared filter, antihalation disc, low capacity output and front loading.

Manufacturer	Amperex Electronics																		
Series/Number	Plumbicon 80XQ	XQ1427	XQ2427	XQ3427	XQ1500	XQ1503	XQ1505	XQ1070	XQ1073	XQ1075	XQ1080	XQ1083	XQ1085	XQ2170/3	XQ2173	XQ2175	XQ3070	XQ3073	XQ3075
Image Format:																			
½-Inch	Y																		
⅔-Inch		Y	Y	Y															
1-Inch					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1¼-Inch																			
Features:																			
Diode Gun	Y		Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	Y
Bias Light					Y	Y	Y				Y	Y	Y	Y	Y	Y	Y	Y	Y
IR Filter							Y			Y			Y			Y			Y
Extended Red						Y	Y		Y	Y		Y	Y		Y	Y		Y	Y
Mag. Focus		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Front Load	Y	Y	Y	Y				Y	Y	Y				Y	Y	Y			
LoOutCap	Y			Y													Y	Y	Y
Mod (%)	45	60	50	50		50			50			40			65			65	
Depth (TVL)	320	320	400	400		400			400			400			400			400	
Target Vdc	30	45	45	45		45			45			45			45			45	
Reader Service No.	555	556	557	558		559			560			561			562			563	

*Plumbicon is a registered trademark of N.V. Philips, the Netherlands.

Manufacturer	Amperex Electronics									Vidicon				Newvicon						
Series/Number	Plumbicon XQ1410	XQ1413	XQ1415	XQ1520	XQ1523	XQ1525	XQ3410	XQ3413	XQ3415	XQ1270	XQ1271	XQ1272	XQ1240/4809	XQ1274	XQ1275	XQ1276	XQ1277	XQ1278	XQ1440	XQ1443
Image Format:																				
½-Inch																				
⅔-Inch										Y	Y	Y		Y	Y	Y	Y	Y		
1-Inch													Y						Y	
1¼-Inch	Y	Y	Y	Y	Y	Y	Y	Y	Y											
Features:																				
Diode Gun				Y	Y	Y	Y	Y	Y		N.A.		N.A.			N.A.			N.A.	
Bias Light	Y	Y	Y	Y	Y	Y	Y	Y	Y		N.A.		N.A.			N.A.			N.A.	
IR Filter			Y			Y			Y											
Extended Red		Y	Y		Y	Y		Y	Y							Y	Y			Y
Mag. Focus	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y		Y			Y	Y
Front Load		Y		Y	Y	Y							Y	Y	Y	Y	Y	Y	Y	Y
LoOutCap	Y			Y	Y	Y	Y	Y	Y											
Mod (%)		55			55			70					65			*			45	
Depth (TVL)		400			400			400					400			400			400	
Target Vdc		45			45			45			<80		45			15			15	
Reader Service No.		564			565			566			567		568			569			570	

*Mod (%) = 33%, 1274/76; 28%, 1275/77; 30%, 1278.

Manufacturer	EEV																			
Series/Number	Leddicon P8470	P8160	P8460	P8462	P8022	P8024	P8196	P8197	P8190	P8191	P8147	P8148	P8145	P8146	P8136	P8138	P8400	P8401	P8440	P8441
Image Format:																				
½-Inch	Y																			
⅔-Inch		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y						
1-Inch					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y						
1¼-Inch															Y	Y	Y	Y	Y	Y
Features:																				
Diode Gun	Y	Y	Y				Y	Y	Y	Y								Y	Y	Y
Bias Light					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y					Y	Y
IR Filter						Y		Y		Y		Y		Y		Y		Y		Y
Extended Red	Y	Y	Y	Y		Y		Y		Y		Y		Y		Y		Y		Y
Mag. Focus	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Front Load		Y	Y	Y	Y	Y			Y	Y	Y	Y	Y	Y						
LoOutCap	Y			Y																
Mod (%)	45	60	50	45	45		60		60		52		40		55		55		70	
Depth (TVL)	320	320	400	400	400		400		400		400		400		400		400		400	
Target Vdc	45	45	45	45	45		45		45		45		45		45		45		45	
Reader Service No.	571	572	573	574	575		576		577		578		579		580		581		582	

*Leddicon is a registered trademark of EEV.

The new Saticon II camera tube. Clearly superior to lead oxide.

Compare the unretouched photos below and see for yourself how the new RCA Saticon* II camera tube reduces specular highlight memory, without red trail.

You no longer have to choose between lead oxide's good handling of highlights and Saticon's well known superiority in other critical performance factors. Now it's a whole new ball game.

Computer-aided deposition and advanced material purification technologies have given Saticon II a considerably improved photoconductor. Your benefits: less highlight trail, reduced highlight memory (as much as 75% less than that experienced with earlier Saticon tubes), improved resistance to image burn.

What's more, you still get all of the recognized advantages of Saticon: high resolution, distortion-free colors, very low lag, and extremely long tube life. And Saticon II is backed by a warranty that's second to none. RCA offers full replacement for any failure in normal use for six months, compared with only two months for Plumbicon™.

Your choice is now clear. For more information on the complete Saticon line, contact your RCA distributor or write to RCA Camera Tube Marketing, New Holland Avenue, Lancaster, PA 17603. Or call (800) 233-0155. In Penna., phone collect to (717) 397-7661. Overseas, contact RCA Brussels, Belgium. Sao Paulo, Brazil. Sunbury-on-Thames, Middlesex, England. Paris, France. Munich, W. Germany. Hong Kong. Mexico 16 DF, Mexico.

*Used by permission of trade mark owner.

Good. Plumbicon XQ1427.

Photograph of direct reflection of flood lamps, produced by camera with CTS circuitry. Note highlight memory with red trail.

Better. Saticon II BC4390.

Same subject and conditions as in photograph at left. Note reduced highlight memory without red trail.

RCA

Circle (10) on Reply Card

CAMERA TUBES

Manufacturer	EEV						Hitachi Ltd.				
Series/Number	Vidicon P8038/38B	8541A	8507A	8572A	8134V1/4811	84840V1/4810	Saticon H4111	H9386D	H9386B	H4101B	H9379A
Image Format:											
½-Inch											
⅔-Inch							Y	Y	Y	Y	
1-Inch	Y	Y	Y	Y	Y						Y
1¼-Inch						1.5					
Features:											
Diode Gun	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.		Y	Y		
Bias Light										Y	Y
IR Filter											
Extended Red											
Mag. Focus	Y	Y	Y	Y	Y	Y		Y	Y		Y
Front Load	Y	Y	Y	Y	Y	Y					
LoOutCap	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.		Y			Y
Mod (%)	80	70	70	70	33	60	40	60	60	45	65
Depth (TVL)	400	400	400	400	400	400	400	400	400	400	400
Target Vdc	15-35	10-60	10-60	12-60	25-60	10-60		75	75	50	75
Reader Service No.	**583**	**584**	**585**	**586**	**587**	**588**	**589**	**590**	**591**	**592**	**593**

*Saticon is a registered trademark of Hitachi, Ltd.

CAMERA TUBES

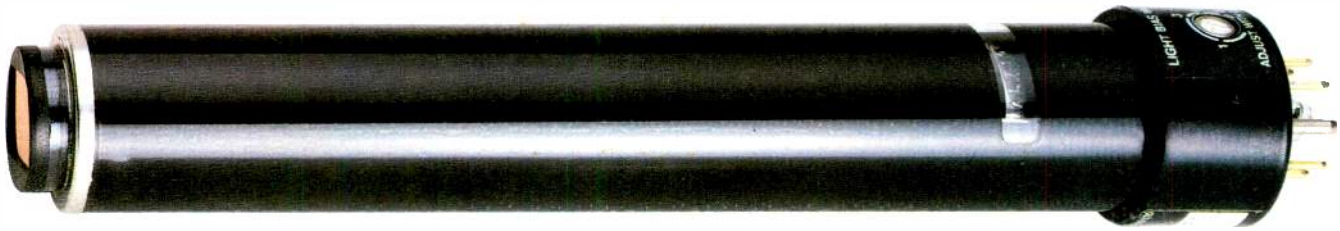
Manufacturer	RCA Electro Optics & Devices																					
Series/Number	Vistacon BC4917	BC4927	BC4937	BC4892	BC4893	BC4894	BC4922	BC4923	BC4924	BC4592	BC4593	**BC4594**	**BC4992**	**BC4993**	**BC4994**	Saticon BC4399	BC4380	BC4908	BC4390	BC4909	Vidicon BC4809
Image Format:																					
½-Inch																					
⅔-Inch	Y	Y	Y							Y						Y	Y	Y	Y	Y	
1-Inch				Y	Y	Y	Y	Y	Y	Y										Y	Y
1¼-Inch										Y	Y	Y	Y	Y	Y						
Features:																					
Diode Gun		Y	Y				Y	Y	Y							Y	Y				
Bias Light	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IR Filter	Y	Y	Y			Y		Y	Y			Y			Y						
Extended Red	Y	Y	Y		Y	Y		Y	Y		Y	Y		Y	Y						
Mag. Focus	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Front Load	Y	Y	Y	Y	Y	Y	Y	Y	Y							Y	Y	Y	Y	Y	
LoOutCap			Y														Y				
Mod (%)		60			50			60			50			50		65		55		65	55
Depth (TVL)		300			400			400			400			400		400		400		400	400
Target Vdc		45			45			45			45			45		75		50		45	Var.
Reader Service No.		**594**			**595**			**596**			**597**			**598**		**599**		**600**		**601**	**602**

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Camera Tubes

The definition of the best color camera tubes in the world.



No matter how you define your color camera needs, you will want to be certain you have chosen the best tube for the job. And no technical appraisal can be complete without EEV Leddicons.

Take lag or smearing. Because Leddicons incorporate a unique light bias arrangement, shading is minimal. So is differential lag. The result is that a football in flight will always look like a football — not a flying saucer!

As for color imagery, you simply cannot improve on Leddicons. Extended reds have a precisely-engineered response with an infra-red filter providing cut-off exactly where you want it.

Or compare the highlight image performance of Leddicons with other tubes. The difference is that the retention effect is minimised by a unique target manufacturing process — even in the very difficult extended red channel where other tubes are simply unable to cope.

You'll certainly want to avoid blemishes. That's why all Leddicons must satisfy the most exacting manufacturing, testing and quality control standards. And it shows — in the fact that Leddicons average less spotting than other tubes!

Then there's geometry. The optimised electron optical design of Leddicons ensures the best possible geometry. Registration too is equally distortion free — we can, in fact, supply computer-matched sets for all three channels.

And what about microphony? With EEV's unique anti-microphonic mesh assembly, Leddicons provide the cleanest pictures — even from cameras operating in areas of high ambient acoustic noise.

As for choice, there's simply none better than Leddicons. That's because the range covers fully-interchangeable sizes and types to suit virtually every type of studio, EFP and ENG camera used in the world today.

When you add up all the facts about Leddicons, there is only one conclusion — namely, the definition of the best tubes for your camera.

But don't leave it at that.

Next time specify Leddicons for your new equipment and as replacements and find out what that definition really means in practice.

LEDDICONS

®Leddicon is the Registered Trademark of EEV Lead Oxide Camera Tubes

EEV Camera Tubes

EEV Inc, 7 Westchester Plaza, Elmsford, NY 10523, USA. Tel: 914 592 6050. Telex: 6818096.
EEV Canada Ltd, 67 Westmore Drive, Rexdale, Ontario M9V 3Y6. Tel: 416 745 9494. Telex: 06 989 363.
EEV, Waterhouse Lane, Chelmsford, Essex CM1 2QU, England. Tel: 0245 261777. Telex: 99103.

Circle (11) on Reply Card

CHARACTER GENERATOR

Digital-based equipment for formation and placement of alphanumeric data on a raster with internally or externally supplied background material. For program use, not data terminals, the systems may be gen-locked to external video. Does not include time code character generators.

	Aston Electronic	**Beston**			**Dubner Computer**
Manufacturer	**Designs Ltd.**	**Electronics (BEI)**	**Chyron**		**Systems**
Model Number	**Aston 3**	**Marquee PCG-3000**	**Chyron IV**	**Chyron RGU-2**	**CBG-2/CBG-1**
Page Format (Char./Line)	40C/21L	20C/21L	Variable	Variable	100C/30L
Character Resolution	31.25nsec	31.25nsec	27nsec	27nsec	50nsec
Character Manipulations	Yes, H & V	Yes, H & V	Yes	Yes	Yes
Italicized Characters	By lines	By lines	Yes	Yes	By character
Surround Edging	In color	Yes	Yes	Yes	Vary width, color
Drop-Shadow Edging	In color	Yes	Yes	Yes	Vary width, color
Edge Luminance & Color	Variable	Variable	Yes	Yes	Variable
Color Pallette	4096, 8/screen	>4000, 7/screen	512, 7/screen	512, 7/screen	4096, 64/screen
Background Coloring	Horizontal zones	Horizontal zones	Yes	Yes	By pixel
Character Coloring	By character	By word	7 colors/character	Yes	By character
Display Flashing	Yes	Yes	Yes	Yes	By character
Tabulate Positions	Yes	Yes	Yes	Yes	Yes
Auto Centering	Line, page, H	Line	Line, page, H, V	Line, page, H, V	Line, page, H, V
Roll/Crawl Speeds	8	8	5	5	9
Roll Window	No	No	Yes	Yes	Variable
Subtitling Capability	Time code control	Time code control	Yes	Yes	Yes
Resident Fonts	Load from disc	Yes and from disc	Yes and from disc	Yes and from disc	250 from disc
Internal Page Memory	150 pages	150 pages	No	No	1000 pages
Mass Storage Medium	Floppy disc	Floppy disc	Floppy disc	Floppy disc	10MByte rigid disc
Disc Drives Maximum	2	2	3	3	4
Worst Case Access	1sec	1sec	1.5sec	1.5sec	0.5sec
Preview Channels	Yes	Yes	2	2	2
Program Channels	1 RGB	1	2	2	2
Colorizer/Keyer	No	No	Yes	Yes	Yes
RS232 Interface	Yes	Yes	Yes	Yes	Yes
Keyboards	One only	10 max	Multiple	Multiple	One only
Font Compose Input	Option	Option	Yes	No	Yes
Graphics Option	No	Yes	Yes	No	Yes
Other Related Models	Aston TET Teletext Terminal	PCG-2000	.....	.....	....
Reader Service Number	330	**331**	**332**	**333**	**334**

CHARACTER GENERATOR

Manufacturer	**Fernseh (Bosch)**	**For-A Company**	**Knox Video Products**	**Laird Telemedia**	**MPB Technologies**
Model Number	**Compositor I**	**VTW-600**	**K128B**	**7200 Communicator**	**Vista 90BC**
Page Format (Char./Line)	32C/12L	32C/8L	24C/8L	Variable	40C/30L
Character Resolution	30nsec	.....	40nsec	35nsec	35nsec
Character Manipulations	By character, H, V	By line	By character	Yes	Char., line, H, V
Italicized Characters	No	No	By page	Yes	By character
Surround Edging	Yes	Option	Option	Yes	Vary width, color
Drop-Shadow Edging	Yes	Option	Yes	Yes	Vary color
Edge Luminance & Color	Yes	Option	Option	Yes	Variable
Color Pallette	30	8	Various	32,768	64
Background Coloring	4TVL bands	.....	1/screen	Yes	Various modes
Character Coloring	By character	By character	By page	Yes	By character
Display Flashing	By character	By character	By word	Yes	By character
Tabulate Positions	Yes	.....	No	Yes	Yes
Auto Centering	Line, page	Line, page	Line, H	Line, page	Line, page, H
Roll/Crawl Speeds	5	Variable	3	10	5
Roll Window	Variable	No	1 or 2 line	.....	Variable
Subtitling Capability	Option	Option	Yes	Yes	Yes
Resident Fonts	8	1	5	4	30
Internal Page Memory	Display only	9	16	100 lines	2 pages
Mass Storage Medium	Floppy disc	Disc, mag. card	Floppy disc	Floppy disc	Floppy disc
Disc Drives Maximum	2	.....	1	.....	2
Worst Case Access	0.25sec	.....	0.5sec	.....	2 sec
Preview Channels	Yes	Yes	Yes	Yes	Yes
Program Channels	2	1	1	1 RGB	Multiplane
Colorizer/Keyer	Yes	Encoder required	Option	.....	Encoder separate
RS232 Interface	Yes	.....	Option	.....	Yes
Keyboards	To 7	.....	One only	Yes	Infinite number
Font Compose Input	Option	Light pen	No	Yes	Yes
Graphic Option	EBGG option	.....	No	Yes	Standard
Other Related Models	.....	VTW-210	K50, K60	.....	Vista 80 Mod 216
Reader Service Number	335	**336**	**337**	**336**	**339**

CHARACTER GENERATOR

Manufacturer	Multidyne Electronics	(PESA) Piher Electronica SA	Quanta Corporation		
Model Number	CG4	TP-4696B	Microgen MG100	Select 7	Q8
Page Format (Char./Line)	24C/12L	32C/16L	32C/12L	32C/16L	64C/24L
Character Resolution	270nsec	80nsec	78, 104nsec	N.A.	26.1nsec
Character Manipulations	By line	Line	By line, H	By character, H	Yes
Italicized Characters	No	No	No	No	By character
Surround Edging	No	No	Yes	Vary width	Vary width, color
Drop-Shadow Edging	No	No	Variable	Variable	Variable
Edge Luminance & Color	Fixed	Fixed	Fixed	Variable	Variable
Color Paliette	No	8	256, 12/screen	8, 8/screen	16 million, 48/screen
Background Coloring	No	Horizontal zones	Horizontal zones	Horizontal zones	Horizontal zones
Character Coloring	No	By character	By line	By word	By character
Display Flashing	No	Yes	By character	By word	By character
Tabulate Positions	No	No	No	Yes	Yes
Auto Centering	No	Line, page	Line, page, H	Line, page, H	Line, page, H
Roll/Crawl Speeds	None	5	9	9	9
Roll Window	No	Yes	No	Variable	Variable
Subtitling Capability	.....	Yes	3rd page super	3rd page super	3rd page super
Resident Fonts	.....	2	2	56	Loads from disc
Internal Page Memory	1	256 line	16 pages	14 pages	N.A.
Mass Storage Medium	.....	Microcassette	No	Floppy disc	Floppy disc
Disc Drives Maximum	.....	.....	N.A.	2	4
Worst Case Access	.....	.....	N.A.	0.5sec	0.5sec
Preview Channels	No	Yes	Yes	Yes	1
Program Channels	1	2	2	1	2 multiplane
Colorizer/Keyer	Keyer	Yes	Yes	Yes	Yes
RS232 Interface	Yes	.....	No	Option	Yes
Keyboards	One only	1	One only	One only	To 6
Font Compose Input	Yes	.....	No	No	No
Graphic option	Yes	No	No	No	No
Other Related Models	.....	.....	.....	.....	.....
Reader Service Number	340	341	342	343	344

CHARACTER GENERATOR

Manufacturer	Texscan Corporation		Thomson-CSF Broadcast	3M Company	Unitel
Model Number	Flexicaster II	CDD30	Graphics V Vidifont	D-8800	Scriptel 300
Page Format (Char./Line)	32C/21L	32C/21L	Variable	Variable	Variable
Character Resolution	70nsec	70nsec	48nsec	35nsec	33nsec
Character Manipulations	Char., line, H, V	By line	Char., line, H, V	Char., line, H, V	Char., line, H, V
Italicized Characters	Option	No	By character	By character, line	By row
Surround Edging	No	Yes	Vary width, color	Vary width, color	Vary width, color
Drop-Shadow Edging	Yes	Yes	Vary color	Vary color	Vary color
Edge Luminance & Color	Fixed	Fixed	Variable	Variable	Fixed
Color Pallette	32, 32/screen	16, 16/screen	4096, 16/screen	8, 8/screen	4096, 16/screen
Background Coloring	Various formats	Yes	32 planes/page	Horizontal zones	Horizontal zones
Character Coloring	By word	By word	By character	By character	By character, word
Display Flashing	By word	By word	By character	Char., line, page	By character, word
Tabulate Positions	No	Yes	Yes	Yes	Yes
Auto Centering	Line, page	By line	By line, H	Line, page, H, V	By line, H, V
Roll/Crawl Speeds	1/3	–/4	7	10	4
Roll Window	Variable	No	Variable	Variable masks	Variable
Subtitling Capability	No	.....	.....	Yes	Time code controlled
Resident Fonts	1 & 1 EPROM	2	99	Load from disc	4
Internal Page Memory	To 1740 lines	24	440	2	16
Mass Storage Medium	Floppy, rigid disc	Bubble memory	Floppy disc	Floppy disc	Floppy, rigid disc
Disc Drives Maximum	4	.....	99	4	2
Worst Case Access	3sec	.....	0.9sec	1sec	0.6sec
Preview Channels	Yes	Option	Yes	Yes	Yes
Program Channels	Yes	1	3	2	1
Colorizer/Keyer	No	No	Yes	Yes	Yes
RS232 Interface	Option	Option	Yes	Yes	Option
Keyboards	2 max	4 max	99 max	4 max	2 max
Font Compose Input	No	No	Yes	Yes	Yes
Graphic Options	Yes	No	Yes	Yes	Yes
Other Related Models	SG3, SG2RM	CDD35, CPA-1	.....	.....	.....
Reader Service Number	**345**	**346**	**347**	**348**	**349**

Manufacturer	Unitel		Wilk Power & Video
Model Number	Scriptel PWWP	Scriptel V	CG 3300 Series
Page Format (Char./Line)	32C/16L	32C/12L	25C/8L
Character Resolution	32nsec	43nsec	High resolution
Character Manipulations	Char., line, H, V	Char., line, H, V	.....
Italicized Characters	No	By char., line	No
Surround Edging	Option	Vary width	.....
Drop-Shadow Edging	Option	Variable	.....
Edge Luminance & Color	Variable	Fixed	.....
Color Pallette	4096, 16/screen	4096, 12/screen	8
Background Coloring	Yes	.....	1/screen
Character Coloring	By character	.....	By character
Display Flashing	By character	Char., word, line	By character
Tabulate Positions	Yes	Yes	.....
Auto Centering	Line	Line	Yes
Roll/Crawl Speeds	3/-	2	-/7
Roll Window	Variable	No	.....
Subtitling Capability	No	Captions	Possible
Resident Fonts	Loaded	2	2
Internal Page Memory	16 page	16 page	62 page
Mass Storage Medium	.....	Floppy disc	None
Disc Drives Maximum	2	1	N.A.
Worst Case Access	1sec	.....	.....
Preview Channels	Yes	Yes	Yes
Program Channels	1	1	1
Colorizer/Keyer	No	Option	Yes
RS232 Interface	Option	Yes	Yes
Keyboards	1	One only	One only
Font Compose Input	Yes	No	No
Graphic Option	No	No	No
Other Related Models	.....	.....	.....
Reader Service Number	**350**	**351**	**352**

fyi...

For addresses of manufacturers whose products are listed in this edition, refer first to advertisers' index or obtain address from advertisement. For non-advertisers and companies that do not show an address on their advertisement, refer to company name and address listing in the **BE** *Buyers' Guide* (annual September issue).

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Character Generators

COLOR TV CAMERA, ENG, EFP, Portable, Hand-held

3-tube design TV camera, typically not requiring the use of a camera control unit. Operation is possible directly to a VTR or microwave link. Weights are less than 30 pounds.

Manufacturer	Ampex	Bosch	Harris Broadcast	Hitachi Denshi	
Model Number	BCC-20 Digicam	KCA110	TC-90	FP-15	SK-97 Computacam
Pickup Tube Type	DGP, S, LO	LOC, P	P	S	S, DGP, DGS
Pickup Tube Size	⅔"	⅔"	½"	⅔"	⅔"
Pickup Tube Number	XQ-1427/2427/3427	XQ-2427	80XQ	H8393	.....
Optics	BK-7 prism	Prism	f/1.4 prism	Prism	f/1.4 prism
Sensitivity	200fc, f/4	1250 lux, f/2.8, 70%	56fc, f/1.4, 60%	2000 lux, f/4, 89.9%	2000 lux, f/4, 89.9%
S/N Ratio	53dB	57dB	56dB	54dB	58dB
Horizontal Resolution	45%, 400TVL	≥40%, 5MHz	600TVL	580TVL	600TVL
Registration (Z1, 2, 3)	0.05% all zones	<40, 80, 160nsec	0.1, 0.2, 0.3%	0.1, 0.3, 0.7%	0.05, 0.1, 0.2%
Enhancement	H/V aperture	H/V comb, core	H/V comb, core	2H/V	2H/V core, comb
Contours From	Green	Green	Green	Green	Green
Internal ND Filters	Yes	Yes	Yes	Yes	Yes
Color Temperature Filters	Yes	Yes	Yes	Yes	Yes
Viewfinder Size	3"	1.5"	1.5"	1.5"	1.5"
Intercom System	3-, 4-wire	2-channel	RTS compatible	1-channel	1-channel
Program Audio System	Yes	Yes	Amplified	Yes	Yes
Optional CCU	Yes	Base station	Digital	Yes	Yes
Auto White Balance	Yes	Yes	Yes	Yes	Yes
Auto Black Balance	Yes	Yes	Yes	Yes	Yes
Auto Iris Control	Yes	Yes	Yes	Yes	Yes
Auto Centering	Yes	Option	Yes	No	.....
Beam Optimization	Yes	Yes	Yes	Yes	Yes
Sync Gen-lock Requirement	Video	Video	Video	Video	Video
VTR Remote Controls	Yes	Yes	Yes	.....	.....
Multicore Cable	1000 ft	909 ft	.....	150 ft	Coax
Triaxial Cable	I mile	.....	5000 ft, Coax	.....	1.4 miles
Optical Fiber Cable	1.2 mile	12,000 ft	.....	.....	.....
Battery Operation/Vdc	Yes	Yes	11.5Vdc	12Vdc	12Vdc
Weight Without Lens	18 lb	13 lb	7 lb	13.2 lb	13.2 lb
Color Standards	NTSC, PAL, SECAM	NTSC, PAL, SECAM	NTSC, PAL-M/-B	PAL-B, NTSC	NTSC, PAL
Reader Service Number	**308**	**309**	**310**	**311**	**312**

*Pickup tube type designations: ACT P—Anti Comet Tail Plumbicon, C—Chalnicon, DGP—Diode Gun Plumbicon, HOP—Highlight Overload Protected, L—Leddicon, LO—Lead Oxide Vidicon, LOC—Low Output Capacitance Plumbicon, P—Plumbicon, S—Saticon.

COLOR TV CAMERA

ENG, EFP, Portable, Hand-held.

Manufacturer	Ikegami Electronics	JVC Company		Marconi	NEC America
Model Number	HL-79D/HL-790A	KY1900U	KY-900/950(1)	Mark IX Portable	SP-3
Pickup Tube Type	S, DGP, LOC	S	S, DG, LOC	LO	CCD
Pickup Tube Size	⅔"	⅔"	⅔"	1"	.....
Pickup Tube Number	XQ-3427/2427, H9386B	H4101	H9386D	.....	.....
Optics	f/1.4 prism	Mirrors	f/1.4 prism	Prism	f/1.4 prism
Sensitivity	2000 lux, f/5, 89.9%	2500 lux, f/4	2500 lux, f/4	1100 lux, f/2.8, 60%	2000 lux, f/4, 60%
S/N Ratio	59dB	52dB	58dB	49dB	55dB
Horizontal Resolution	650TVL	500TVL	600TVL	100% 5MHz	500TVL
Registration (Z1, 2, 3)	0.05, 0.1, 0.3%	0.1, 0.4, 0.8%	0.1, 0.2, 0.4%	40, 80, 120nsec	N.A.
Enhancement	Core, comb, slicer	Lvl dependence	2H/V comb lvl dep	Yes	2-line
Contours From	Green, red, blue	.....	.....	Green	Green
Internal ND Filters	Yes	Yes	Yes	.....	.....
Color Temperature Filters	Yes	Yes	Yes	.....	.....
Viewfinder Size	1.5"	1.5"	1.5"	1",3"	1.5"
Intercom System	RTS compatible	.....	.....	Yes	.....
Program Audio System	Yes	Yes	Yes	Yes	.....
Optional CCU	Yes	Yes	Yes	Req red	Yes
Auto White Balance	Yes	Yes	Yes	Yes	Yes
Auto Black Balance	Yes	Yes	Yes	Yes	Yes
Auto Iris Control	Yes	Yes	Yes	Yes	Yes
Auto Centering	Yes	No	Yes	Yes	No
Beam Optimization	Yes	Yes	Yes	Yes	No
Sync Gen-lock Requirement	Video	Video	Video	Video or sync	Video
VTR Remote Controls	Yes	Yes	Yes	.....	.....
Multicore Cable	1000 ft, TV39	195 ft	1050 ft	2400 ft	.....
Triaxial Cable	7500 ft, #9232	No	.....	4500 ft	.....
Optical Fiber Cable	.....	No	.....	.....	.....
Battery Operation	12Vdc	12Vdc	17Vdc	Not dc	12Vdc
Weight Without Lens	15 lb	7.7 lb	10 lb	26 lb	10 lb
Color Standards	NTSC	NTSC	NTSC	NTSC, PAL	NTSC
Reader Service Number	**313**	**314**	**315**	**316**	**317**

(1) KY-900 uses Saticon tubes, while the KY-950 uses Plumbicons. The KY-310 camera includes most of the features listed, but is priced less.

COLOR TV CAMERA

ENG, EFP, Portable, Hand-held.

Manufacturer	Panasonic Video Systems	Philips Television		RCA	Sharp Electronics
Model Number	**AK-100PL/K (S/K)**	**WV 555**	**LDK 14S(SL)**	**TK 710**	**TKP-47**	**XC-900D(2)**
Pickup Tube Type	P LOC (S LOC)	S	LOC, DGP, P	S	P	S
Pickup Tube Size	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"
Pickup Tube Number	XQ-3427	H4111	XQ-1427/3427	H8399	HQ-3427	.....
Optics	f/1.4 prism	f/1.4 prism	f/1.4 prism	f/1.4 prism	f/1.4 prism	f/1.4 prism
Sensitivity	2150 lux, f/4, 60%	140fc, f/2.8, 90%	750 lux, f/2.8, 89.9%	200fc, f/3.5, 60%	125fc, f/2.8, 60%	200fc, f/4, 90%
S/N Ratio	59dB	54dB	57dB	55dB	57dB	57dB
Horizontal Resolution	600TVL	600TVL	100% 5MHz	525TVL	50% 5MHz	600TVL
Registration (Z1, 2, 3)	0.1, 0.2, 0.5%	0.1, 0.3, 0.6%	40, 80, 160nsec	0.1, 0.4, 0.8%	0.05, 0.1, 0.15%	0.1, 0.2, 0.4%
Enhancement	2-line comb lvl dep	H/V lvl dep	2-line core, comb	H/V	2H/V, comb, core	2H core, comb
Contours From	Green	Green	Green	Green	Green, red	Green
Internal ND Filters	Yes	No	Yes	.....	No	Yes
Color Temperature Filters	Yes	Yes	Yes	Yes	Yes	Yes
Viewfinder Size	1.5"	1.5"	1.5"	1.5"	1.5"	1.5"
Intercom System	.....	.....	2-, 4-wire	Yes	2-channel	Yes
Program Audio System	.....	.....	Yes	Yes	Yes	Yes
Optional CCU	Yes	Yes	Yes	Yes	Required	Rmt Ctl
Auto White Balance	Yes	Yes	Yes	Yes	Yes	Yes
Auto Black Balance	Yes	Yes	Yes	No	Yes	Yes
Auto Iris Control	Yes	Yes	Yes	Yes	Yes	Yes
Auto Centering	No	Yes	Yes	No	Yes	No
Beam Optimization	Yes	Yes	Yes	Yes	Yes	Yes
Sync Gen-lock Requirement	Video	Video	Video	Video	Video	No
VTR Remote Controls	.....	No	Yes	Yes	No	Yes
Multicore Cable	3000 ft, 32R-300	.....	1500 ft, TV15P	1000 ft	1600 ft	1000 ft, 20-conductor
Triaxial Cable	.....	.....	5000 ft, 14mm	.....	11,000 ft	5300 ft, 0.5"
Optical Fiber Cable	.....	.....	.....	.....	.....	.....
Battery Operation	13Vdc	12Vdc	14.4Vdc	14.4Vdc	Not dc	14.4Vdc
Weight Without Lens	8.66 lb	14.3 lb	13 lb	11.6 lb	18 lb	12 lb
Color Standards	NTSC	NTSC	NTSC, PAL, PAL-M, SECAM	NTSC	NTSC, PAL, SECAM	NTSC
	.....	.....	.....	.....	.....	.....
Reader Service Number	**318**	**319**	**320**	**321**	**322**	**323**

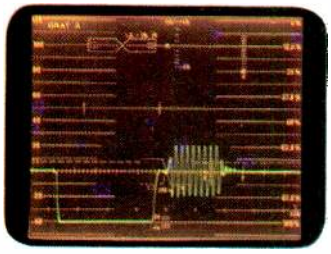
COLOR TV CAMERA

ENG, EFP, Portable, Hand-held.

Manufacturer	Sony Broadcast		Thomson-CSF			Toshiba
Model Number	**BVP-330A**	**BVP-250**	**MicroCam 501**	**601A MicroCam**	**MicroCam 701**	**PK-60**
Pickup Tube Type	DGP	S	S	P	DGP	S, P, DGP
Pickup Tube Size	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"
Pickup Tube Number	XQ-2427	H-9311A	.....	.....	.....	.....
Optics	f/1.4 prism	f/1.4 prism	Prism	Prism	Prism	f/1.4 prism
Sensitivity	200fc, f/4, 90%	200fc, f/4, 90%	2150 lux, f/4, 60%	200fc, f/4.7, 89.9%	2150 lux, f/4.5, 60%	2000 lux, f/5, 89.9%
S/N Ratio	57dB	55dB	54dB	56dB	57dB	56dB
Horizontal Resolution	600TVL	550TVL	600TVL	600TVL	600TVL	600TVL
Registration (Z1, 2, 3)	0.1, 0.2, 0.4%	0.1, 0.4, 0.8%	0.1, 0.4, 0.8%	0.1, 0.2, 0.5%	0.1, 0.2, 0.5%	0.1, 0.2, 0.5%
Enhancement	2H/V comb, core	2H/V lvl dep	2H/V comb	.....	.....	2H/V core lvl dep
Contours From	Green	Green	Green	.....	Green	Green
Internal ND Filters	Yes	Yes	Yes	Yes	Yes	Yes
Color Temperature Filters	Yes	Yes	Yes	Yes	Yes	Yes
Viewfinder Sizes	1.5"	1.5"	1.5"	1.5"	1.5"	1.5"
Intercom System	2-, 4-wire	2-, 4-wire	Yes	.....	Yes	2-wire
Program Audio System	Yes	Yes	Yes	Yes	.....	Yes
Optional CCU	Yes	Yes	Yes	Yes	Yes	Yes
Auto White Balance	Yes	Yes	Yes	Yes	Yes	Yes
Auto Black Balance	Yes	Yes	Yes	Yes	Yes	No
Auto Iris Control	Yes	Yes	.....	.....	Yes	Yes
Auto Centering	Yes	No	No	.....	Yes	Option
Beam Optimization	Yes	Yes	.....	Yes	Yes	Yes
Sync Gen-lock Requirement	Video	Video	Video	Video	Video	Video
VTR Remote Controls	Yes	Yes	.....	Yes	.....	Yes
Multicore Cable	1800 ft, TV39	1800 ft, TV39	984 ft	.....	1800 ft	1000 ft, digital
Triaxial Cable	6600 ft, 0.5"	6000 ft, 0.5"	.....	.....	4000 ft	4600 ft, 9CTCX
Optical Fiber Cable	7000 ft, 5-fiber	7000 ft, 5-fiber	.....	.....	.....	.....
Battery Operation	12Vdc	12Vdc	12Vdc	12Vdc	12Vdc	14.4Vdc
Weight Without Lens	11.5 lb	12.3 lb	12.3 lb	12.4 lb	12.7 lb	15.7 lb
Color Standards	NTSC, PAL, SECAM	NTSC, PAL	NTSC	NTSC	NTSC, PAL, SECAM	NTSC, PAL
Reader Service Number	**324**	**325**	**326**	**327**	**328**	**329**

(2) XC-800 is similar.

JVC engineers another breakthrough in video cameras.



JVC, a world leader in miniaturization of electronic components, brings you a new option at the highest level of production quality cameras.

ProCam™ Video Cameras!

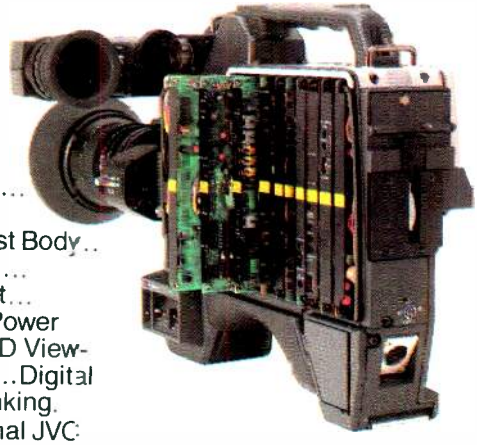
They're available in two models: ProCam 950 with LOC diode gun Plumbicon* tubes, and ProCam 900 with LOC diode gun Saticon** tubes.

Never before has so much been put into cameras this size. One look at the double-sided circuit boards will give you an idea of how packed with features they are. And you'll see the great results every time you use them.

You'll see great picture quality: Better than 600 Lines Resolution...Signal-to-Noise Ratio of 58dB.

You'll see great performance features: Auto-Shift Registration... Automatic White and Black Balance...Corner Registration Correction ...Matrix Masking...Auto Centering...Flare Compensation...Focus Wobbling...Auto Black Level Stabilization...Zebra Stripe Video Level Indicators in Viewfinder ..2H Vertical Contour Correction...Split Field Color Bar Generation...f/1.4 Prism Optics With Built-In Quartz Filter...Stable RS-170A Sync Output with Color Frame.

You'll see great convenience features: Light Weight... A Pickup Tube Protection Circuit... Compact, Solid Aluminum-Diecast Body.. Memory Back-Up... Preheating Circuit... Video Recorder Power Save Circuit...LED Viewfinder Indicators ...Digital H/V Variable Blanking. You'll see traditional JVC value...traditiona' JVC reliability...traditional JVC flexibility. And you'll see them in distinctly untraditional cameras... but cameras whose advanced circuitry is in the unique JVC tradition.



ProCam™

For more information, call toll-free

1-800-JVC-5825

Or write: JVC COMPANY OF AMERICA
Professional Video Division, Dept. BES 83
41 Slater Drive, Elmwood Park, NJ 07407
JVC CANADA, Scarborough, ONT.

Someday others will build 3-tube color cameras like JVC. Not yet!

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* 'Plumbicon' is a registered trademark of North American Philips Corp
** 'Saticon' is a registered trademark of Hitachi Denshi, Ltd

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Professional Video Division

HOW TO AVOID A FORMAT FAUX PAS.

There has been mounting confusion over which combination camera/recorder format to choose. And for obvious reasons. With the addition of so many new formats, nobody wants to make a mistake that can range from thousands to millions of dollars.

But if you follow these simple steps, you'll never get caught with your wallet, or your neck, in the proverbial wringer.

LOOK FOR EVOLUTION. NOT REVOLUTION.

Apparently, many manufacturers feel it's in their best interest to have you replace your existing U-matic™ equipment with their new stand-alone systems.

At Sony, we think it's foolhardy to leave you no option but to make a 180° turn and orphan your existing editing suite. So we designed Betacam™ as an evolutionary system. One that easily and efficiently plugs into what's come before.

This Sony theory of peaceful coexistence allows you to enter the world of one-piece camera/recorders at your own pace. And in this way you not only protect your existing U-matic investment. You gain field equipment that's more compact and portable, and a dramatic improvement in technical performance. Furthermore, dramatic improvements are also on the horizon for Sony U-matic. The evolution of both these formats is planned and it's total.

FIND A ½" SYSTEM THAT'S WHOLE.

For those of you who want to capitalize on the outstanding technical performance of an overall ½" system, scrutinize carefully the complete system from Sony.

After all, who else has a portable color field player like our BVW 20? Or our ½" edit-recorder, the BVW 40, which looks and feels like the Sony U-matic equipment you're accustomed to using? And who else promises an ongoing commitment to ½" system expansion and refinements that you will see next year and every other year?

BE PENNY-WISE
WITHOUT BEING POUND-FOOLISH.

The Sony Betacam system has proven itself on both the

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That's because our format was chosen to be optimum for both ENG and EFP, which is why Betacam is not just the lightest, smallest, most compact ½" system you can buy (as well as the least expensive), but its picture quality rivals 1".

Whatever you've been told you might gain from the various ¼" formats, when and if they become available, will be totally erased by the fact that ¼" is not at all suitable for high-quality EFP. Which means, if you purchase ¼" for ENG, you'll no doubt have to purchase an entire new system for field production.

THERE'S SAFETY IN NUMBERS.

With over 1,000 Betacams already sold to key end users, Betacam is virtually the worldwide de facto standard now.

We believe Betacam is outselling all the others by such a wide margin because it's better than all the others by such a wide margin. It's the only camera/recorder that focuses on the big picture. A picture that includes your existing investment; your need for both ENG and EFP; your desire for light weight and high quality; and a total system approach.

If you want to make sure you'll own the standard of excellence in the years ahead, insist on the camera/recorder from the people who created the standard of excellence in the years past.

For a demonstration, in New York or New Jersey call (201) 833-5350; in the Northeast/Mid-Atlantic (201) 833-5375; in the Midwest (312) 773-6045; in the Southeast (404) 451-7671; in the Southwest (214) 659-3600; and in the West (213) 841-8711.

SONY
Broadcast

COLOR TV CAMERA, Studio/Field Production

3-tube design TV camera, typically requiring the use of a camera control unit (CCU), with an included intercommunications system between camera operator and director. The camera accepts a variety of zoom lens assemblies.

Manufacturer	Ampex	Bosch	Harris		Hitachi Denshi
Model Number	BCC-21 Digicam	KCI 100	TC-80B	TC-85	SK-970 Computacam
Pickup Tube Type	P, L, S	DGP, LOC	L, DGP, S, LOC, ACT	P, ACT P, S, L	S, DGP, LOC
Pickup Tube Size	⅔"	1"	1"	1"	⅔"
Pickup Tube Number	XQ-1427/2427/BC4399	XQ-3070/3075	XQ-1070/1073	XQ-2070/2073	.....
Optics	BK-7 prism	f/1.5 prism	f/1.5 prism	f/1.5 prism	f/1.4 prism
Sensitivity	200fc, f/4	1400 lux, f/4, 60%	80fc, f/2.8, 60%	80fc, f/2.8, 60%	2000 lux, f/4, 89.9%
Resolution	400TVL	50%, 5MHz	650TVL	650TVL	600TVL
Registration (Z1, 2, 3)	0.05% overall	20, 20, 50nsec	0.05, 0.1, 0.2%	0.05, 0.1, 0.2%	0.05, 0.1, 0.2%
S/N Ratio	53dB	55dB	52dB	52dB	58dB
Contours From	Green	Green	Green	Green	Green
Enhancement	2H/V, aperture	Yes	H/V comb, core	H/V comb, core	2H comb filter
ND Filters	Yes	Yes	Yes	Yes	Yes
Color Temperature Filters	Yes	Yes	Yes	Yes	Yes
Beam Optimizing Circuitry	Yes	Yes	Yes	Yes	Yes
Viewfinder Size	7"	7"	7"	7"	7"
Genlock Requirement	Video	Video or sync	Video	Video	Video
Setup Manually	Yes	Yes	Yes	Yes	Yes
Setup by Computer	Yes	Yes	Option	Yes	Yes
Digital Operation	Yes	Yes	Option	No	Yes
Multicore Cable	1000 ft	1800 ft	2000 ft Mini TV81	2000 ft, Mini TV81	300 ft
Triax Cable	1 mile	4500 ft	8000 ft	8000 ft	5800 ft
Camera Head Weight	75 lb	70 lb	83 lb	85 lb	.....
Color Standards	NTSC, PAL SECAM	NTSC, PAL, SECAM	NTSC, PAL	NTSC, PAL	NTSC, PAL
Reader Service Number	**290**	**291**	**292**	**293**	**294**

*Pickup tube type designations: ACT P – Anti Comet Tail Plumbicon, C – Chalnicon, DGP – Diode Gun Plumbicon, HOP – Highlight Overload Protected, L – Leddicon, LO – Lead Oxide Vidicon, LOC – Low Output Capacitance Plumbicon, P – Plumbicon, S – Saticon.

COLOR TV CAMERA

Studio/Field Production

Manufacturer	Hitachi Denshi	Ikegami Electronics		Link Electronics	Marconi
Model Number	SK-110	HK-322	HK-357A	130	Mark IX (B3265)
Pickup Tube Type	P	DGP, ACT P	DGP, ACT P	LOC, DGP	LO, L
Pickup Tube Size	1"	1" or 1¼"	1"	⅔"	1.2"
Pickup Tube Number	.....	See Note 1	XQ-1070/2070/1500	XQ-3427	.....
Optics	Prism	f/2 prism	f/1.6 prism	Prism	Prism
Sensitivity	2000 lux, f/5.6, 90%	1500 lux, f/4, 89.9%	1000 lux, f/2.8, 89.9%	800 lux, f/2, 60%	800 lux, f/4, 60%
Resolution	>600TVL	400TVL, 60% 5MHz	400TVL, 70% 5MHz	>600TVL, 100% 5MHz	100%, 5MHz
Registration (Z1, 2, 3)	0.5, 0.8, 1%	0.5% overall	0.05, 0.3, 0.4%	0.05% overall	40, 80, 120nsec
S/N Ratio	54dB	56dB	>53dB	>54dB PAL	51dB
Contours Taken From	Green	Red, blue, green	Green	Green	Green
Enhancement	Yes	Automatic	Automatic	Comb filter	2H, core, comb
ND Filters	Yes	Yes	Yes	Yes	Yes
Color Temperature Filters	Yes	Yes	Yes	No	Yes
Beam Optimizing Circuitry	Yes	Yes	Yes	Yes	Yes
Viewfinder Size	7"	7"	7"	7"	7"
Genlock Requirement	Video	Video	Video	Video	Sync
Setup Manually	Yes	Yes	Yes	Yes	Yes
Setup by Computer	Yes	Option	Option	.....	Yes
Digital Operation	Yes	Option	Option	.....	.....
Multicore Cable	5000 ft digital	1800 ft	1800 ft	.....	3000 ft
Triax Cable	Yes	4500 ft	4500 ft	1.5km 11mm	4500 ft
Camera Head Weight	.....	83 lb	88 lb	62 lb	75 lb
Color Standards	NTSC	NTSC	NTSC	PAL, NTSC	NTSC, PAL, SECAM
Reader Service Number	**295**	**296**	**297**	**298**	**299**

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Spec Note:
Performance specs are not directly comparable due to variations in references used by manufacturers in determining those specifications values. Equipment performance should be discussed with the manufacturers' representatives before making final decisions.

BIG NEWS.
SMALL PACKAGE.

Announcing Thomson Betacam.™ The smallest, lightest ½" camera/recorder ever. All in one neat package. With superior signal-to-noise performance. Designed with *both* ENG and EFP operators in mind. For on-the-spot news gathering or complicated field production, now there's a system just right for you. And your budget. Because Thomson Betacam also carries the lowest price tag.

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Circle (14) on Reply Card

COLOR TV CAMERA

Studio/Field Production

Manufacturer	Panasonic	Philips Television Systems		RCA Broadcast	
Model Number	**WV-777ST(2)**	**LDK 6 System**	**LDK 25B**	**TK-47B**	**TK-761(-781)**
Pickup Tube Type	S	DGP, ACT P	DGP, ACT P	P, L, S, DGP	P, S, LOC
Pickup Tube Size	⅔"	1" or 1.2"	1"	1.2"	⅔"
Pickup Tube Number	H4101	XQ-1500/1410/3070	XQ-1500/2170	XQ-1410, EEV P-8400	XQ-1427/BC4391
Optics	f/1.4 prism	Prism	Prism	f/1.4 prism	f/1.4 prism
Sensitivity	190fc, f/4, 90%	570 lux, f/2.8, 89.9%	620 lux, f/2.8, 89.9%	1250 lux, f/4, 60%	1250 lux, f/2.8, 60%
Resolution	550TVL	100% 5MHz	100% 5MHz	750TVL, 55% 5MHz	600TVL
Registration (Z1, 2, 3)	0.1, 0.3, 0.6%	25, 25, 40nsec	25, 65, 125nsec	0.05, 0.05, 0.1%	0.1, 0.2, 0.5%
S/N Ratio	55dB	56dB	56dB	55dB	54dB
Contours Taken From	Green	Green, red option	Green	Green, red	Green
Enhancement	.....	Note(3)	Note(3)	H/V comb, core	H/V comb, core
ND Filters	.....	Yes	Yes	Yes	.....
Color Temperature Filters	Yes	Wratten #85B	Wratten #85B	Yes	Yes
Beam Optimizing Circuitry	Yes	Yes	Yes	Yes	Yes
Viewfinder Size	5"	.....	.....	7"	5"
Genlock Requirement	Video	Video	Video	Video	Video
Setup Manually	Yes	Yes	Yes	Option	Yes
Setup by Computer	.....	Yes	No	Yes	No
Digital Operation	.....	Yes	No	Yes	No
Multicore Cable	100 ft 32-conductor	.....	2000 ft TV81N	2000 ft	1000 ft
Triax Cable	.....	6500 ft, 14mm	.....	11,000 ft	5000 ft for TK-781
Camera Head Weight	11.4 lb	86 lb	75 lb	88 lb	38 lb
Color Standards	NTSC	NTSC, PAL, PAL-M, SECAM	NTSC, PAL, PAL-M SECAM	NTSC, PAL, SECAM	NTSC, PAL, SECAM
Reader Service Number	**300**	**301**	**302**	**303**	**304**

(2) ENG configuration of the WV-777 is also available. (3) 2-line, coring, comb, level dependence, edge-of-band.

COLOR TV CAMERA

Studio/Field Production

Manufacturer	Thomson-CSF		Toshiba Corporation
Model Number	**TTV 1525**	**TTV 1525B**	**PK-41**
Pickup Tube Type	DGP	P, L	LO, DGP
Pickup Tube Size	1" and ⅔"	1" and ⅔"	1"
Pickup Tube Number	XQ2070/2427	XQ-2070/2427, P8190	Various
Optics	Prism	f/1.5 prism	f/1.6 prism
Sensitivity	800 lux, f/2.8, 60%	800 lux, f/2.8, 60%	200fc, f/5, 89.9%
Resolution	50%, 5MHz	50%, 5MHz	600TVL, 50% 5MHz
Registration (Z1, 2, 3)	30, 70, 120nsec	30, 70, 120nsec	0.05, 0.1%
S/N Ratio	49dB	49dB	58dB
Contours From	Green	Green	Green, red, blue
Enhancement	Yes	Yes	Coring, comb H/V
ND Filters	Yes	Yes	Yes
Color Temperature Filters	Electronic	Electronic	Yes
Beam Optimizing Circuitry	Yes	Yes	Yes
Viewfinder Size	5", 7"	7"	7"
Genlock Requirement	Video	Video	Video
Setup Manually	Yes	Yes	Yes
Setup by Computer	Yes	Yes	Yes
Digital Operation	Yes	Yes	Yes
Multicore Cable	1800 ft	2000 ft	2000 ft
Triax Cable	4500 ft	4500 ft	4600 ft 9CTCXL
Camera Head Weight	18 lb	.....	75 lb
Color Standards	NTSC, PAL, SECAM,	NTSC, PAL, SECAM	NTSC, PAL, SECAM
Reader Service Number	**305**	**306**	**307**

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Color TV Cameras

VIDEO RECORDING CAMERA (VRC)

Video recorder-camera combo systems, designed for single unit operation, with the recorder attaching directly to the camera without cables. These systems are battery-operated for ENG applications.

Manufacturer	**Ampex Corporation**	**Bosch Fernseh**	**Hitachi Denshi**	**Ikegami Electronics**	**NEC America**
System Number	**ARC-10**	**KBF-1**	**SR-1(SR-3)**	**HL-83**	**SPC-3**
Camera Number	FPC-10P(S)	KBF-1	SK-1(SR-3)	HL-83	SPC-3
Camera Tubes	3	3	3	3	3
Size	⅔-inch	½-inch	⅔-inch	⅔-inch	.....
Type	P(S)	P	MOS CCD(S)	P, S	MOS CCD
Sensitivity	200fc, f/4	900 Lux, f/2, 70%R	2000 Lux, f/2.8(f/4)	2000 Lux, f/4.5, 89.9%R	200fc, f/4, 60%R
S/N Ratio	59dB	54dB	49dB(58dB)	55dB	55dB NTSC
Resolution	600TVL	≥40%, 4MHz	>450TVL	>500TVL	>500TVL
Recorder Number	FPR-10	BCF-1	CV-One	HM-100	BVV-1 or other
Cassette Type	VHS ½-inch	CVC ¼-inch	CVD ¼-inch	VHS ½-inch	BETA ½-inch
Time/Cassette	20 min	20 min	10 min	20 min	20 min
Recording Format	M-format	LINEPLEX	Y, C Separation	M-format	Beta Component
Response Luma	To 3MHz	To 3.6MHz	.....	To 3MHz	To 4MHz
Response Chroma	To 1MHz	To 1.2MHz	.....	To 1MHz	To 1MHz
S/N Ratio Luma	>47dB	47dB	.....	47dB	48dB
S/N Ratio Chroma	>48dB	47dB	.....	48dB	50dB
Audio Channels	2	2	2	2	2
AF Response	±3dB/50Hz-15kHz	±2dB/50Hz-15kHz	.....	±3dB/50Hz-15kHz	3dB/50Hz-15kHz
AF S/N Ratio	>50dB	>60dB unwtd.	.....	50dB	50dB
System Notes:					
Separated Operation	Yes	Yes	Yes	Yes	Yes
Color Standards	NTSC	NTSC, PAL, SECAM	NTSC	NTSC	NTSC
Studio VCR	ARC-40	BCF-10	ECR-5	HM-300	BVW-10
Gen-lock Adapter	Option	Yes	.....	Option	Yes
Remote Camera CCU	Yes	Yes	.....	MA-83	.....
Time Code Generator	Yes	Yes	Yes	Yes	Yes
Reader Service Number	**767**	**768**	**769**	**770**	**771**

VTRs

VIDEO RECORDING CAMERA (VRC)

	Panasonic	RCA	Sony	Thomson-CSF
Manufacturer				
System Number	**RECAM B-100P(S)**	**Hawkeye System**	**Betacam BVW-1(BVW-3)**	**MC-613 Betacam**
Camera Number	AK-100PL(S)	HC-II	BVP-1(BVP-3)	MC-613(MC-611)
Camera Tubes	3	3	1(3)	3(1)
Size	⅔-inch	½-inch	⅔-inch	⅔-inch
Type	DGP, LOC(S)	P, S	HBST(M-F S)	M-F S(HBST)
Sensitivity	200fc f/1.4, 60%R	56fc, f/1.4, 60%R	2000 Lux, f/4	2000 Lux, f/4, 89%R
S/N Ratio	59dB(58dB)	58dB NTSC	53dB(58dB)	58dB
Resolution	600TVL	600TVL, 61%, 4MHz	400TVL(650TVL)	650TVL
Recorder Number	AU-100	HR-1	BVV-1	VR-611
Cassette Type	VHS ½-inch	VHS ½-inch	BETA, ½-inch	BETA ½-inch
Time/Cassette	20 min	20 min	20 min	20 min
Recording Format	M-format	M-format ChromaTrak	Beta component	Beta component
Response Luma	To 3.8MHz	To 3.8MHz	To 4MHz	To 4MHz
Response Chroma	To 1MHz	To 1MHz	To 1MHz	To 1MHz
S/N Ratio Luma	50dB	47dB	48dB	48dB
S/N Ratio Luma	52dB	48dB	50dB	50dB
Audio Channels	2	2	2	2
AF Response	±2dB/50Hz-15kHz	±3dB/50Hz-15kHz	±3dB/50Hz-15kHz	±3dB/50Hz-15kHz
AF S/N Ratio	50dB	50dB	50dB	50dB
System Notes:				
Separated Operation	Yes	Yes	Yes	Yes
Color Standards	NTSC	NTSC, PAL, SECAM	NTSC	NTSC
Studio VCR	AU-300A	HR-2 Hawkeye	BVW-10	VT-615
Gen-lock Adapter	Option AK-1090	Option	Yes	Yes
Remote Camera CCU	Option	Option	.....	.....
Time Code Generator	Yes	Yes	Yes	Yes
Reader Service Number	**772**	**773**	**774**	**775**

COLOR VIDEO MONITORS

Monitors, using P22 phosphors, for video signals of 1V P-P, 75Ω. Inputs of 0.714 non-composite may be used if external sync is available. The display format is based on a 4H:3V aspect ratio. Color temperature is typically factory set to 6500°K in the United States. Receiver/monitors are not included.

Manufacturer	Amtron Corporation		Asaca ShibaSoku	
Model Number	AM Series	7819 High Resolution	Universal Color Display	CMM14-7 Series	CMM20-11 Series
CRT Diagonal	5", 8", 12", 17", 26"	19"	8", 12", 19", 25"	14"	20"
CRT Type	Trinitron*	.....	Delta dot	Dot/black matrix	Dot/black matrix
Phosphor Dot Pitch	.....	.....	.....	.....	.....
Resolution	.....	500TVL	512x512 pixel	600TVL	600TVL
Convergence Accuracy	.....	0.02"	0.4mm	0.4mm center	0.4mm center
Raster Regulation(1)	1/6"H, 1/8"V	1%	<1%	.....	.....
Luminance Bandwidth	.....	±3dB/to 100MHz	To 50MHz	±1dB/6MHz	±0.5dB/7MHz
Chrominance Bandwidth	.....	.....	.....	±0.5dB/1.3MHz	−2dB/1.3MHz
Blue Gun Only Test	No	Yes	.....	.....	.....
NTSC Matrix Test	No	No	.....	.....	.....
AFC Time Constants	.....	0.5, 7msec	Switched scan rate	0.5, 2, 7msec	0.5, 7msec
Aperture Correction	.....	Yes	.....	Yes	Yes
Demodulation Axes	.....	.....	.....	R-Y, B-Y	I, Q
X-Y Outputs	.....	Yes	.....	Option	Option
Underscan Sweeps	On 26" model	Yes	.....	95%	95%
Delay/Pulse Cross	Standard on 26"	Yes	.....	Yes	Yes
Number of Video Inputs	2	2	.....	2	2
RBG Inputs	AM-26RGB only	.....	Yes	Option	Option
External Sync	Yes	Yes	Yes	Yes	Yes
Cabinet or Rack	Either	Either	Either	Either	Either
Color Standards	NTSC, PAL	NTSC	RGB, NTSC	NTSC, PAL, SECAM	NTSC, PAL, SECAM
Related Models	.....	.....	.....	CMM14-11	CMM20-7
Reader Service Number	**797**	**798**	**799**	**800**	**801**

(1) Values given for 0-100% APL unless stated otherwise.
*Trinitron is a registered trademark of the Sony Corporation.

COLOR VIDEO MONITORS

Manufacturer	Barco Electronics NV		Bosch/Fernseh		Conrac Corporation
Model Number	CM 33 HRC	CTVM 3 Series	MC-51BA	MC-22 BA	5300C19
CRT Diagonal	13"	15", 19"	20"	9"	19"
CRT Type	Dot/in-line	Dot	Shadow mask/Delta	In-line/Delta dot	Shadow mask
Phosphor Dot Pitch	0.43mm	0.31mm	0.34mm	0.3mm	.....
Resolution	520TVL	770TVL, 19"	10.8MHz(625TVL)	5MHz	450TVL
Convergence Accuracy	0.6mm	≤0.4mm	≤0.4mm	≤0.5mm	0.03"
Raster Regulation	1%	.....	.....	.....	1%
Luminance Bandwidth	1, −3dB/7MHz	≤ ±0.5dB/to 7MHz	±0.5dB/to 5MHz	±0.5dB/to 5MHz	1dB/to 5.5MHz
Chrominance Bandwidth	1.5MHz	1.5MHz	.....	.....	.....
Blue Gun Only Test	Yes	Yes	.....	No	No
NTSC Matrix Test	No	.....	No	No	Yes
AFC Time Constants	2, 7msec	0.67, 2.5msec	1, 3msec	1, 3msec	0.5, 7msec
Aperture Correction	No	.....	Yes	.....	6dB, 3.2MHz
Demodulation Axes	U, V	R-Y, B-Y	R-Y, B-Y	.....	R-Y, B-Y
X-Y Outputs	No	Yes	Yes	.....	No
Underscan Sweeps	Yes	Yes	Yes	Yes	Yes
Delay/Pulse Cross	Yes	Yes	Yes	.....	Option
Number of Video Inputs	2	2	3	2	2
RBG Inputs	Option	Yes	Yes	Yes	No
External Sync	Yes	Yes	Yes	Yes	Yes
Cabinet or Rack	Either	Either	Either	Either	Either
Color Standards	NTSC, PAL, SECAM	NTSC, PAL, SECAM	NTSC, PAL, SECAM	RGB, NTSC, PAL, SECAM	NTSC, PAL, SECAM
Related Models	CM 51, CM 66	A, B, C, D models	RGB	.....	5200C19
Reader Service Number	**802**	**803**	**804**	**805**	**806**

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More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Color Video Monitors

*IFC – Inside Front Cover

COLOR VIDEO MONITORS

Manufacturer	Conrac Corporation		Croma/Auto Cue	
Model Number	**5700C13**	**7211C19**	**6200 Series**	**CM137**	**CM151**
CRT Diagonal	13"	19"	19"	14"	20"
CRT Type	Delta gun	PIL	PIL/slot mask	Dot/shadow mask	Dot/shadow mask
Phosphor Dot Pitch	.....	.....	0.47mm	0.31mm	0.43mm
Resolution	600TVL	1080x809 pixel	600TVL	To 5MHz	To 5MHz
Convergence Accuracy	0.02"	0.01"	0.4mm	0.3mm	0.4mm
Raster Regulation	1%	1%	1%	....	.....
Luminance Bandwidth	± 1dB/to 5.5MHz	3dB/to 4CMHz	± 1dB/to 8MHz	± 0.5dB/to 5.5MHz	± 0.5dB/to 5.5MHz
Chrominance Bandwidth	.....	.....	– 3dB/to 2MHz	.....	.....
Blue Gun Only Test	No	... .	Yes	.....	.....
NTSC Matrix Test	Yes	.....	No	.....	.....
AFC Time Constants	0.5, 7msec	.....	0.5, 2msec	.....	.....
Aperture Correction	6dB, 3.2MHz	.....	± 6.5dB, 2.5MHz	.....	.....
Demodulation Axes	R-Y, B-Y	.....	R-Y, B-Y	U/V	U/V
X-Y Outputs	Option	No	Yes	Yes	Yes
Underscan Sweeps	Yes	.....	Yes	Yes	Yes
Delay/Pulse Cross	Yes	.....	Yes	Yes	Yes
Number of Video Inputs	2	.....	3	3	3
RBG Inputs	5711C13 only	Yes	Yes	Yes	Yes
External Sync	Yes	Yes	Yes	Yes	Yes
Cabinet or Rack	Either	Either	Either	Rack	Rack
Color Standards	NTSC, PAL	RGB	NTSC, PAL, RGB	NTSC, PAL, SECAM, RGB	NTSC, PAL, SECAM, RGB
	.....	.....	.....		
Related Models	5711C13	.....	13" model	CM142	.....
Reader Service Number	**807**	**808**	**809**	**810**	**811**

Manufacturer	Electrohome Ltd.	GEC McMichael Ltd.		Hitachi Denshi	Ikegami Electronics
Model Number	**ECM1301**	**GM 7137**	**GM7151**	**CM-182**	**TM14-9RH**
CRT Diagonal	13"	14"	20"	18"	14"
CRT Type	In-line/black matrix	In-line	In-line	In-line gun	Delta/PIL/black matrix
Phosphor Dot Pitch	0.31mm	0.43mm	0.44mm)	.....	0.31mm
Resolution	720x512 pixel	430TVL, 5.5MHz	600TVL, 7.8MHz	370TVL	600TVL
Convergence Accuracy	0.4mm	0.6mm	0.7mm	. ...	0.4mm
Raster Regulation	.....	.....	.....	.....	± 2%
Luminance Bandwidth	25MHz	0.5, – 3dB/to 10MHz	0,5 – 3dB/to 10MHz	.....	1, – 3dB/to 8MHz
Chrominance Bandwidth	.....	.....	.....	.....	± 1dB/to 4.9MHz
Blue Gun Only Test	No	No	No	No	No
NTSC Matrix Test	No	No	No	No	Yes
AFC Time Constants	.....	.....	.....	.....	0.5m 2, 7msec
Aperture Correction	.....	No	No	Yes	Variable
Demodulation Axes	.....	.....	.....	3-axes	I/Q
X-Y Outputs	No	.....	.....	No	Yes
Underscan Sweeps	Yes	Yes	Yes	.....	Yes
Delay/Pulse Cross	No	Yes(PAL)	Yes(PAL)	.....	Yes
Number of Video Inputs	1	2	2	1	3
RBG Inputs	Yes	Yes	Yes	CM1822	Yes
External Sync	Yes	Yes	Yes	Yes	Yes
Cabinet or Rack	Cabinet	Either	Either	Either	Either
Color Standards	RGB, M1301-RS170	NTSC, PAL, SECAM, RGM	NTSC, PAL, SECAM, RGB	NTSC, RGB	NTSC, RGB
	.....			....	.....
Related Models	.....	.....	.....	.....	.....
Reader Service Number	**812**	**813**	**814**	**815**	**816**

Manufacturer	Ikegami Electronics	JVC	Lenco		
Model Number	**TM20-9RH**	**TM-R9U**	**PCM 519-3**	**PCM 514-4**	**PCM 514-6**
CRT Diagonal	20"	9"	20"	13"	13"
CRT Type	Delta/PIL/black matrix	Black matrix	PIL	PIL	PIL
Phosphor Dot Pitch	0.43mm	0.42mm	.....	.....	.....
Resolution	600TVL	370TVL	800TVL	700TVL	625TVL
Convergence Accuracy	0.4mm	0.5mm	0.2%	0.2%	0.2%
Raster Regulation	± 2%	.....	1%, 10-90%APL	1%, 10-90%APL	1%, 10-90%APL
Luminance Bandwidth	1, – 3dB/to 8MHz	– 3dB at 5MHz	10MHz	10MHz	10MHz
Chrominance Bandwidth	± 1dB/to 4.9MHz	– 3dB, SC ± 0.5MHz	6MHz, comb filter	6MHz, comb filter	6MHz, comb filter
Blue Gun Only Test	No	Yes	Yes	Yes	Yes
NTSC Matrix Test	Yes	No	No	No	No
AFC Time Constants	0.5, 2. 7msec	.....	.....	.....	.....
Aperture Correction	Variable	Variable	Yes	Yes	Yes
Demodulation Axes	I/Q	R-Y, B-Y	.....	.....	.....
X-Y Outputs	Yes	No	No	No	No
Underscan Sweeps	Yes	Yes	Yes	Yes	Yes
Delay/Pulse Cross	Yes	Yes	Yes	Yes	Yes
Number of Video Inputs	3	2	2	2	2
RBG Inputs	Yes	No	Yes	Yes	Yes
External Sync	Yes	Yes	Yes	Yes	Yes
Cabinet or Rack	Either	Either	Either	Either	Either
Color Standards	NSTC, RGB	NTSC	NTSC	NTSC	NTSC
Related Models	.....	.....	PCM 519-4, -6	PCM 514-3	.....
Reader Service Number	**817**	**818**	**819**	**820**	**821**

COLOR VIDEO MONITORS

Manufacturer	Panasonic Industrial Company		Philips	Sony Corporation
Model Number	**CT-1330M**	**BT-S1900N**	**AT-H190G**	**LDH-6200**	**BVM-1900**
CRT Diagonal	13"	19"	19"	14"	19"
CRT Type	PIL/slot mask	PIL/slot mask	Delta dot	PIL	H.R. Trinitron
Phosphor Dot Pitch	0.63mm	0.77mm	0.43mm	0.65mm	0.3mm
Resolution	230TVL	.....	600TVL	300TVL	900TVL
Convergence Accuracy	0.5mm center	0.5mm center	0.5mm center	0.5mm	0.5mm
Raster Regulation	±5%	±5%	±5%	2%	1%
Luminance Bandwidth	1, –3dB/to 2.8MHz	1, –3dB at 4MHz	1, –3dB/to 8MHz	–3dB/to 5MHz	1dB/to 10MHz
Chrominance Bandwidth	1, –3dB/to 0.4MHz	1, –3dB/to 0.5MHz	1, –3dB/to 0.5MHz	–3dB/to 0.9MHz	1.3MHz b.w.
Blue Gun Only Test	No	Yes	Yes	No	Yes
NTSC Matrix Test	No	No	No	No	Yes
AFC Time Constants	2, 7msec	2, 7msec	2, 7msec	0.08, 2.1msec	0.5, 7msec
Aperture Correction	Yes	Yes	Yes	Yes	±8dB, 4.5 & 9MHz
Demodulation Axes	R-Y, B-Y	R-Y, B-Y	R-Y, B-Y	I/Q	R-Y, B-Y
X-Y Outputs	No	No	No	No	Yes
Underscan Sweeps	Overscan	Yes	Yes	90%	Yes, –10%
Delay/Pulse Cross	No	Yes	Yes	Yes	Yes
Number of Video Inputs	3	3	2	2	2
RBG Inputs	No	No	Yes	Yes	Yes
External Sync	No	Yes	Yes	Yes	Yes
Cabinet or Rack	Cabinet	Rack	Rack	Either	Either
Color Standards	NSTC	NTSC	NTSC, RGB	NTSC, PAL, RGB	NTSC
Related Models	.....	BT-S1300N, BT-S700N	AT-H130G	.....	
Reader Service Number	**822**	**823**	**824**	**825**	**826**

Manufacturer	Sony Corporation				Tektronix
Model Number	**BVM1201**	**BVM4050**	**PVM 5300 Triple**	**PVM 1270 Quad Std.**	**650HR Series**
CRT Diagonal	12"	4"	5"	12"	12"
CRT Type	H.R. Trinitron	H.R. Trinitron	.....	H.R. Trinitron	Trinitron
Phosphor Dot Pitch	0.25mm	0.31mm	0.4mm	0.25mm	0.25mm
Resolution	550TVL	230TVL	300TVL	600TVL (640x200 pixel)	500TVL
Convergence Accuracy	1mm	0.5mm	.....	.....	1mm
Raster Regulation	1%	5%	.....	.....	1%
Luminance Bandwidth	1dB/to 8MHz	–3dB/to 3MHz	.....	–3dB/to 10MHz	±3dB/to 6MHz
Chrominance Bandwidth	1.3MHz b.w.	1.3MHz b.w.	.....	.....	±3dB/to 1.3MHz
Blue Gun Only Test	Yes	Yes	No	No	Yes
NTSC Matrix Test	No	No	No	No	Yes
AFC Time Constants	0.5, 7msec	2msec	2msec	2msec	0.5, 7msec
Aperture Correction	±8dB, 4.5MHz	No	No	No	Yes
Demodulation Axes	R-Y, B-Y	R-Y, B-Y	R-Y, B-Y	R-Y, B-Y	R-Y, B-Y & U/V
X-Y Outputs	Yes	No	No	No	Yes
Underscan Sweeps	Yes, –10%	No	No	Yes, –10%	Yes
Delay/Pulse Cross	Yes	Yes	No	.....	Yes
Number of Video Inputs	2	2	1	2	2
RBG Inputs	Yes	No	No	Yes	Yes
External Sync	Yes	No	Yes	Yes	Yes
Cabinet or Rack	Either	Cabinet, portable	3-wide rack	Cabinet	Either
Color Standards	NSTC	NTSC	NTSC	NTSC, PAL, SECAM, NTSC-4.43	NTSC, PAL, SECAM, RGB
Related Models	.....	.....	.....	.....	.....
Reader Service Number	**827**	**828**	**829**	**830**	**831**

Manufacturer	Tektronix	Videotek		
Model Number	**690SR Series**	**VM-17PR**	**VM-15PRO**	**Studio-12**
CRT Diagonal	19"	17"	15"	12"
CRT Type	Delta dot/black matrix	Trinitron	Trinitron	Trinitron
Phosphor Dot Pitch	0.31mm, 0.43mm	0.64mm	0.58mm	0.53mm
Resolution	700TVL(1000x1000 pixel)	280TVL	280TVL	280TVL
Convergence Accuracy	0.5mm	1.5mm	0.5mm	1mm
Raster Regulation	1%	3%	3%	1%
Luminance Bandwidth	±3dB/to 25MHz	±3dB/to 3.2MHz	±3dB/to 3.2MHz	±3dB/to 3.2MHz
Chrominance Bandwidth	±3dB/to 1.3MHz	±3dB	±3dB	±3dB
Blue Gun Only Test	Yes	No	No	No
NTSC Matrix Test	Yes	No	No	No
AFC Time Constants	0.5, 7msec	.....	.....	0.5, 2msec
Aperture Correction	Yes	±4dB at 2.5MHz	No	±4dB at 2.5MHz
Demodulation Axes	R-Y, B-Y & U/V	R-Y, B-Y	R-Y, B-Y	R-Y, B-Y
X-Y Outputs	No	No	No	No
Underscan Sweeps	Yes	Yes, 20% option	Yes, 20%	Yes, 20%
Delay/Pulse Cross	Yes	Option	Yes	Yes
Number of Video Inputs	2	2	2	2
RBG Inputs	Yes	No	No	No
External Sync	Yes	Yes	No	Yes
Cabinet or Rack	Either	Either	Either	Either
Color Standards	NTSC, PAL, RGB	NTSC	NTSC	NTSC(PAL)
Related Models	.....	.....	.....	.....
Reader Service Number	**832**	**833**	**834**	**835**

Light, small, compact. The KCF1 for professional ENG/EFP

The KCF1 is the ideal camera for news and field productions, and adapts to any professional VTR. And of course – it opens the door to the QuarterCam System.

Light for flight

Fifteen pounds (6,7 kg) is an ideal working weight – but find another camera that weighs this complete with viewfinder, 12 x zoom lens and 2,5 Ah the battery. Little more than three inches thick and seven inches high, the KCF1 goes with you, anywhere – and flies as hand-baggage.

Flexible

The lens, viewfinder and battery connect directly without cables. The lens can be fixed or attached with a bayonet mount. The 1.5 inch viewfinder can be quickly exchanged for a 3 inch version which is also light enough to shoulder.

And the quick change battery stays with you for more than 1,5 hours. Naturally, the KCF1 retains its set-up values.

Comfortable

The KCF1 sits beautifully on your shoulder thanks to the cross-mounted battery which lowers and balances the centre of gravity. You'll find the controls without thinking and the low camera profile won't block your peripheral vision.

Sharp Sighted

"Unusually sharp viewfinder picture" is the usual first comment followed closely by a favourable opinion of the viewfinder adjustments. Two separate zebra bars for 70% and 100% video level help judge the scene illumination: "It makes the risk of overexposed detail visible."

Easy to use

Some KCF1 features: Iris spot measures in picture centre. Autoiris switchable between peak and mean value. Indication of incorrect filter and the end of its iris range. Automatic selection of 6/12 dB video gain during iris-spot dependent on lighting conditions.

When used together with the QuarterCam recorder the KCF shows remaining tape and VTR status, gain, on-air tally and audio limiting all indicated next to the viewfinder picture with coloured LEDs – to make your job easier.

And KCF1 comments:

"The LEDs are in the normal field of view but don't distract the eye." – "The KCF1 allows you to concentrate fully on the scene in front of you."

Studio camera quality

The KCF1 provides a full broadcast quality signal. Using ½ inch LOC Plumbicons® it equals, in some cases exceeds, the parameters of ⅔ inch cameras. The limiting sensitivity (+ 12 dB with standard lens and good s/n ratio) is 100 lux.

If you're not a cameraman ...

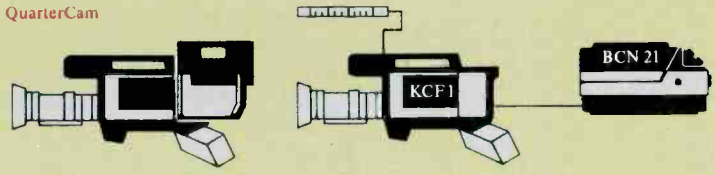
You may be budgeting or planning for portable cameras. The KCF1 is:

- Very good value: a price comparison pays.
- Genlockable for studio or OB van use.
- Remotely controllable via a camera cable.
- The most versatile EFP System available when used with the Bosch BCN 21.
- Adaptable to all VTRs in common use via a switchable interface.

Furthermore, if the coder adapter is removed a ¼ inch Lineplex recorder can be added to upgrade the KCF1 to a QuarterCam, easing the transition to integrated camera-recorder operation.

Last but not least: The KCF1 is available for delivery and already in use. The KCF1. From Bosch.

Robert Bosch GmbH, P.O.B. 429, D-6100 Darmstadt, Fed. Rep. of Germany; Fernseh Inc., P.O.B. 15068, Salt Lake City, Utah 84115, USA; Robert Bosch Ltd., P.O.B. 166, Watford, Great Britain; Robert Bosch (Australia) Pty. Ltd., Cnr. Centre and McNaughton Roads, Clayton, Victoria 3168, Australia; Robert Bosch Pte. Ltd., P.O.B. 4, Thomson Road, Singapore 20; Robert Bosch (Canada) Ltd., 6811 Century Avenue – Mississauga, Ontario L5N 1R1.



KCF1 First step towards the QuarterCam System.

KCF1 Adaptable to all VTRs. In use above with the Bosch BCN 21

BOSCH

DIGITAL VIDEO EFFECTS SYSTEMS

Equipment for visual image manipulation, aspect alteration, and/or dimensional distortions. Digital techniques are used in the operation. Simpler key, border, wipe, etc., effects may be within the repetoire, but are not listed here.

Manufacturer	**ADDA Corporation**	**Ampex Corporation**	**Digital Services**	**Grass Valley Group**	**MCI/Quantel**
Model Number	**VIP(1)**	**ADO**	**Digifex**	**DVE-2**	**DPE 5000/Plus**
Video Output Channels	1	4	1	1	5
Image Size Changes:					
Compression (H and V)	Yes	Yes, 100%	Infinite	Infinite	Infinite
Expansion (H and V)	.....	>100%	Yes	Infinite	x4
Rotation Around Axes	X, Y	X, Y, Z	X, Y, Z	X, Y	X, Y, Z
Perspective Changes:					
Along Horizontal	No	True perspective	No	No	Yes
Along Vertical	No	True perspective	No	No	Yes
"Elastic Sheet"	No	No	No	No	Yes
Page Turn	No	Linear plane only	Yes	No	No
Multi-Image Freeze	Yes	No	No	Yes	Yes
Image Trail Freeze	.....	No	Yes	Yes	Yes
Image Positioning	Yes	Yes	Yes	Yes	Yes
Picture Splits	Yes	Multichannel	Yes	Yes	Yes
Key Tracking	.....	No	No	Yes	Yes
Mirror Imaging (H and V)	.....	Yes	Yes	Yes	Yes
Push-Pull Wipes	Yes	Multichannel	Yes	Yes	Yes
Posterization	.....	No	Yes	Yes	No
Programmed Sequences	Yes	Yes	Yes	Yes	Yes
Mass Memory Type	.....	Disc	Disc	Disc	Disc
Auto/Manual Transitions	Manual	Either	Either	Either	Either
Reader Service Number	**867**	**868**	**869**	**870**	**871**

(1) Also available from ADDA is the AC20A, providing positional/wipe effects.

Manufacturer	**MCI/Quantel**	**Microtime**	**NEC America**	**Precision Echo**	**QuesTech Ltd.**
Model Number	**Mirage(2)**	T^2E-120	E-Flex	Squeezer	6101P
Video Output Channels	Multiple	1	1 or 2	1	1
Image Size Changes:					
Compression (H and V)	Yes	No	Yes	1/4, 1/9, 1/16, 1/25	Yes
Expansion (H and V)	Yes	No	Yes	Variable crop only	x2
Rotation Around Axes	X, Y, Z	None	OptiFlex option	None	Through sequence
Perspective Changes:					
Along Horizontal	Yes	No	OptiFlex option	No	.....
Along Vertical	Yes	No	OptiFlex option	No	.....
"Elastic Sheet"	And geometrics	No	Optional	No	No
Page Turn	Yes	No	Optional	No	No
Multi-Image Freeze	Yes	No	Yes	No	No
Image Trail Freeze	Yes	No	Yes	No	No
Image Positioning	Yes	No	Yes	Yes	Yes
Picture Splits	Yes	No	Yes	No	.....
Key Tracking	Yes	No	Yes	No	.....
Mirror Imaging (H and V)	Yes	No	No	Yes	Yes
Push-Pull Wipes	Yes	Yes	Yes	No	Possible
Posterization	Yes	No	Yes	No	Yes
Programmed Sequences	Yes	Yes	Yes	No	Yes
Mass Memory Type	Disc	None	Bubble	None	.....
Auto/Manual Transitions	Either	Either	Either	Manual	Yes
Reader Service Number	**872**	**873**	**874**	**875**	**876**

(2) For details on the MCI/Quantel Cypher, contact the manufacturer.

Manufacturer	**Regis-BLT**	**Toshiba Corporation**	**Vital Industries**
Model Number	**AVP 900**	**DPE-III TH2465**	**SqueeZoom**
Video Output Channels	2	4	4
Image Size Changes:			
Compression (H and V)	1/4 through 1/64	0 to 100%	Infinite
Expansion (H and V)	x4, x16	0 to 100%	Infinite
Rotation Around Axes	None	X, Y	X, Y, Z
Perspective Changes:			
Along Horizontal	Yes	No	No
Along Vertical	Yes	No	No
"Elastic Sheet"	No	No	No
Page Turn	No	No	Yes
Multi-Image Freeze	Yes	Yes	Yes
Image Trail Freeze	Yes	Yes with decay	Yes
Image Positioning	Yes	Yes	Yes
Picture Splits	Yes	Yes	Yes
Key Tracking	Yes	Yes	Yes
Mirror Imaging (H and V)	Yes	Yes	Yes
Push-Pull Wipes	Yes	Yes	Yes
Posterization	Yes	Yes	Yes
Programmed Sequences	Yes	Yes	Yes
Mass Memory Type	Disc	Bubble	None
Auto/Manual Transitions	Manual	Either	Either
Reader Service Number	**877**	**878**	**879**

For addresses of manufacturers whose products are listed in this edition, refer first to advertisers' index or obtain address from advertisement. For non-advertisers and companies that do not show an address on their advertisement, refer to company name and address listing in the **BE** *Buyers' Guide* (annual September issue).

EDITING CONTROLLER

Equipment interconnecting recording and playback/source units to control machine synchronization and switching function requirements in post-production editing.

Manufacturer	Albrecht Elektronik	Ampex Corporation		Bosch/Fernseh	CMX Systems
Model Number	ESP-M	ACE	HPE-104S(2)	Mach One	340XL/3400/3400 +
Specific Machines	AVR, VPR, BCN, BVU BK, A80, Telecine	VPR, AVR, BVU, BVH ATR	VPR, BVU	BCN, VPR, AVR, BVH RCA	Any machine .....
Number Recorders/Players	32 total	16 total	1 Rec/3 Play	1 Rec/5 Play	7 Rec/6 Play
Microprocessor Control	Distributed(1)	Distributed	Yes	Yes	Distributed
Internal Event Storage	Multiple	200	.....	Yes	9999 event 3400/ +
Disc Event Storage	.....	Floppy	Floppy	Option	Yes
Paper Tape Storage	.....	Option	Option	Yes	Option
CRT Data Display	LED displays	Yes	Yes	Yes	Yes
Edit Decision List	.....	Yes	Yes	Yes	Yes
Printer Output	Yes	Option	Yes	Yes	Yes
Assembly/Insert Mode	Both	Both	Both	Both	Both
Animation Edit Mode	Yes	Yes	Yes	Yes	Yes
A/B Roll Edit Mode	Yes	Yes	Yes	Yes	Yes
Split A/V Edit Mode	Yes	Yes	Yes	Yes	Yes
SMPTE Reader/Generator	EBU	Both	Option	Reader in interface	Yes
VITC Capability	.....	No	No	No	No
Control Track Timing	Yes	Yes	Yes	.....	No
Other Time References	.....	User bit	.....	.....	.....
Color Framing	PAL	Yes	Yes	Yes	Yes
Edit Accuracy	±0 frames	±0 frames	±0 frames	±0 frames	±0 frames
VTR Speed Controls	Yes	Joystick	Joystick	Yes	GISMO knob
VTR Direction Controls	Yes	Joystick	Joystick	Yes	GISMO knob
Video Switcher Interface	Yes	Option	Option	Yes	Yes
Audio Mixer Interface	Yes	Option	No	Yes	No
Reader Service Number	**625**	**626**	**627**	**628**	**629**

(1) The ESP-M uses distributed microprocessor control between 5 control desks. (2) The HPE-1C is similar but offers options for disc and printer capabilities.

Manufacturer	CMX Systems	Control Video Corporation		Convergence Corporation	Datatron
Model Number	Edge Systems	LF2000 Lightfinger(3)	Sword	ECS-104	EDIT-STAR
Specific Machines	½", ¾", 1" PAL and NTSC	Ampex/Bosch/Hitachi JVC/Panasonic/Sony	Ampex/Bosch/Hitachi JVC/Panasonic/Sony	Various ½". ¾", 1" machines	All 1", most ¾", broadcast ½"
Number Recorders/Players	1 Rec/2 Play	1 Rec/31 Play	1 Rec/1 Play	1 Rec/3 Play	1 Rec/3 Play
Microprocessor Control	Yes	Distributed	Yes	Yes	Distributed
Internal Event Storage	50 events	500 events	20 events	Yes	300 events
Disc Event Storage	Floppy	Floppy	No	Yes	Floppy option
Paper Tape Storage	Yes	Option	No	Yes	Option
CRT Data Display	Yes	Touch active	No	Yes	Yes
Edit Decision List	Yes	Yes	Yes	Yes	Yes
Printer Output	Yes	Yes	No	Yes	Option
Assembly/Insert Mode	Insert only	Both	Both	Both	Both
Animation Edit Mode	Yes	Yes	No	Option	No
A/B Roll Edit Mode	Yes	Yes	No	Yes	Yes
Split A/V Edit Mode	Yes	Yes	No	Yes	Yes
SMPTE Reader/Generator	Reader	Yes	Option	Reader option	Reader, gen. opt.
VITC Capability	Provisional	Yes	Option	No	Option
Control Track Timing	Yes	Yes	Yes	Yes	Yes
Other Time References	.....	.....	.....	.....	.....
Color Framing	Yes	Yes	Yes	Yes	Yes
Edit Accuracy	±0 frames	±0 frames	±0 frames	±0 frames	±0 frames
VTR Speed Controls	Yes	CRT control	Stroker	Yes	Rotary Varascan
VTR Direction Controls	Yes	CRT control	Stroker	Yes	Rotary Varascan
Video Switcher Interface	Yes	Yes	No	Yes	Yes
Audio Mixer Interface	Yes	No	No	Yes	Option
Reader Service Number	**630**	**631**	**632**	**633**	**634**

(3) Lightfinger LF1000 also available.

fyi...

Performance specifications are measured by the manufacturers using certain references for frequencies, impedances, levels, etc. Unfortunately the reference values are not the same from one manufacturer to another, nor are the procedures alike. Also, those references are not always provided even in the printed materials offered by the manufacturers. As a result, an exact comparison of equipment performance should not be made based only on published numbers. The manufacturers' representatives should be contacted to discuss performance tests and measurements before final purchasing decisions are made.

EDITING CONTROLLER

Manufacturer	Datatron	EECO	Harris Video	IVC	Interactive Systems Company
Model Number	ST-3	IVES	EPIC	ABR-1	Model 21
Specific Machines	All machines	Various	Various	JVC/Panasonic/Sony	Various
Number Recorders/Players	1 Rec/4 Play	1 Rec/1 Play	1 Rec/7 Play	3 total	3 Rec or 3 Play
Microprocessor Control	Distributed	Yes	Yes	Yes	Distributed
Internal Event Storage	318 events (Note 3)	.....	Multiple	10 events	750 events
Disc Event Storage	Floppy option	No	Yes	.....	Floppy
Paper Tape Storage	Option	.....	Option	.....	Option
CRT Data Display	Yes	Yes	Yes	Yes	Yes
Edit Decision List	Yes	Yes	Yes	Option	Yes
Printer Output	Option	Yes	Yes	Option	Yes
Assembly/Insert Mode	Both	Both	Both	Both	Assemble option
Animation Edit Mode	No	Possible	Yes	Yes	Optional
A/B Roll Edit Mode	Yes	No	Yes	Yes	Yes
Split A/V Edit Mode	Yes	Yes	Yes	Yes	Yes
SMPTE Reader/Generator	Reader, gen. opt.	Both	Yes	Reader option	Generator optional
VITC Capability	Optional	No	No	No	Optional
Control Track Timing	Yes	Yes	.....	Yes	Yes
Other Time References	.....	.....	.....	Micro-Loc	.....
Color Framing	Yes	.....	Yes	Yes	Yes
Edit Accuracy	±0 frames	±0 frames SMPTE	±0 frames	±0 frames	±0 frames
VTR Speed Controls	Varascan	Knob	Yes	Yes	Jogger ctl
VTR Direction Controls	Varascan	Knob	Yes	Yes	Jogger ctl
Video Switcher Interface	Yes	Internal video face	Yes	.....	Yes
Audio Mixer Interface	Option	Internal audio ctls	8x2 audio switcher	.....	Yes
Reader Service Number	**635**	**636**	**637**	**638**	**639**

EDITING CONTROLLER

Manufacturer	Interactive Systems Company	Jatex	JVC Company		Panasonic
Model Number	Model 41 (4)	VSEC-62TMX	RM-88U	VE-92(5)	NV-A970
Specific Machines	Various	Various	CR, CP, BR, BP	CR, CP, BR, BP	AU-700, NV-9600
	.....	.....	JVC machines	JVC machines	NV-9240
Number Recorders/Players	11 Rec or 11 Play	1 Rec/2 Play	1 Rec/1 Play	1 Rec/1 Play	1 Rec/1 Play
Microprocessor Control	Distributed	.....	Yes	Yes	Yes
Internal Event Storage	750 events	Single event	Single event	Single event	Single event
Disc Event Storage	Floppy	Option	No	Option	No
Paper Tape Storage	Optional	Option	No	Option	No
CRT Data Display	Yes	Option	No	Yes	LED displays
Edit Decision List	Yes	Option	No	No	No
Printer Output	Yes	Option	No	Yes	No
Assembly/Insert Mode	Assemble optional	Both	Both	Both	Both
Animation Edit Mode	Yes	Yes	No	Yes	No
A/B Roll Edit Mode	Yes	Yes	No	No	No
Split A/V Edit Mode	Yes	Option	Yes	Yes	Yes
SMPTE Reader/Generator	Generator optional	No	No	Both	Both
VITC Capability	Option	No	No	No	No
Control Track Timing	Yes	.....	Yes	Yes	Yes
Other Time References	.....	Scene-Dex	.....	.....	.....
Color Framing	Yes	No	No	No	No
Edit Accuracy	±0 frames	±1 frames	±2 frames	±0 frames	±2 frames
VTR Speed Controls	Jogger ctl	Yes	Yes	Joystick	Dial
VTR Direction Controls	Jogger ctl	Yes	Yes	Joystick	Dial
Video Switcher Interface	Yes	Yes	No	No	No
Audio Mixer Interface	Yes	Option	No	No	No
Reader Service Number	**640**	**641**	**642**	**643**	**644**

(4) Model 31 accommodates 7 record or 7 play machines. (5) The VE-90AT is similar without options for disc and paper tape facilities.

UNITED MEDIA offers everything you expect in a quality video editor, except a high price tag.

United Media incorporates every capability into the Commander II for sophisticated video editing, along with quality construction and built-in reliability while providing personalized customer support.

Exploding the price stigma.

Some people will tell you that a quality editor is not possible at our low price tag. Wrong. And here's why.

United Media's designers, engineers and technicians always go to extremes. They settle for nothing less than impeccable design, the finest components and precise assembly techniques. Because their uncompromising attitude results in high efficiency, United Media is able to be profitable while selling its editors at a price lower than its competitors.

At any price you can't find a more versatile, more capable video editor than the Commander II.

Take the Editor Challenge.

We challenge you to compare United Media with any competitor by giving the Commander II a rigorous test. Only then will you learn what our customers have known all along. That in an editor-to-editor showdown measuring performance, construction, reliability, customer support and price, United Media is the forerunner.

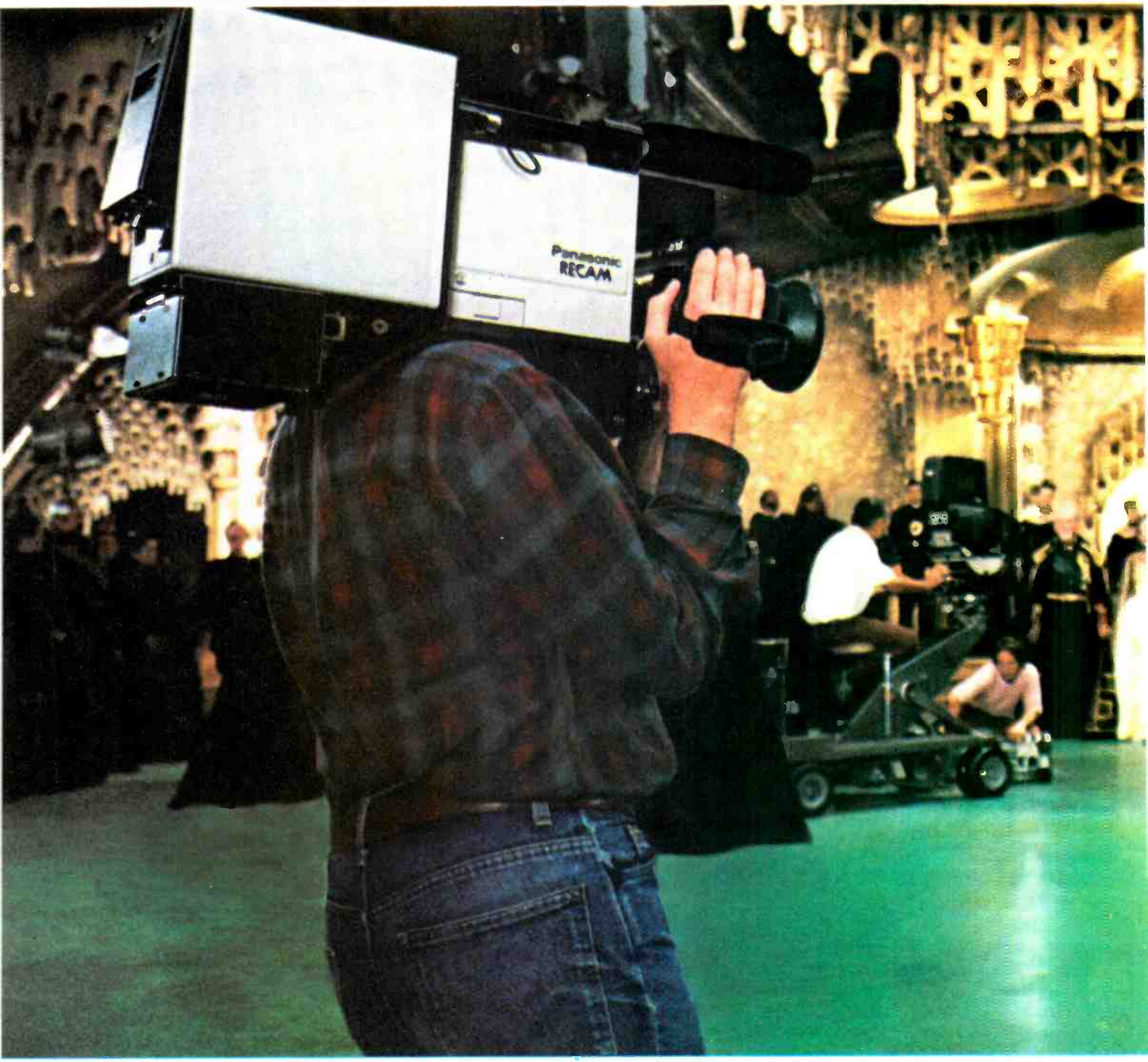
Give us, or your local dealer a call and we'll bring the Commander II to your facility so you can put it through the toughest editing tasks. You be the judge.

United Media

4075 Leaverton Court, Anaheim, CA 92807 (714) 630-8020 TWX 910-591-1669

Circle (19) on Reply Card

Why Panasonic Recam™ "The Making



When Dino De Laurentiis and producer Raffaella De Laurentiis got together with director David Lynch to film Frank Herbert's classic science fiction novel, "Dune," they knew it wouldn't be easy. But it wasn't just the eight sound stages, desert locations, a cast of up to 20,000 people and a crew of 900. Perhaps Raffaella De Laurentiis said it best: "Dune is the most technical picture ever made."

That's why it was no surprise that Panasonic Recam was selected to record "The Making of Dune." The reasons: Recam's picture quality and technology. After all, Recam had already made headlines by recording ABC Sports' momentous ascent of Mt. Everest which was broadcast on "The American Sportsman." And "Benji," the new CBS television series, is also being recorded by Recam.

was selected to shoot of Dune."

David Lynch
Director of "Dune."

Panasonic helped capture all the action from "Dune" on Recam's ½-inch format which will later be transferred to 1-inch for television broadcast. All made possible by Recam's incredible YIQ M-format picture quality.

You can see "The Making of Dune" in 1984. But you don't have to wait until then to see Recam. Call your nearest Panasonic regional office:
Northeast: (201) 348-7620
Midwest: (312) 981-4826
Southeast: (404) 925-6835
Southwest: (214) 258-6400
West: (714) 895-7200.

Panasonic®
AUDIO-VIDEO SYSTEMS DIVISION

Circle (20) on Reply Card

EDITING CONTROLLER

Manufacturer	RCA		Sony Broadcast		
Model Number	**AU-A70(6)**	**AE-800**	**HE-1 Hawkeye**	**BVE-3000**	**BVE-5000**
Specific Machines	AU-700, NV-9600 NV-9240, AU-300	TR-800	HR-2	BVH, BVU, BVW	BVH, BVU, BVW .....
Number Recorders/Players	1 Rec/2 Play	1 Rec/8 Play	1 Rec/1 Play	1 Rec/2 Play	2 Rec/6 Play
Microprocessor Control	Yes	Yes	Yes	Yes	Yes
Internal Event Storage	20 events	Single event	Single event	200 events	512 events
Disc Event Storage	No	No	No	No	Option
Paper Tape Storage	No	No	No	Option	Option
CRT Data Display	LED displays	Yes	No	Yes	Yes
Edit Decision List	No	No	No	Yes	Yes
Printer Output	No	Yes	No	Yes	Option
Assembly/Insert Mode	Both	Both	Both	Both	Both
Animation Edit Mode	No	Yes	No	Possible	Possible
A/B Roll Edit Mode	Yes	Yes	No	Yes	Yes
Split A/V Edit Mode	Yes	Yes	Yes	Yes	Yes
SMPTE Reader/Generator	Yes	Optional	No	Both	Both
VITC Capability	No	Yes	No	Yes	Yes
Control Track Timing	Yes	Yes	Yes	Yes	Yes
Other Time References	.....	.....	.....	.....	.....
Color Framing	No	Yes	N.A.	Yes	Yes
Edit Accuracy	±2 frames	±0 frames	±2 frames	±0 frames	±0 frames
VTR Speed Controls	Dial	No	Dial	Yes	Yes
VTR Direction Controls	Dial	No	Yes	Yes	Yes
Video Switcher Interface	No	No	No	Yes	Yes
Audio Mixer Interface	No	No	No	Yes	Yes
Reader Service Number	**645**	**646**	**647**	**648**	**649**

(6) AU-A30 is similar except it is only a 2-machine system with single event storage.

EDITING CONTROLLER

Manufacturer	Sony Broadcast	United Media	Videomedia	
Model Number	**BVE-800**	**Commander II**	**Eagle I/II**	**Z6000E**
Specific Machines	BVH, BVU, BVW	¾", 1", 2"	¾", ½"	Any machine
Number Recorders/Players	1 Rec/2 Play	1 Rec/7 Play	1 Rec/2 Play	1 Rec/8 Play
Microprocessor Control	Yes	Yes	Distributed	Distributed
Internal Event Storage	128 events	Yes	250 events	250 events
Disc Event Storage	No	Option	Floppy option	Floppy option
Paper Tape Storage	Option	Yes	No	No
CRT Data Display	No	Yes	Yes	Yes
Edit Decision List	No	Yes	On II, option on I	Yes
Printer Output	Yes	Option	Yes	Yes
Assembly/Insert Mode	Both	Both	Both	Both
Animation Edit Mode	Possible	Possible	Yes	Yes
A/B Roll Edit Mode	Yes	Yes	Yes	Yes
Split A/V Edit Mode	Yes	Yes	Yes	Yes
SMPTE Reader/Generator	.....	Available	Reader optional	Reader optional
VITC Capability	Yes	.....	Yes	Yes
Control Track Timing	Yes	Yes	Yes	Yes
Other Time References	.....	.....	Micro-Loc II	Micro-Loc II
Color Framing	Yes	Yes	Yes	Yes
Edit Accuracy	±0 frames	±0 frames	±0 frames	±0 frames
VTR Speed Controls	Yes	Yes	Joystick	Joystick
VTR Direction Controls	Yes	Yes	Joystick	Joystick
Video Switcher Interface	BVS-500 option	Yes	Optional	Optional
Audio Mixer Interface	BVS-500 option	Yes	No	No
Reader Service Number	**650**	**651**	**652**	**653**

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Editing Controllers

TIME BASE CORRECTOR/SYNCHRONIZER

Equipment for stabilizing video signals. Systems may use inputs from station master sync generators to allow a VTR/VCR or remote camera signal to be synchronized to station video.

Manufacturer	ADDA Corporation		Ampex Corporation		Apert-Herzog Corp.
Model Number	**AC20 Dual TBC**	**VW-1/VW-2 TBC/ Synchronizer**	**TBC-2B TBC**	**TBC-80**	**Model H**
TBC Function	Dual channel	Yes	Yes	Yes	Yes
Field/Frame Synchronizer	Future option	Field & frame	No	No	Field & frame
Sample Rate/Bits	14.3MHz/8	14.3MHz/8	10.7MHz/8	14.3MHz/8	14.3MHz/8
Correction Window	16TVL	1 TV frame	12TVL	14TVL	1 TV frame
Video Bandwidth	±0.5dB/to 4.2MHz	±0.5dB/to 5MHz	±0.25dB/to 4.2MHz	±2dB/to 4.2MHz	2.7MHz heterodyne
Signal/Noise Ratio	55dB	56dB	56dB	56dB	54dB
Differential Phase/Gain	2°/2%	2°/2%	2°/2%	2°/2%	3°/3%
Residual Error (Mono)	±10nsec	±20nsec	±10nsec	2.5nsec	2.5nsec
Sync Coherent 3.58 Out	Yes	Yes	Yes	Yes	No
Advanced Sync Output	Yes	Yes	Yes	Yes	No
Composite Video Outputs	2	2	3	3	2
Input Reference Signal	Black, composite	Composite video	Composite video	Composite video	Composite video
Velocity Compensation	.....	Yes	Yes	All types	Option
Heterodyne Processing	Yes	Yes	Yes	Yes	Yes
Non-Servo'd Capstan VTR	No	Yes	Yes	No	.....
Drop Out Compensation	.....	VW-2 only	1 line	Yes	Option
Dynamic Tracking Control	.....	No	Yes	No	No
Noise Reduction	.....	No	No	No	No
Color Correction	.....	No	No	No	No
Image Enhancement	.....	No	No	No	No
Hot Switch Capable	.....	Yes	No	No	No
Remote Controllable	Effects ctl	.....	Yes	No	Yes
Front Panel Control					
Video Gain	1 each channel	Yes	Yes	Yes	Yes
Chroma Gain	1 each channel	Yes	Yes	Yes	Yes
Setup Level	1 each channel	Yes	Yes	Yes	−10 IRE, +20 IRE
Hue Phase	1 each channel	Yes	Yes	Yes	Yes
Subcarrier Phase	1 common	.....	Yes	Yes	Yes
Horizontal Phase	1 common	.....	Yes	Yes	4H
Color Standards	NTSC	NTSC	NTSC, PAL, SECAM	NTSC, PAL	NTSC
Reader Service Number	**230**	**231**	**232**	**233**	**234**

TIME BASE CORRECTOR/SYNCHRONIZER

Manufacturer	Digital Video Systems				Fortel
Model Number	**DPS-1 TBC(1)**	**Phaser II(2)**	**Phaser V/Phaser VI**	**DPS-103 Component TBC/Synchronizer**	**Y-688[32] Total Error Corrector(3)**
TBC Function	Yes	Yes	.....	Yes	Yes
Field/Frame Synchronizer	.....	Yes	Yes	.....	.....
Sample Rate/Bits	14.3MHz/8	14.3MHz/8	14.3MHz/8	14.3MHz/8	14.3MHz/8
Correction Window	32TVL	1 TV field	512TVL	16TVL	32TVL
Video Bandwidth	±0.5dB/to 4.2MHz	±0.5dB/to 4.2MHz	±0.5dB/to 4.2HMz	±0.5dB	−3dB at 4.5MHz
Signal/Noise Ratio	58dB	56dB	56dB	56dB	59dB
Differential Phase/Gain	±1°/±1%	±1°/±1%	±1°/±1%	±3°/±3%	1.5°/1.5%
Residual Error (Mono)	±12nsec	12nsec	2nsec	±5nsec	±25nsec
Sync Coherent 3.58 Out	Yes	Yes	No	Yes	Yes
Advanced Sync Output	Yes	Yes	No	Yes	Yes
Composite Video Outputs	2	3	3	3	2
Input Reference Signal	Video, sync	Video, sync	Composite video	Composite video	Sync/composite video
Velocity Compensation	Look-ahead	Look-ahead	No	No	Look-ahead
Heterodyne Processing	Yes	Yes	No	No	Yes
Non-Servo'd Capstan VTR	Yes	Yes	No	No	Yes
Drop Out Compensation	Yes	Yes	Last complete field	No	Yes
Dynamic Tracking Control	No	No	No	No	Yes
Noise Reduction	No	No	Adaptive 3-line	No	To 20dB
Color Correction	Yes	Yes	Comb filter in	No	Yes
Image Enhancement	No	No	Phaser VI only	No	Yes
Hot-Switch Capable	No	Yes	Yes	No	No
Remote Controllable	Yes	Yes	Yes	No	Yes
Front Panel Control					
Video Gain	±3dB	±3dB	±3dB	±3dB	±3dB
Chroma Gain	±3dB	±3dB	±3dB	±3dB	±3dB
Setup Level	±2 IRE	±20 IRE	±20 IRE	±20 IRE	±20 IRE
Hue Phase	±180°	±180°	±25°	±180°	±30°
Subcarrier Phase	±180°	±180°	±180°	±180°	>360°
Horizontal Phase	±9μs	±9μs	±9μs	±9μs	±4μs
Color Standards	NTSC	NTSC	NTSC	NTSC	NTSC
Reader Service Number	**235**	**236**	**237**	**238**	**239**

(1) The DPS-1 system also includes modules to develop a synchronizer. (2) The Phaser series includes the Phaser I TBC/synchronizer. (3) Fortel C-YIQ System operates with "M" component video.

TIME BASE CORRECTOR SYNCHRONIZER

Manufacturer	Fortel		Gunnerfield Ltd.		Harris Video
Model Number	**CCDHPS TBC**	**DIGIBLOC TBC/ Synchronizer**	**GML 8000**	**GML 1002S/2002S**	**HVS-550**
TBC Function	Yes	Yes	Yes	Yes	Yes
Field/Frame Synchronizer	No	Field & frame	Yes	No	No
Sample Rate/Bits	Not digital	14.3MHz/8 or 9	14.4MHz/8	14.4MHz/8	14.3MHz/8
Correction Window	2TVL	2 frames	1 field	16TVL	16TVL
Video Bandwidth	To 2.8MHz heterodyne	−3dB/to 5MHz	±0.5dB/to 3MHz	±0.5dB/to 3MHz	−3dB/to 4.5MHz
Signal/Noise Ratio	60dB NTSC	61dB, 9-bit	56dB	56dB	57dB
Differential Phase/Gain	0.5°/1.5%	1°/1%, 9-bit	4°/4%	4°/4%	1.5°/1.5%
Residual Error (Mono)	±25nsec	±20nsec	20nsec	20nsec	±20nsec
Sync Coherent 3.58MHz	No	Yes	No	No	Yes
Advanced Sync Output	Yes	Yes	No	Yes	Yes
Composite Video Outputs	2	2	2	2	2
Input Reference Signal	Sync	Composite video	Video, sync, int. gen.	Video	Video
Velocity Compensation	Look-ahead	Look-ahead	Line-by-line	Line-by-line	Look-ahead
Heterodyne Processing	Yes	Yes	Yes	Yes	Yes
Non-Servo'd Capstan VTR	Yes	Yes	Yes	Yes	.....
Drop Out Compensation	Yes	Yes	Yes	Yes	.....
Dynamic Tracking Control	No	Yes	Yes	2002S only	No
Noise Reduction	0-4dB	Optional 3-line	Chroma averaging	Chroma averaging	.....
Color Correction	By Faroudja	Adaptive filter	Yes	2002S only	.....
Image Enhancement	Horizontal	No	Yes	Yes	.....
Hot Switch Capable	No	Yes	Yes	No	.....
Remote Controllable	No	Yes	No	No	.....
Front Panel Control					
Video Gain	±3dB	±3dB	±3dB	±3dB	Yes
Chroma Gain	±3dB	±3dB	±3dB	±3dB	Yes
Setup Level	±20 IRE	±20 IRE	±10%	±10%	Yes
Hue Phase	±30°	±30°	No	No	360°
Subcarrier Phase	360°>	>360°	360°	360°	180°
Horizontal Phase	±4μs	±7μs	±1μs	±1μs	With SC/H phase
Color Standards	NTSC, PAL	NTSC	PAL, SECAM	PAL, SECAM	NTSC
Reader Service Number	**240**	**241**	**242**	**243**	**244**

TIME BASE CORRECTOR SYNCHRONIZER

Manufacturer	Harris Video		MCI/Quantel	Microtime	
Model Number	**HVS-630**	**HVS 690 (HVS 590)**	**DSF1750 Frame Synchronizer(5)**	**T-120D**	**S-230**
TBC Function	Yes	Yes	Yes	Yes	Yes
Field/Frame Synchronizer	Field & frame	Field & frame	Yes	No	Frame
Sample Rate/Bits	14.3MHz/8	14.3MHz/9	14.3MHz	14.3MHz/8	14.3MHz NTSC/8
Correction Window	16TVL	16TVL	1 TV frame	16TVL	525TVL
Video Bandwidth	±0.5dB/to 4MHz	±0.5dB/to 4.2MHz	±0.5dB/to 4.2MHz	±0.5dB/to 4.2MHz	±0.3dB/to 5MHz
Signal/Noise Ratio	57dB	59dB	58dB	.....	58dB
Differential Phase/Gain	1.5°/1.5%	2°/2%	1°/1%	2°/2%	2°/2%
Residual Error (Mono)	±20nsec	±20nsec	<2nsec	.....	N.A.
Sync Coherent 3.58 Out	No	Yes	Yes	Yes	Yes
Advanced Sync Output	No	No(Yes)	Yes	Yes	Yes
Composite Video Outputs	2	2	Yes	2	2
Input Reference Signal	Composite video	Composite video	Composite video	.....	Composite video
Velocity Compensation	Line-by-line	Look-ahead	Yes	Averaging	N.A.
Heterodyne Processing	Yes	Yes	Yes	Yes	Yes
Non-Servo'd Capstan VTR	No	Yes	.....	Yes	Yes
Drop Out Compensation	No	Yes	.....	No	No
Dynamic Tracking Control	No	No	.....	Yes	No
Noise Reduction	Yes	No	.....	No	No
Color Correction	Yes	Yes	.....	No	Yes
Image Enhancement	Yes	No	.....	No	No
Hot Switch Capable	Yes	Yes(No)	Yes	No	Yes
Remote Controllable	Yes	No	Yes	Yes	Yes
Front Panel Control					
Video Gain	40 IRE	40 IRE	Yes	±3dB	±3dB
Chroma Gain	20 IRE	20 IRE	Yes	±3dB	±3dB
Setup Level	10 IRE	10 IRE	Yes	±10 IRE	±10 IRE
Hue Phase	360°	360°	Yes	360°, 90° steps	±50°
Subcarrier Phase	180°	180°	Yes	360°, 90° steps	360°
Horizontal Phase	Yes	Yes	Yes	−5μs, +2μs	−9μs, +2μs
Color Standards	NTSC	NTSC	NTSC	NTSC	NTSC
Reader Service Number	**245**	**246**	**247**	**248**	**249**

(5) Also available is a DFS-3000 series of synchronizers and DSF1550 TBC/synchronizer.

TIME BASE CORRECTOR SYNCHRONIZER

Manufacturer	NEC	QuesTech Ltd.	RCA		Regis-BLT
Model Number	FS-16 Synchronizer	6001P	HT-32	TBC-210P	FSC 780
TBC Function	No	Yes	Yes	Yes	Yes
Field/Frame Synchronizer	Field & frame	Yes	No	No	Yes
Sample Rate/Bits	14.3MHz/9	9-bit/component coding	14.3MHz/8	14.3MHz/8	15.31MHz
Correction Window	1 TV frame	2 fields	32TVL	20TVL	1 frame
Video Bandwidth	±0.2dB/to 5.5MHz	±0.5dB/to 5.5MHz	−3dB/to 4.5MHz	±0.5dB/to 4.2MHz	−3dB/to 3.5MHz
Signal/Noise Ratio	56dB	54dB luminance	57dB	53dB	52dB
Differential Phase/Gain	2°/2%	1.5°/2.5%	N.A.	2°/2%	≤3°/≤3%
Residual Error (Mono)	N.A.	±10nsec	±7.5nsec	±10nsec	≤5nsec
Sync Coherent 3.58 Out	N.A.	No	Yes	Yes	No
Advanced Sync Output	N.A.	Not advanced	Yes	Yes	Yes
Composite Video Outputs	4	2 or RGB	2	3	2
Input Reference Signal	Sync	Video, sync/subcarrier	Composite video	Video, sync	Video, sync, blackburst
Velocity Compensation	N.A.	.....	Line-by-line	Line-by-line	Averaging
Heterodyne Processing	N.A.	Yes	Yes	Yes	Yes
Non-Servo'd Capstan VTR	N.A.	.....	No	Yes	Yes
Drop Out Compensation	Last video or black	Freeze last field	No	Yes	Yes
Dynamic Tracking Control	N.A.	.....	No	Yes	No
Noise Reduction	No	.....	Yes	No	Yes
Color Correction	No	.....	No	No	Yes
Image Enhancement	No	.....	No	No	No
Hot Switch Capable	Yes	Yes	No	No	Yes
Remote Controllable	Yes	Yes	No	Yes	Yes
Front Panel Control					
Video Gain	Yes	−3dB, +6dB	±3dB	0.5 to 2V	±6dB
Chroma Gain	Yes	±2dB	±3dB	±3dB	+6dB, −30dB
Setup Level	Yes	±10%	±20 IRE	±10 IRE	Automatic
Hue Phase	Yes	+120nsec, −150nsec chroma delay	±30°	±180°	0-180°
Subcarrier Phase	Yes	360°	360°	No	360°
Horizontal Phase	Yes	+5μs, −20μs	±4μs	9μs	−20μs, +5μs
Color Standards	NTSC	PAL	NTSC, PAL	PAL	PAL
Reader Service Number	250	251	252	253	254

TIME BASE CORRECTOR SYNCHRONIZER

Manufacturer	Sony Broadcast		Tektronix	Thomson-CSF
Model Number	BVT-800 TBC	BVT-2000 Digital Video TBC	BVX-30 Digital Video Processor	110-S	9100 Processor
TBC Function	Yes	Yes	Yes	No	Yes
Field/Frame Synchronizer	No	No	Yes	Yes (2, 4 field)	Field & frame
Sample Rate/Bits	10.7MHz/8	14.3MHz/9	14.3MHz/8	14.3MHz/10	14.3MHz/8
Correction Window	15TVL floating	4TVL	525TVL	Frame	Infinite
Video Bandwidth	±0.4dB/to 4.2MHz	±0.3dB/to 4.2MHz	0.5dB/to 5MHz	±1%/to 4.2MHz	−3dB at 5.5MHz
Signal/Noise Ratio	55dB	58dB	51dB	>60dB	>56dB
Differential Phase/Gain	2°/2%	2°/2%	2°/3%	1°/1%	2°/2%
Residual Error (Mono)	±15nsec	±15nsec	.....	.....	.....
Sync Coherent 3.58 Out	Yes	Option	Yes	No	Yes
Advanced Sync Output	Yes	Yes	Yes	No	Yes
Composite Video Outputs	3	3	3	1	3
Input Reference Signal	Composite video	Video	Video	Composite video	Composite video
Velocity Compensation	No	Line-by-line	Yes	N.A.	.....
Heterodyne Processing	Yes	Option	Yes	With AP 506	Yes
Non-Servo'd Capstan VTR	No	No	Yes	.....	.....
Drop Out Compensation	Yes	Yes	Yes	No	.....
Dynamic Tracking Control	Yes	Yes	No	No	.....
Noise Reduction	No	Color Noise	In 3 steps	No	15dB S/N improvement
Color Correction	No	No	Option BK-31	No	Comb filtering
Image Enhancement	No	No	H and V	No	.....
Hot Switch Capable	No	No	No	Yes	Yes
Remote Controllable	Yes	Yes	Yes	Yes	Yes
Front Panel Control					
Video Gain	±3dB	±3dB	Yes	±3dB input & output	Yes
Chroma Gain	±3dB	±3dB	Yes	±3dB	Yes
Setup Level	0-15 IRE	0-15 IRE	Yes	±10 IRE	Yes
Hue Phase	±25°	±15°	Yes	±20°	Yes
Subcarrier Phase	>360°	>360°	>360°	Yes	.....
Horizontal Phase	−1μs, +3μs	±3μs	Yes	Yes	.....
Color Standards	NTSC	NTSC	NTSC	NTSC	NTSC
Reader Service Number	255	256	257	258	259

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Time Base Correctors

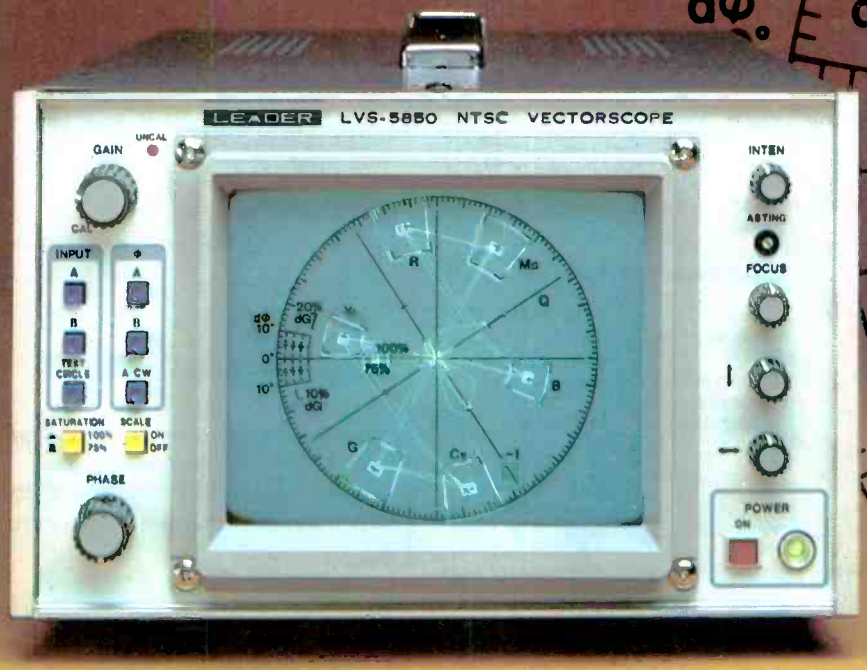
VECTORSCOPE SIGNAL MONITOR

Video signal monitoring equipment providing a CRT display of phase and amplitude characteristics of the TV video system. Other functions may be included.

Manufacturer	Electronic Visuals/ Broadcast Video Systems		Hitachi Denshi Ltd.	Leader Instruments Corporation	Philips Test & Measurements
Model Number	EV4020	EV4060	V-089	5850B(1)	PM5567
Display Size	8x10cm	8x10cm	3.5"	8x10cm	8x10cm
Graticule Type	Internal	External	External	Generated	Internal
Color Standard	NTSC,PAL	NTSC	NTSC	NTSC,PAL	NTSC,PAL,PAL-M
Other Function	.....	Waveform monitor	No	No	No
Video Inputs	A, B	A, B	A, B	A, B looping	A, B looping
Subcarrier Input	1	No	Yes	1	1 looping
Display Reference	A, B, external	A channel	A or B	A, B, external	A, B, external
Calibrator	Yes	Test circle	Test circle	Test circle	Test circle
Measurement Range					
Diff Gain	.....	.....	.....	1%	Within 5%
Diff Phase	Within 2°	Within 2°	.....	Within 1°	Within 3°
Packaging	Bench case or 2-wide rack	Bench case or 2-wide rack	Cabinet or 3-wide rack	Cabinet or 2-wide rack	Cabinet or 2-wide rack
Reader Service Number	784	785	786	787	788

(1) 5851A PAL.

Leader announces the brightest idea in Vectorscopes. CRT-generated targets.



The Leader Vectorscope is unique.

Only the Leader LVS-5850 NTSC Vectorscope offers CRT-generated phase/amplitude targets that are as bright and clear as the vectors themselves. And electronically generating the targets eliminates non-linearity errors caused by CRT aging, so you can be confident that what you see is what you've got.

The LVS-5850 fits directly into your present vectorscope rack. It provides a test circle pattern—75% or 100% saturation—and lets you select the reference phase from either of two video signals or a subcarrier.

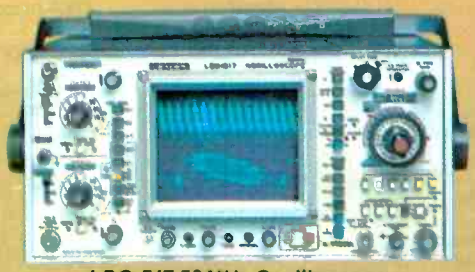
Precise NTSC sync/test pattern generators.

Leader's LCG-400 series provides accurate reference signals for any off-the-air broadcast or non-broadcast use. Available in multiburst or sweep marker configurations, they provide EIA and full-field color bars as well as staircase, raster (in eight colors), window, convergence and cross-hatch test signals...plus gen-lock capabilities and a host of auxiliary outputs. As a matter of fact, Leader's sync/test generators do virtually everything the $4,000 generators do... except cost as much.

LCG-400 Sync/Test Generator.

A network-proven 50 MHz oscilloscope.

The Leader LBO-517 oscilloscope gives you all the features most needed by video engineers. Waveform monitor-like displays of composite video at V or H rates with 1 mV sensitivity. Plus alternate time base for viewing entire frames and individual lines simultaneously. Two auxiliary channels for monitoring Hd, Vd, blanking, and more... a total of 4 channels. The 20 kV CRT gives you very bright, sharp displays at all sweep rates.



LBO-517 50 MHz Oscilloscope.

Two-year warranty. Evaluation units.

High reliability permits Leader to provide a generous two-year warranty (even on the CRT) ... backed by factory service depots on both Coasts. Evaluation units are available to all qualified customers.

Call toll-free (800) 645-5104 to request: an evaluation unit, our latest catalog, the name of your nearest "Select" distributor and additional information.

For video engineers who know the difference.

LEADER Instruments Corporation

380 Oser Avenue
Hauppauge, N.Y. 11788 (516) 231-6900
Regional Offices:
Chicago, Los Angeles, Dallas.

For Information Circle (22) on Reply Card
For Demonstration Circle (23) on Reply Card

VECTORSCOPE SIGNAL MONITOR

Manufacturer	System Video Ltd.			Tektronix	
Model Number	**1155**	**1255(2)**	**1256(2)**	**1740(3)**	**520A Series(4)**
Display Size	5x7cm	10x10cm	10x10cm	8x10cm	5-inch circular
Graticule Type	Internal	Internal	Internal	External, internal	External, internal
Color Standard	PAL, NTSC	PAL, NTSC	PAL, NTSC	NTSC	NTSC
Other Function	.....	.....	X-Y Display	WFM, line sweeps VITS	Line sweeps (Y,R,G,B)
Video Inputs	A, B, looping	A, B, looping	X, Y	A, B, looping	A, B, looping
Subcarrier Input	Composite video	Yes	No	Yes	1, looping
Display Reference	A, B, external	A, B, external	.....	A, B, external	A, B, external
Calibrator	Yes	Yes	.....	Yes	Test circle
Measurement Range					
Diff Gain	5%	5%	.....	<5%	<1%
Diff Phase	5°	10°	.....	<2°	<0.2°
Packaging	Bench case, portable	Bench case, 2-wide rack	Bench case, 2-wide rack	Bench case, 2-wide rack, portable	Bench case, rack
Reader Service Number	**789**	**790**	**791**	**792**	**793**

(2) Microprocessor controlled. (3) 1741 – PAL, 1742 – PAL-M. (4) 521A – PAL, 522A – PAL-M.

Manufacturer	Tektronix		Videotek
Model Number	**1420 Series(5)**	**380 Test Monitor(6)**	**VSM-5A**
Display Size	8x10cm	3" circular	12.9x10.3cm
Graticule Type	Internal	Internal, external	Internal
Color Standard	NTSC	NTSC	NTSC,PAL,PAL-M
Other Function	No	Waveform monitor, oscilloscope	No
Video Inputs	A, B looping	1 looping, 1 probe	A, B, looping
Subcarrier Input	1, looping	No	1
Display Reference	A, B, external	No	A, B, external
Calibrator	.....	Yes	No
Measurement Range			
Diff Gain	<5%	<5%	⩽1%
Diff Phase	<2°	<2°	⩽1°
Packaging	Bench case or 2-wide rack	Portable	Bench case or 2-wide rack
Reader Service Number	**794**	**795**	**796**

(5) 1421 – PAL, 1422 – PAL-M. (6) 381 – PAL.

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Vectorscopes

*IFC – Inside Front Cover

VIDEODISC/STILL-STORE SYSTEM

Magnetic disc material based equipment for use in slow motion, image library, animation and graphics systems as a mass storage/retrieval unit. Video and drive inputs are typically 1Vp-p, 75Ω.

Manufacturer	Abekas Video Systems A42 Video	ADDA Corporation	Ampex Corporation	ASACA	Eigen Video
Model Number	**Slide Projector**	**ESP-750C(1)**	**ESS-3**	**680/1 Video Memory(2)**	**16-20 Videodisc**
Reference Input	Composite video	Composite video	Composite video	Composite video	Sync drives
Output Video Channels	2	2	5	3	1
Video Response (± dB/MHz)	– 0.25/to 4.2MHz	.....	+ 0.1, – 0.5/to 5MHz	0.5/to 4.5MHz	To 4.2MHz
	.....	.....	NTSC	.....	.....
S/N Ratio	52dB	56dB	50dB	52dB	42dB
Differential Phase/Gain	2°/2%	2°/2%	2°/2%	.....	3°/3%
K Factor (2T Pulse)	1%	1%	1%	2%	1%
Chroma/Luminance Delay	.....	.....	Adjustable to 0	.....	.....
Moire Rating (75% bars)	.....	.....	N.A.	N.A.	– 41dB
Timebase Stability	.....	.....	N.A.	.....	2ms
FM Carrier Stability	.....	.....	N.A.	.....	.....
Disc Size, Type	5¼" Winchester	Rigid disc	SMD, 0.75Mbyte/frame	Floppy	Floppy
Max Number of Drives	3	4	16	1	1
Frames Stored/Disc	100	750	400	2	1200 tracks
Max Frames Stored/System	300	3000	6400	2	600
Programmable Sequences	3 of 100 frames	100	Yes	.....	.....
Random Access	.....	.....	Yes	.....	.....
Worst Case Access Time	.....	450ms	800ms	.....	.....
Sequence Editing	Yes	Yes	Yes	.....	Yes
Integral TBC	.....	Yes	Yes	Yes	No
Direct Color Recording	.....	.....	N.A.	No	.....
Heterodyne Color Recording	.....	.....	N.A.	No	Yes
Digital Recording	.....	.....	Yes	Yes	.....
Component Video Technology	.....	.....	Y/R-Y/B-Y (4-2-2)	.....	No
Color Standard	NTSC	NTSC	NTSC, PAL, SECAM	NTSC, PAL	.....
Reader Service Number	**852**	**853**	**854**	**855**	**856**

(1) The ADDA ESP-150C is similar, but holds only 150 frames/disc and 600/system. (2) Asaca also markets the ADS-1000 with 4 drives, holding 218 frames each.

VIDEODISC/STILL-STORE SYSTEM

Manufacturer	**Gunnerfield Ltd.**	**Harris Video Systems**	**IVC Carlton Ltd.**	**MCI/Quantel**	**NTI America**
Model Number	**GML8500**	**IRIS II**	**DM-3000**	**DLS 6030(3)**	**DSS-11**
Reference Input	Video or sync	Composite video	Composite video	Composite video	Composite video
Output Video Channels	4	12	1	3	2
Video Response (± dB/MHz)	0, – 3/to 5MHz	0.2/tc 4.2MHz	– 3dB/to 6MHz, field/rev.	0.3/to 4.2MHz	0.3/to 5MHz
S/N Ratio	56dB	56dB	53dB for 3600rpm	58dB	56dB
Differential Phase/Gain	4°/4%	1°/1.5%	.....	1°/1%	2°/2%
K Factor (2T Pulse)	2%	1%	.....	.....	1%
Chroma/Luminance Delay	Adjustable	17ns, 2T	.....	.....	.....
Moire Rating (75% bars)	N.A.	.....	.....	N.A.	N.A.
Timebase Stability	N.A.	± 20ns	± 50nsec	.....	5ns
FM Carrier Stability	N.A.	± 2ns	.....	.....	.....
Disc Size, Type	8" or 14" Winchester	8", 14" 80 to 675Mbyte	Winchester	Winchester	8" Fujitsu M2312K
Max Number of Drives	4	8	.....	8	8
Frames Stored/Disc	1200	1066	600	800	250
Max Frames Stored/System	4500	8528	3600 field max	6400	2000
Programmable Sequences	Yes	Yes	Yes	Yes	1000
Random Access	Yes	Yes	Yes	Yes	Yes
Worst Case Access Time	700ms	750ms	.....	.....	350ms
Sequence Editing	Yes	Yes	Yes	Yes	Yes
Integral TBC	Yes	Yes	.....	Yes	Yes
Direct Color Recording	No	Yes	Yes	No	Yes
Heterodyne Color Recording	No	Yes	No	No	No
Digital Recording	Yes	Yes	No	Yes	Yes
Component Video Technology	Y/U/V	Yes,(4-1-1)14.3MHz	No	.....	No
Color Standard	PAL, SECAM	NTSC, PAL	NTSC, PAL, SECAM	NTSC, PAL	NTSC, PAL
Reader Service Number	**857**	**858**	**859**	**860**	**861**

(3) MCI/Quantel also provides the Central Lending Library system with multiple work station capabilities, as well as the Picture Pack system. All three products may be interfaced with other MCI/Quantel video products.

Manufacturer	**Oktel**	**PEL**	**Precision Echo**	**Rank Cintel**	**Regis BLT**
Model Number	.....	**VSP**	**EFS-2 Image Maker(4)**	**Slide File**	**AVL 901**
Reference Input	Video or sync	Composite video	Composite video	Sync	Video or sync
Output Video Channels	2	1	1	2	2
Video Response (± dB/MHz)	– 3/to 4.2MHz NTSC	.....	15Hz-4.2MHz	0.1/to 5.5MHz	– 3/to 5.5MHz
S/N Ratio	47dB	.....	>42dB	.....	.....
Differential Phase/Gain	3°/3%	.....	.....	.....	2°/2%
K Factor (2T Pulse)	2%	.....	4%	.....	2%
Chroma/Luminance Delay	.....	.....	.....	.....	.....
Moire Rating (75% bars)	– 40dB	.....	.....	.....	.....
Timebase Stability	± 50ns	.....	1μs long term	.....	5ns
FM Carrier Stability	.....	N.A.	.....	.....	N.A.
Disc Size, Type	16" Oktel	Winchester	13" floppy	8" Winchester	16" Winchester
Max Number of Drives	1	4 disc/PELSTORE	1	1 and streaming tape	4
Frames Stored/Disc	900	.....	512	80	300
Max Frames Stored/System	1800	.....	.....	.....	1200
Programmable Sequences	Yes	Yes to 8 minutes	Yes	Yes	Yes
Random Access	Yes	Yes	Yes	Yes and multiple images	Yes
Worst Case Access Time	200ms	.....	4.3s/512 frames	.....	20ms
Sequence Editing	Yes	Yes	Yes	Yes	Yes
Integral TBC	No	Yes	No	Yes	Yes
Direct Color Recording	Yes	.....	Yes	.....	.....
Heterodyne Color Recording	No	.....	No	.....	.....
Digital Recording	No	Yes	No	Yes	Yes
Component Video Technology	Yes	Yes	No	Y/U/V (4-2-2)	Yes
Color Standard	NTSC, PAL, SECAM	NTSC, PAL, SECAM	NTSC	NTSC, PAL	NTSC, PAL, SECAM
Reader Service Number	**862**	**863**	**864**	**865**	**866**

(4) Precision Echo's EFS-1 is similar but allows only 200 frames/side on a double-sided floppy disc.

fyi...

For addresses of manufacturers whose products are listed in this edition, refer first to advertisers' index or obtain address from advertisement. For non-advertisers and companies that do not show an address on their advertisement, refer to company name and address listing in the **BE** *Buyers' Guide* (annual September issue).

VIDEO PROCESSOR

Equipment providing signal improvement through image enhancement, noise reduction, color correction or signal/sync regeneration.

Manufacturer	**Applied Video Systems**	**Bosch/Fernseh**		**Michael Cox Electronics**	**Electrocraft**
Model Number	**AVS 6000**	**HC CC 408**	**HC TC Series**	**600J**	**HPC-82**
Primary Function:					
Image Enhancement	Yes	.....	Yes	.....	±18dB 3MHz
Noise Reduction	Yes	.....	.....	.....	Cored
Color Correction	Retime, Level	Automatic, PAL	.....	Yes, NTSC, PAL	.....
Sync Regeneration	Yes	.....	Yes	Yes	.....
Standards Conversion	PAL/NTSC	.....	Various	.....	.....
Recommended Application	Any	Any	Any	Dubs, Production	Any
Video Bandwidth	−3dB/to 3MHz	To 7MHz	To 3.9MHz PAL	±1dB/to 5.5MHz	.....
Signal/Noise Ratio	.....	.....	.....	65dB	.....
Chroma/Luma Delay	.....	.....	100nsec	±10nsec	Phase corrected
Parameter Controls					
Video Level	.....	0-40%	AGC	.....	Fixed
Chroma Level	±6dB	50-200%	.....	±30% of input	.....
Setup Level	.....	0-30%	.....	−90, +30% of input	.....
Hue Phase	Yes	.....	.....	Black stretch	.....
Subcarrier Phase	±500nsec, +3TVL	.....	Yes	.....	.....
Subcarrier Level	.....	.....	.....	Yes	.....
Sync Level	.....	.....	.....	Yes	.....
Reader Service Number	**481**	**482**	**483**	**484**	**485**

VIDEO PROCESSOR

Manufacturer	**Faroudja Labs**	**For-A Corporation**	**GEC-McMichael**	**G.F. Video Technik**	**Grass Valley Group**
Model Number	**Image System**	**CCS-4200**	**ACE**	**STC 2003**	**3240 Processor**
Primary Function:					
Image Enhancement	Yes	.....	.....	.....	.....
Noise Reduction	6dB, L and C	.....	Yes	Yes	.....
Color Correction	Yes	Yes	.....	B-Y/B-Y sampling	.....
Sync Regeneration	Yes	Yes	Yes	TBC	Yes, NTSC, PAL
Standards Conversion	.....	.....	NTSC/PAL/SECAM	NTSC/PAL/SECAM	.....
Recommended Application	Tape playback	Tape playback	Any	Any	Any
Video Bandwidth	±1dB/to 5MHz	±0.5dB/to 8MHz	4.2MHz NTSC	.....	±0.2dB/to 6MHz
Signal/Noise Ratio	65dB	.....	.....	48dB	70dB
Chroma/Luma Delay	±300nsec	.....	.....	.....	±10nsec, to 5MHz
Parameter Controls					
Video Level	Automatic	Yes	2dB	Yes	±6dB
Chroma Level	Controls	Yes	2dB	Yes	±6dB
Setup Level	.....	Yes	70mV	Yes	±15IRE
Hue Phase	.....	Yes	15°NTSC	Yes	±13°
Subcarrier Phase	.....	Yes	.....	360°	±13°
Subcarrier Level	.....	.....	.....	Yes	−6, +3dB
Sync Level	.....	.....	.....	Yes	−6, +3dB
Reader Service Number	**486**	**487**	**488**	**489**	**490**

VIDEO PROCESSOR

Manufacturer	**Knox Video Products**	**Leitch Video**	**Lenco**	**Marconi**	**MCI/Quantel**
Model Number	**K700 Video Corrector**	**VPA-330N Processor**	**PRC-365**	**DiCE B3564**	**DSC 4005**
Primary Function:					
Image Enhancement	Yes	.....	.....	Yes	Yes
Noise Reduction	6dB improvement	.....	Comb filter	.....	Yes
Color Correction	Yes	Auto AGC	Yes	.....	.....
Sync Regeneration	Yes	To RS-170A	RS-170A	TBC	TBC
Standards Conversion	.....	.....	No	NTSC/PAL/SECAM	NTSC/PAL/SECAM
Recommended Application	Dub, production	Any	Any	Any	Any
Video Bandwidth	−3dB/to 6MHz	±0.2dB/to 5MHz	±0.5dB/to 10MHz	−3dB/to 4.2MHz	.....
Signal/Noise Ratio	.....	60dB	.....	.....	.....
Chroma/Luma Delay	.....	.....	.....	.....	.....
Parameter Controls					
Video Level	Yes	−2, +11dB	0.5-2Vp-p	Yes	Yes
Chroma Level	Yes	±2dB	−30, +6dB	Yes	Yes
Setup Level	Yes	±10 IRE	±40 IRE	Yes	Yes
Hue Phase	Yes	.....	.....	Yes	Yes
Subcarrier Phase	Yes	±20°	45°	Yes	Yes
Subcarrier Level	Yes	±10 IRE	40 IRE	Yes	.....
Sync Level	Yes	±10 IRE	20-80 IRE	Yes	.....
Reader Service Number	**491**	**492**	**493**	**494**	**495**

VIDEO PROCESSOR

Manufacturer	**MCI/Quantel**	**Merlin/Snell & Wilcox**	**OKI Electric**	**Philips**	**Siegel Electronics**
Model Number	**DSC 4002**	**ME-288/DIP9600**	**LT1210**	**LDM 3001**	**Series 1100**
Primary Function:					
Image Enhancement	.....	H and V	Yes	.....	Yes
Noise Reduction	Yes	To 9dBL, 12dBC	.....	Adaptive, digital	Yes
Color Correction	.....	Delay	.....	.....	Yes
Sync Regeneration	TBC	Yes	TBC	Yes	Yes, NTSC
Standards Conversion	NTSC/PAL/SECAM	PAL/NTSC, TBC	NTSC/PAL/SECAM	No	No
	RGB	.....	.....	. ...	.....
Recommended Application	Any	Any	Any	Any	Any
Video Bandwidth	.....	±1dB/to 3.3MHz	9MHz sampling	.....	±3dB/to 5.8MHz
Signal/Noise Ratio	.....	52dB CCIR	50dB	.....	58dB
Chroma/Luma Delay	.....	±500nsec	.....	.....	±200nsec
Parameter Controls					
Video Level	Yes	Yes	Yes	±3dB	Yes
Chroma Level	Yes	Yes	Yes	.....	Yes
Setup Level	Yes	Yes	Yes	.....	Yes
Hue Phase	Yes	NTSC	Yes	. ...	Yes
Subcarrier Phase	Yes	.....	Yes	.....	Yes
Subcarrier Level	Yes	.....	Yes	.....	.....
Sync Level	Yes	.....	Yes	.....	.....
Reader Service Number	**496**	**497**	**498**	**499**	**500**

VIDEO PROCESSOR

				Thomson-CSF	
Manufacturer	**Sofretec**	**Tektronix**	**Telemet**		
Model Number	**VP2000**	**1440 Corrector**	**4600 Corrector**	**8010 Enhancer**	**5500A Color Corrector**
Primary Function:					
Image Enhancement	.....	.....	HF	Yes	.....
Noise Reduction	.....	.....	.....	Yes	.....
Color Correction	.....	Limited	Limited	No	±20dB
Sync Regeneration	Yes, PAL, SECAM	Yes, NTSC	Yes, NTSC	No	No
Standards Conversion	PAL/SECAM	No	No	No	No
Recommended Application	Any	Any	Any	Any	Any, film
Video Bandwidth	−3dB/to 3.5MHz	.....	±0.5dB/to 8MHz	−1dB/to 5MHz	−0.4/to 8MHz
Signal/Noise Ratio	.....	60dB	60dB	55dB	.....
Chroma/Luma Delay	.....	10nsec	.....	....	.....
Parameter Controls					
Video Level	AGC or ±6dB via	±6dB	Yes	±1dB	RGB
Chroma Level	Y, R-Y, B-Y	3dB	.....	....	Yes
Setup Level	±1dB	10 IRE	.....	.....	RGB
Hue Phase	.....	.....	.....	.....	.....
Subcarrier Phase	.....	25°	.....	.....	.....
Subcarrier Level	.....	6dB	.....	.....	.....
Sync Level	Yes	3dB	.....	....	.....
Reader Service Number	**501**	**502**	**503**	**504**	**505**

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More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Video Processors

VIDEO PRODUCTION SWITCHER

Video production switching systems based on vertical interval switched signals. Inputs shall be 1V P-P or 0.714V non-composite; pulse drives shall be 4V P-P; reference subcarrier signals shall be 2V P-P. All impedances are 75Ω.

Manufacturer	American Data Corporation		Ampex Corporation		ASACA/Shibasoku
Model/Series	**3101-9**	**2104A-10**	**4100(H1) Series**	**AVC Series**	**ASW-100**
Number of Video Inputs	9 primary	10	26	32	6 (3 w/CCU)
Video Black	Yes	Yes	Yes	Yes	Yes
Color Backgrounds	Option	Yes	Yes	Yes	No
Non-Synchronous Detect	Yes	Yes	Yes	Yes	No
Titler Input	Yes	Yes	9 possible	8 possible	Yes
Key Source	Int/Ext	Int/Ext	Int/Ext	Int/Ext	Yes
Chroma-Key (Encoded)	Option	Optional modules	Option	Option	No
Chroma-Key (RGB)	Option	Optional modules	Option	Option	No
Downstream Key	Option	Optional modules	Option	Yes	Yes
Switching Buses	4	4	8	8	2
Auxiliary Buses	Optional	Optional	To 8	16 possible	.....
Mix/Effects Amplifiers	2	2	3	3	Yes
Auto Transitions	.....	No	Yes	Yes	No
Pattern Generator	100 patterns	12 patterns	100 patterns	180 patterns	Yes
Rotary Wipe Patterns	Yes	No	Option	Yes	No
Soft Wipe Capability	Yes	Yes	Yes	Yes	Yes
Spotlighting Effect	Yes	No	Yes	Yes	No
Effects Positioning	Yes	Yes	Yes	Yes	Yes
Effects Modulation	Yes	No	Yes	Yes	.....
Quad Split System	Option	Option	Option	Option	No
Border Effects	Yes	Option	Option	Option	No
Re-Entry Facility	Single	Single	Model dependent	Yes	No
Automation System	No	.....	Option	Yes	No
Programmable System	No	No	No	Yes	No
Digital Effects Port	Yes	Yes	Yes	Yes	No
Related Models	3101-20	2104-16, 2103-8	Series 4100A, 4100L, 4100E	AVC33, 23, 21	ASW-200, ASW-50
	.....	.....	.....	.....	.....
Reader Service Number	**526**	**527**	**528**	**529**	**530**

VIDEO PRODUCTION SWITCHER

Manufacturer	Beaveronics	Bosch/Fernseh	Central Dynamics		Crosspoint Latch
Model/Series	**BI-156**	**R 102 ME**	**CD-480**	**CD-1080**	**6139 Series**
Number of Video Inputs	15	24	16 or 24	16, 24, 32	8, 16, 24
Video Black	Yes	Yes	Yes	Yes	Yes
Color Backgrounds	Yes	Yes	Yes	Yes	Yes
Non-Synchronous Detect	Yes	.....	Yes	Yes	Yes
Titler Input	Yes	4 possible	Yes	Yes	Yes
Key Source	Int/Ext	11 possible	Int/Ext	Int/Ext	Yes
Chroma-Key (Encoded)	Option	Option	Option	Option	1 is standard
Chroma-Key (RGB)	Option	Yes	Option	Option	w/2nd optional
Downstream Key	Option	Yes	Option	Yes	Yes
Switching Buses	6	10	6	10	6
Auxiliary Buses	2 optional	Yes	Option	Option	.....
Mix/Effects Amplifiers	2	2	1 SFX 4-ch	2 SFX, 1 M/E	3
Auto Transitions	No	Possible	Option	Option	Yes
Pattern Generator	Yes	Yes	38 w/32 option	38 w/52 option	79, expandable
Rotary Wipe Patterns	No	Yes	Option	Option	Yes
Soft Wipe Capability	Yes	Yes	Yes	Yes	Yes
Spotlighting Effect	Yes	Yes	Yes	Yes	Yes
Effects Positioning	Yes	Yes	Yes	Yes	Yes
Effects Modulation	Yes	Yes	Yes	Yes	Yes
Quad Split System	Option	.....	Option	Option	No
Border Effects	Yes	Yes	Option	Option	Yes
Re-Entry Facility	Yes	Yes	No	Double	Double each M/E
Automation System	No	Option	No	.....	Auto drive option
Programmable System	No	Option	Option	Option	Option
Digital Effects Port	No	Option	Yes	Yes	.....
Related Models	BI-154	R 61 ME	Series 80, CD680	.....	6112, 6114, 6124, 6142
Reader Service Number	**531**	**532**	**533**	**534**	**535**

VIDEO PRODUCTION SWITCHER

Manufacturer	Crosspoint Latch	EchoLab	Electrocraft Consultants	Grass Valley Group	
Model/Series	**6109**	**SE/3**	**VSME-80**	**Series 300-2A (3A)**	**Series 1680-24K(16K)**
Number of Video Inputs	7	10	8	24	24 (16)
Video Black	Yes	Yes	Yes	Yes	Yes
Color Backgrounds	Yes	Yes	Yes	Yes	Yes
Non-Synchronous Detect	Yes	Yes	.....	Yes	Yes
Titler Input	Possible	Yes	Yes	5 possible	4
Key Source	Int/Ext	.....	Yes	Primaries, 6 ext.	2 ext. primaries
Chroma-Key (Encoded)	Option	Option	.....	Yes	Available
Chroma-Key (RGB)	Yes	Option	.....	Yes	Yes
Downstream Key	Yes	Yes	.....	Yes	Yes
Switching Buses	3	4	3	12(16)	8
Auxiliary Buses	No	3	.....	7 (2) and options	.....
Mix/Effects Amplifiers	Yes	2½	1	2(3)	3
Auto Transitions	Yes	Yes	No	Yes	w/E-Mem opt
Pattern Generator	24 patterns	40 patterns	12	Yes	Yes
Rotary Wipe Patterns	No	No	No	Yes	Yes
Soft Wipe Capability	Yes	Yes	No	Yes	Yes
Spotlighting Effect	.....	Yes	No	Yes	Yes
Effects Positioning	Yes	Yes	Yes	Yes	Yes
Effects Modulation	Yes	Yes	Yes	Yes	Yes
Quad Split System	No	Yes	No	Yes	Yes
Border Effects	Yes	Yes	No	Yes	Yes
Re-Entry Facility	Single	Double	No	Yes	Cascading
Automation System	Option	Yes	No	E-Mem	E-Mem
Programmable System	Option	Yes	No	Yes, serial	Yes, serial
Digital Effects Port	No	No	No	Yes	Yes
Related Models	6118, 6107	.....	ABFX-80	300-2B, 3B	1680-24F, 16F
	.....	.....	.....	.....	1680-10V, 10X
	.....	.....	.....	.....	1600-1A, 1L, 1X
Reader Service Number	**536**	**537**	**538**	**539**	**540**

VIDEO PRODUCTION SWITCHER

Manufacturer	Image Video Ltd.	Industrial Science		JVC Company	Lang Video
Model/Series	**SEG-801**	**200-3**	**903**	**KM-2000**	**One Shot ENG**
Number of Video Inputs	6	29	10	8	4
Video Black	Yes	Yes	Yes	Yes	Yes
Color Backgrounds	Yes	Yes	Yes	Yes	Yes
Non-Synchronous Detect	.....	Yes	No	No	No
Titler Input	Possible	Yes	Yes	Yes	Yes
Key Source	External	Int/Ext	Int/Ext	External	.....
Chroma-Key (Encoded)	No	Option	Option	No	No
Chroma-Key (RGB)	No	Yes	Option	Yes	No
Downstream Key	Yes	Yes	Option	Yes	No
Switching Buses	3	15	4	3	1
Auxillary Buses	No	Option	Option	1	No
Mix/Effects Amplifiers	Yes	3 M/E	2 M/E	2 M/E	No
Auto Transitions	.....	Yes	Option	No	No
Pattern Generator	Yes	32 patterns	14 patterns	13 patterns	No
Rotary Wipe Patterns	.....	Yes	Yes	No	No
Soft Wipe Capability	.....	Yes	Yes	Yes	No
Spotlighting Effect	.....	Yes	Yes	Yes	No
Effects Positioning	Yes	Yes	Yes	Yes	No
Effects Modulation	.....	Yes	Yes	Yes	No
Quad Split System	.....	Yes	Option	No	No
Border Effects	.....	Yes	Yes	No	No
Re-Entry Facility	.....	Triple	Double	Single	No
Automation System	.....	Option	Option	No	No
Programmable System	.....	Yes	Yes	No	No
Digital Effects Port	.....	No	No	No	No
Related Models	.....	200 Series	900 Series	.....	.....
Reader Service Number	**541**	**542**	**543**	**544**	**545**

VIDEO PRODUCTION SWITCHER

Manufacturer	Marconi	Panasonic Company		Ross Video Ltd.	
Model/Series	B3730	AS-6100	WJ-5500B	RVS 508	RVS 10-4R
Number of Video Inputs	22	17	11	20, 24	10
Video Black	Yes	Yes	Yes	Yes	Yes
Color Backgrounds	Yes	Yes	No	Yes	Yes
Non-Synchronous Detect	Yes	No	No	Yes	Yes
Titler Input	Yes	No	No	Yes	Yes
Key Source	Int/Ext	No	External	Int/Ext	Int/Ext
Chroma-Key (Encoded)	Yes	No	No	Option	No
Chroma-Key (RGB)	.....	No	No	Option	Option
Downstream Key	.....	Yes	No	Option	Option
Switching Buses	5	5	4	8	4
Auxiliary Buses	.....	.....	.....	4	2
Mix/Effects Amplifiers	Yes	Yes	Yes	2 M/E	1 M/E
Auto Transitions	No	.....	Cut	Yes	No
Pattern Generator	Yes	Yes	Yes	62 patterns	24 patterns
Rotary Wipe Patterns	.....	No	No	15	No
Soft Wipe Capability	Yes	Yes	Yes	Yes	Yes
Spotlighting Effect	Yes	Yes	No	Yes	No
Effects Positioning	Yes	Yes	Yes	Yes	Yes
Effects Modulation	Yes	No	No	Yes	No
Quad Split System	.....	No	No	Option	No
Border Effects	.....	No	No	Yes	Yes
Re-Entry Facility	Yes	Yes	Yes	Single	Single
Automation System	.....	No	No	Scene-Store option	No
Programmable System	.....	No	No	Yes	No
Digital Effects Port	.....	No	No	Yes	No
Related Models	.....	.....	WJ-4600A	517, 524, 514	RVS-10-4
Reader Service Number	**546**	**547**	**548**	**549**	**550**

VIDEO PRODUCTION SWITCHER

Manufacturer	Shintron	Sony Broadcast	Vital Industries	
Model/Series	375 SuperSwitcher	SEG-2000 series	250P/N Portable	VIX-114-4A1
Number of Video Inputs	10	6	10	24 possible
Video Black	Yes	Yes	Yes	Yes
Color Backgrounds	Yes	Yes	Yes	Yes
Non-Synchronous Detect	Yes	Possible	Yes	Yes
Titler Input	Yes	Possible	Yes	Yes
Key Source	Int/Ext	Int/Ext	Int/Ext	Int/Ext
Chroma-Key (Encoded)	Yes	No	Yes	Yes
Chroma-Key (RGB)	.....	No	Yes	Yes
Downstream Key	Yes	Yes	Yes	Yes
Switching Buses	4	3	4	.....
Auxiliary Buses	.....	.....	2	.....
Mix/Effects Amplifiers	Yes	Yes	Yes	3 on 4A1
Auto Transitions	.....	.....	Yes	Yes
Pattern Generator	Yes	Yes	Yes	Yes
Rotary Wipe Patterns	No	No	No	Yes
Soft Wipe Capability	Yes	.....	Yes	Yes
Spotlighting Effect	No	.....	No	Yes
Effects Positioning	Yes	.....	Yes	Yes
Effects Modulation	Yes	.....	Yes	Yes
Quad Split System	No	.....	No	Yes
Border Effects	Limited	No	Yes	Yes
Re-Entry Facility	Yes	No	No	Yes
Automation System	.....	.....	Yes	PSAS
Programmable System	.....	.....	Yes	PSAS
Digital Effects Port	.....	.....	Yes	Yes
Related Models	373, 374	SEG-1210	.....	VIX-114-10A1, 16A1, 1A1, 2A1
	.....	.....	.....	
Reader Service Number	**551**	**552**	**553**	**554**

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Video Production Switchers

VIDEOTAPE RECORDER, 1-inch Type B and C

Portable and studio models, typically with audio channels. A third channel, not specified, may be available. Audio inputs for line are +8dBm, 600Ω balanced. Video input and output are 1Vp-p, 75Ω.

Manufacturer	Ampex Corporation			Bosch-Fernseh	
Model Number	**VPR-3(C)**	**VPR-5(C)**	**VPR-80(C)**	**BCN 53(B)**	**BCN 21 Portable(B)**
Video Response	±0.5dB/to 4.2MHz	±0.5dB/to 4.2MHz	±0.5dB/to 4.2MHz	±0.5dB/to 4.5MHz	±0.5dB/to 4.5MHz
Video S/N Ratio	46dB	46dB	46dB (interchange)	47dB	47dB
Differential Phase/Gain	4°/4%	4°/4%	4°/4%	4°/4%	4°/4%
K Factors for 2T Pulse	20nsec	20nsec	20nsec	1.5%	1.5%
Chroma Luminance Delay	1%	1%	1%	.....	.....
Moire Rating	−40dB	−40dB	−40dB	−37dB	−37dB
Input Reference	Video or sync	Video or sync	Video	Video	.....
Advanced Sync Input	Not required	Yes	Not required	Not required	.....
DOC Signal	Internal DOC	Yes	Yes	.....	.....
System TBC	Integral	External required	External required	Integral	.....
AF Response (±dB/Hz)	2/50-18k	2/50-15k	2/50-15k	1, −3/40-14k	2, −3/40-14k
AF S/N Ratio	56dB	56dB	56dB	54dB unwtd rms	54dB unwtd rms
Harmonic Distortion	1%, +8dBm, 1kHz	1%, +8dBm, 1kHz	1%, +8dBm, 1kHz	3%, 254nWb/m, 1kHz	3%, 254nWb/m, 1kHz
Integral Editing System	Full feature	Full feature	Full feature	Yes	Yes
Assemble/Insert Editing	Both	Both	Both	Yes	Yes
Edit Controller Interface	ACE, CMX, ISC	N.A.	All major systems	Optional	Yes
SMPTE Time Code Generator	Yes	Yes	Yes	Yes	Yes
VITC Time Code Generator	Yes	No	No	.....	.....
Still Frame/Slow Motion	Yes	No	Yes	Yes	.....
Maximum Reel Size	14"	9"	11.75"	12.5"	9"
Record Time for Max Reel	190 min.	60 min.	124 min.	150 min.	60 min.
Color Standards	NTSC, PAL, SECAM	NTSC, PAL, SECAM	NTSC, PAL, SECAM	NTSC, PAL, SECAM	NTSC, PAL, SECAM
Reader Service Number	**654**	**655**	**656**	**657**	**658**

VTRs

VIDEOTAPE RECORDER, 1-inch Type B and C

Manufacturer	Hitachi Denshi		Marconi	Philips Television Systems	RCA
Model Number	**HR-100 Portable(C)**	**HR-210(C)**	**B4600-MR2(C)(1)**	**PVR2(C)(2)**	**TR-800(C)**
Video Response	±0.5dB/to 4.2MHz	±0.5dB/to 4.2MHz	Flat/to 4.2MHz	Flat/to 4.2MHz	±0.5dB/to 4.2MHz
Video S/N Ratio	48dB	48dB	46dB	46dB	47dB
Differential Phase/Gain	4°/4%	3°/3%	4°/4%	4°/4%	3°/3%
K Factors for 2T Pulse	.....	1%	1%	1%	1%
Chroma Luminance Delay	.....	20nsec	20nsec	20nsec	20nsec
Moire Rating	−40dB	−40dB	−40dB	−40dB	−43dB
Input Reference	.....	Sync, subcarrier	Video	Video or sync	Video
Advanced Sync Input	.....	Yes	.....	.....	Yes
DOC Signal	.....	Yes	.....	.....	Yes
System TBC	TC-200 external	TC-200B	MTBC2	PVC2	External required
AF Response (±dB/Hz)	2/50-15k	1.5,-3/50-15k	2/50-15k	2/50-15k	2/40-16k
AF S/N Ratio	56dB	56dB	56dB	56dB	56dB
Harmonic Distortion	1%	1%,1kHz	1%, +8dBm	3%, +16dBm	1%
Integral Editing System	Yes	Full feature	Yes	Yes	Yes
Assemble/Insert Editing	Assemble	Yes	Assemble	Yes	Both
Edit Controller Interface	.....	Yes	.....	Yes	TR-600, HR-2
SMPTE Time Code Generator	Yes	.....	.....	.....	Yes
VITC Time Code Generator	No	No	.....	.....	Yes
Still Frame/Slow Motion	.....	Option	Yes	.....	Yes
Maximum Reel Size	9″	10.5″	10.5″	10.5″	11.5″
Record Time for Max Reel	64 min.	96 min.	92 min.	90 min.	125 min.
Color Standards	NTSC, PAL	NTSC, PAL	NTSC, PAL, SECAM	NTSC, PAL, SECAM	NTSC, PAL, SECAM
Reader Service Number	**659**	**660**	**661**	**662**	**663**

(1) MR20 is a portable unit. (2) PVR20 is a portable unit.

VIDEOTAPE RECORDER, 1-inch Type B and C

Manufacturer	Sony Broadcast			3M Broadcast
Model Number	**BVH500A(C)**	**BVH 1180(C)**	**BVH 2000(C)(3)**	**TT 8000(C)**
Video Response	±0.5dB/to 4.2MHz	±0.5dB/to 4.2MHz	±0.5dB/to 4.2MHz	±0.5dB/to 4.2MHz
Video S/N Ratio	47dB	48dB	48dB	48dB
Differential Phase/Gain	4°/4%	4°/4%	4°/4%	3°/3%
K Factors for 2T Pulse	1%	1%	1%	1%
Chroma Luminance Delay	25nsec	25nsec	25nsec	20nsec
Moire Rating	−40dB	−40dB	−40dB	−42dB
Input Reference	Video	Video or sync	Video or sync	Video
Advanced Sync Input	Not required	Not required	Not required	Yes
DOC Signal	No	Yes	Yes	Yes
System TBC	External required	External required	Integral	External required
AF Response (±dB/Hz)	1.5,-3/50-15k	1.5,-3/50-15k	1.5,-3/50-15k	2/50-15k
AF S/N Ratio	56dB	56dB	56dB	57dB
Harmonic Distortion	1.2%,0dBm,1kHz	1%,0dBm,1kHz	1%,0dBm,1kHz	1%,0dBm,1kHz
Integral Editing System	Back-space	Full feature	Full feature	Yes
Assemble/Insert Editing	Assemble	Both	Both	Both
Edit Controller Interface	No	Yes	Yes	CMX, Datatron
SMPTE Time Code Generator	Yes	Yes	Optional	Yes
VITC Time Code Generator	No	No	Optional	No
Still Frame/Slow Motion	No	Yes	Yes	Yes
Maximum Reel Size	9″	14″	11.75″	10″
Record Time for Max Reel	62 min.	188 min.	126 min.	90 min.
Color Standards	NTSC	NTSC	NTSC	NTSC
Reader Service Number	**664**	**665**	**666**	**667**

(3) BVH 2500 system is similar for animation purposes.

VIDEOTAPE RECORDER, ¾-inch U-matic

Studio and portable equipment. Luminance recorded as FM with chroma down-converted typically. Dual audio channels. Video inputs and outputs are 1V P-P, 75 Ohms. NTSC Color Standards.

Manufacturer	JVC			Panasonic	
Model Number	**CR4700U Portable**	**CR8250U Editor**	**CR6650U**	**AU-700(1)**	**NV-9450 Portable(2)**
Video Response (±dB/Hz)	.....	.....	.....	.....	.....
Signal/Noise Ratio	>46dB	49dB	L:49dB/C:46dB	L:50dB/C:45dB	46dB chroma
Horizontal Resolution	>260TVL chroma	340TVL luma	L:340/C:260TVL	L:330/C:260TVL	260TVL chroma
Video AGC System	Yes	Yes	Yes	Yes	Yes
Video Metering	No	Yes	No	Yes	No
Advanced Sync Input	No	No	No	Yes	Yes
Composite Sync Input	Yes	Yes	Yes	Yes	Yes
Subcarrier Input	Yes	Yes	Yes	Yes	Yes
Dubbing Input/Output	No	Yes	Yes	Yes	No
RF Signal Output	No	No	No	Yes	No
Tracking Metering	Yes	Yes	Yes	Yes	Yes
AF Response (±dB/Hz)	50-15k	50-15k	50-15k	50-15k	50-15k
Signal/Noise Ratio	>48dB	>48dB	48dB	>48dB	>48dB
Audio Metering	Yes	Yes	Yes	Yes	Yes
Time Code Track	Yes	Yes	No	Yes	Yes
Normal Tape Speeds	3.75ips	3.75ips	3.75ips	3.75ips	3.75ips
Search Tape Speeds	x10 F/R	x15 F/R	>x40 F/R	x6 F/R	x10 F/R
Recording Time Max	20 min	60 min	60 min	60 min	60 min
Integral Editor System	No	No	No	Yes	Yes
Assemble/Insert Editing	Yes	Both	Assemble	Both	Assemble
Specific Edit Controller	No	VE-92, RM-88	RM-88, VE-92	AU-A70	No
ac Powering	No	Yes	Yes	Yes	Yes
External Battery	12Vdc	.....	.....	.....	12Vdc
Internal Battery	AAP47U	.....	.....	.....	Yes
Weight (Portable Models)	19.6 lb	.....	.....	... .	19.6 w/battery, tape
Reader Service Number	**668**	**669**	**670**	**671**	**672**

(1) NV-9600 editing recorder/player and NV-9240 recorder/player are similar. (2) NV-9400 is related.

¾-inch U-matic

Manufacturer	Sony Broadcast			TEAC	
Model Number	**BVU-110 Portable**	**BVU-800**	**BVU-820**	**V-1000AB-R Record Only, Airborne**	**V-1000AB-F Airborne**
Video Response (±dB/Hz)	–5/to 3.25M	–5/to 3.25M	–5/to 3.2M	–5/to 3.58M	–/10-5M
Signal/Noise Ratio	L:50dBC:45dB	L:50dB/C:46dB	L:50dB/C:45dB	43dB	40dB
Horizontal Resolution	L:330/C:260TVL	L:330/C:260TVL	L:330/C:260TVL	340TVL	420TVL
Video AGC System	Yes	Yes	Yes	Yes	Yes
Video Metering	Yes	Yes	Yes	.....	.....
Advanced Sync Input	No	Yes	Yes	.....	.....
Composite Sync Input	No	Yes	Yes	.....	.....
Subcarrier Input	Yes	Yes	Yes	.....	.....
Dubbing Input/Output	No	Yes	Yes	.....	.....
RF Signal Output	Yes	Yes	Yes	.....	.....
Tracking Metering	No	Yes	Yes	.....	.....
AF Response (±dB/Hz)	50-15k	50-15k	50-15k	3/80-12.5k	3/80-10k
Signal/Noise Ratio	>48dB	48dB	48dB	40dB	40dB
Audio Metering	Yes	Yes	Yes	.....	.....
Time Code Track	Yes	Yes	Yes	Event marker	On audio 1
Normal Tape Speeds	3.75ips	3.75ips	3.75ips	3.75ips	3.75, 1.5ips
Search Tape Speeds	.....	1/30 to x10 F/R	1/30 to x10 F/R	.....	To x7 F/R
Recording Time Max	20 min (KCS-20)	60 min (KCA-60)	60 min (KCA-60)	30 min	30 min
Integral Editor System	Yes	Yes	Yes	.....	.....
Assemble/Insert Editing	Assembly only	Both	Both	.....	.....
Specific Edit Controller	.....	Various	Various	.. ..	.....
ac Powering	Optional	Yes	130W	.....	115Vac, 400Hz
External Battery	12Vdc	.....	.....	28Vdc unreg	28Vdc unreg
Internal Battery	BP-90 NiCad	.....	.....	.. ..	.....
Weight (Portable Models)	19 lb	.....	.....	23 lb	28.6 lb
Reader Service Number	**673**	**674**	**675**	**676**	**677**

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Videotape Recorders

VIDEORECORDER, VRC Studio Systems

Recorder/player units for use with ½-inch and ¼-inch recorded materials from VRC field units. The CTDM-format records Y, R-Y/B-Y component video; M-format uses Y, I/Q components; LINEPLEX format incorporates Y, U/V components with time expansion/compression and time division multiplexing.

Manufacturer	**Ampex Corporation**	Bosch/Fernseh		**Hitachi Denshi**
Model Number	**ARC-40**	**BCF 10**	**BCF 20 Editor**	**ECR-50**
Recording Format	M-format	LINEPLEX	LINEPLEX	M-format
Tape Materials	½" VHS	¼" CVC	¼" CVC	½" VHS
Output TV Standard	NTSC	NTSC, PAL	NTSC, PAL	NTSC
Video Response (Luma)	– 1dB/3MHz	– /3.6MHz	– 3.6MHz	– 3dB/3.6MHz
Video S/N Ratio	47dBL/48dBC	46dBL/47dBC	46dBL/47dBC	47dBL/48dBC
Audio Response	± 3dB/50Hz-15kHz	± 2dB/50Hz-15kHz	± 2dB/50Hz-15kHz	± 3dB/50Hz-15kHz
Audio S/N Ratio	50dB	60dBrms 200nWb/m	60dBrms 200nWb/m	50dB
Wow/Flutter	0.2%rms	0.2% peak	0.2% peak	0.2%rms
Time Code Track	Yes	Yes	Yes	Yes
Integral Editor	Yes	Yes	Yes	Yes
Timebase Correction	External required	.....	.....	External TC-150
Dub Input/Output	Y, I, Q	.....	Yes	Yes
Reader Service Number	**678**	**679**	**680**	**681**

Manufacturer	**Panasonic**	**RCA**	**Sony**	**Thomson-CSF**
Model Number	**AU-200/AU-300A**	**HR-2A Hawkeye**	**BVW-10/-20/-40**	**VT-615 Player**
Recording Format	M-format	M-format	CTDM-format	CTDM-format
Tape Materials	½" VHS	½" VHS	½" BETA	½" BETA
Output TV Standard	NTSC	NTSC, PAL, SECAM	NTSC, PAL, SECAM	NTSC
Video Response (Luma)	– 3dB/3.8MHz	– 3dB/3.8MHz	+ 0.5, – 6dB/4.1MHz	– /to 4MHz
Video S/N Ratio	50dBL/52dBC	50dBL/52dBC	48dBL/50dBC	48dBL/50dBC
Audio Response	± 2dB/50Hz-15kHz	± 2dB/50Hz-15kHz	± 3dB/50Hz-15kHz	± 2dB/50Hz-15kHz
Audio S/N Ratio	50dB	53dB	60dB (Dolby C)	50dB (Dolby C)
Wow/Flutter	0.15%	0.2%	0.15%	0.15%rms
Time Code Track	Yes	Yes	Yes	Yes
Integral Editor	AU-300A only	Yes	BVW-40 only	No
Timebase Correction	External required	Integral	Not in BVW-20	Integral
Dub Input/Output	Yes	Yes	Yes	Output
Reader Service Number	**682**	**683**	**684**	**685**

TIME CODE EQUIPMENT

Generator units for 80-bit serial or 90-bit vertical interval time code. If no reader capability is included within the package, a matching reader model number is given, if available.

Manufacturer	**Adams-Smith**	Amtel Systems		**Audio & Design Recording**	**Audio Kinetics**
Model Number	**2600GR(1)**	**Evertz ECM4000**	**3500 Portable**	**TCR1 Regenerator**	**Q-Lock 210**
Operation Modes:					
Drop Frame	Yes	Yes	Yes	Yes	Yes
Frame Rates (fps)	24,25	24,25	25	24,25	24,25
Color Frame	Yes	Yes	No	Yes	Yes
Jam Sync	Yes	Yes	Yes	No	No
Timing Reference:					
Input Video or 60Hz	Both	Video	Video	Video	Video
Internal Crystal	No	.....	Yes	No	Yes
Data Entry:					
Time Set/Reset	Yes	Yes	Yes	.....	Yes
User Bit Data	Yes	Yes	Yes	.....	.....
Data Displays:					
Time Code Data/User Bit	LED	LED	LED	LCD	LED
Character Generator Output	Option	Yes	No	No	No
Reader Function	2600LR or VR	Yes	No	Yes	Yes
Computer Interface	Option	Yes	No	.....	Yes
VITC Format Output	Option or 2602	Yes	No	No	No
Output Level	+ 10dBm	– 6, + 12dBm	5Vp-p	0dBm	+ 20dBm
Power Requirement	115/230Vac	115Vac	C cells or Vac	115Vac	115/240Vac
Color Standards	NTSC, CCIR	NTSC, PAL	EIA, EBU	NTSC	NTSC, PAL
Reader Service Number	**1036**	**1037**	**1038**	**1039**	**1040**

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Advertisers in this issue who have related video equipment are listed below with their respective advertising page number. For more information, refer to their advertisement on the listed page number.

*IBC – Inside Back Cover

TIME CODE EQUIPMENT

Manufacturer	BTX Corporation		Cipher Digital		Control Video
Model Number	**Model 5400**	**Cypher**	**716 Generator**	**Model 766**	**IC2110**
Operation Modes:					
Drop Frame	Yes	Yes	Yes	Yes	Yes
Frame Rates (fps)	24,25	24,25	25	24,25	24,25
Color Frame	Yes	Yes	Yes	Yes	Yes
Jam Sync	Yes	Yes	Yes	Yes	Yes
Timing Reference:					
Input Video or 60Hz	Video	Video	Video	Video	Video
Internal Crystal	Yes	Yes	Yes	Yes	No
Data Entry:					
Time Set/Reset	Yes	Yes	Yes	Yes	Yes
User Bit Data	Yes	Yes	Yes	Yes	Yes
Data Displays:					
Time Code Data/User Bit	LED	LED	LED	LED	LED
Character Generator Output	Option	Yes	.....	Model 760	Option
Reader Function	Yes	Yes	Model 710A	Model 760	Yes
Computer Interface	Yes	RS232/RS422	Yes	.....	Yes
VITC Format Output	.....	.....	No	Yes	Model IC2110V
Output Level	2Vp-p	.....	+4dBm	5V	+12dBm
Power Requirement	115Vac	110Vac	110Vac	110Vac	110Vac
Color Standards	NTSC	NTSC, PAL	NTSC	SMPTE, EBU	NTSC, PAL
Reader Service Number	**1041**	**1042**	**1043**	**1044**	**1045**

Manufacturer	EECO		Elector		ESE
Model Number	**VIG-850**	**MTG-550**	**TCG MK III Portable**	**TCG/D-2**	**ES261**
Operation Modes:					
Drop Frame	Yes	Yes	Yes	Yes	Yes
Frame Rates (fps)	25	24,25	25	25	.....
Color Frame	Yes	Yes	.....	Yes	.....
Jam Sync	Yes	Yes	.....	Yes	Yes
Timing Reference:					
Input Video or 60Hz	Video	Both	Video	Both	Video
Internal Crystal	No	No	Yes	No	Yes
Data Entry:					
Time Set/Reset	Yes	Yes	Yes	Yes	Yes
User Bit Data	Yes	Yes	Yes	.....	Yes
Data Displays:					
Time Code Data/User Bit	LED	LED	LED	LED/.....	None
Character Generator Output	With VCG-750	With TCR-650	No	.....	Yes
Reader Function	Yes	Yes	Option	TCR/VCG/D-2	No
Computer Interface	Yes	Yes	No	....	No
VITC Format Output	Yes	No	No	No	No
Output Level	1Vp-p	10V	2Vp-p	+10dBm	0dBm
Power Requirement	115-230Vac	115/230Vac	6 NiCad	115/230Vac	115Vac
Color Standards	NTSC, EBU	NTSC, EBU	NTSC, PAL, SECAM	NTSC, PAL	NTSC
Reader Service Number	**1046**	**1047**	**1048**	**1049**	**1050**

Manufacturer	FOR-A Corporation		Gray Engineering		JVC
Model Number	**TCG-3200 Portable**	**TCG-3100**	**DR-107**	**DT-104F**	**TG-P47U Portable**
Operation Modes:					
Drop Frame	Yes	Yes	Yes	Yes	Yes
Frame Rates (fps)	25	25	24,25	24,25	24,25
Color Frame	.....	.....	Yes	Yes	No
Jam Sync	.....	.....	No	Yes	No
Timing Reference:					
Input Video or 60Hz	Video	Video	Both	Both	No
Internal Crystal	.....	Yes	No	No	Yes
Data Entry:					
Time Set/Reset	Yes	Yes	Yes	Yes	Yes
User Bit Data	Yes	Yes	Yes	Yes	Yes
Data Displays:					
Time Code Data/User Bit	LED	LED	None	Yes	LED
Character Generator Output	No	With TG-160	Yes	No	No
Reader Function	No	With TCR-3100	Yes	Yes	No
Computer Interface	No	No	Yes	Yes	No
VITC Format Output	No	No	With VID-225	With VIE-224	No
Output Level	0dBm	0VU	+6dBm	+8dBm	0dBm
Power Requirement	8-20Vdc	110Vac	115/230Vac	115/230Vac	From CR4700U VCR
Color Standards	NTSC, PAL	NTSC, PAL	NTSC, PAL	NTSC, PAL	NTSC
Reader Service Number	**1051**	**1052**	**1053**	**1054**	**1055**

TIME CODE EQUIPMENT

Manufacturer	MCI/Sony	Multidyne	Panasonic	Skotel	
Model Number	JH-45	TCC-1	NV-F450 Portable	PTC-100 Portable	TCG-80N(P)
Operation Modes:					
Drop Frame	Yes	Yes	Yes	Yes	Yes
Frame Rates (fps)	24,25	25	.....	24,25	.....
Color Frame	With JH-48	Yes	.....	Yes	Yes
Jam Sync	.....	Yes	.....	Yes	Option
Timing Reference:					
Input Video or 60Hz	Both	Video	.....	Video	Both
Internal Crystal	Yes	Yes	Yes	Yes	.....
Data Entry:					
Time Set/Reset	Yes	Yes	Yes	Yes	Yes
User Bit Data	Yes	Yes	Yes	Yes	Yes
Data Displays:					
Time Code Data/User Bit	LED	Yes	Yes	LED	LED
Character Generator Output	.....	Yes	No	No	Option
Reader Function	W/synchronizer	Yes	In AU-A70	Yes	With TCR-80
Computer Interface	Possible	Yes	No	No	No
VITC Format Output	No	Yes	No	No	With VITC
Output Level	−3dVb	+8dBm	−20dBm	+10dBm	+8dBm
Power Requirement	115Vac	110Vac	Battery	4 AA cells	115/230Vac
Color Standards	SMPTE, EBU	NTSC, PAL, SECAM	NTSC	NTSC, PAL	NTSC (PAL)
Reader Service Number	**1056**	**1057**	**1058**	**1059**	**1060**

TIME CODE EQUIPMENT

Manufacturer	Sony Broadcast	Telcom Research	United Media	
Model Number	BVG-1600	T-7000	Model 210	Model 205
Operation Modes:				
Drop Frame	Yes	Yes	Yes	Yes
Frame Rates (fps)	24,25	25	24,25	24,25
Color Frame	Yes	Yes	Yes	Yes
Jam Sync	Yes	Option	.....	.....
Timing Reference:				
Input Video or 60Hz	Video	.....	Yes	Yes
Internal Crystal	.....	.....	.....	.....
Data Entry:				
Time Set/Reset	Yes	Yes	Yes	Yes
User Bit Data	Yes	Yes	Yes	Yes
Data Displays:				
Time Code Data/User Bit	LED	LED	LED	LED
Character Generator Output	Yes	.....	Model 215	Yes
Reader Function	With BVG-1500	Option	Model 310	Model 305
Computer Interface	Yes	No	Possible	Possible
VITC Format Output	Yes	No	No	No
Output Level	+8dBm	+11dBm	+8dBm	+8dBm
Power Requirement	110Vac	Battery	110Vac	110Vac
Color Standards	NTSC, PAL	NTSC, PAL	NTSC, PAL, SECAM	NTSC, PAL, SECAM
Reader Service Number	**1061**	**1062**	**1063**	**1064**

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Time Code Equipment

CAMERA LENS

Image format 1¼-inch. Optical lens systems for use, and adaptable, with various models of TV cameras.

Manufacturer	Angenieux		Canon	
Model Number	**42x16**	**Tele 42x32**	**P12x18BIE**	**P18x15BIE**
Type	**Studio/OB**	**Sports OB**	**Studio**	**Studio/Field**
Zoom Range (mm)	16-675	32-1350	18-216	15-270
Relative Aperture (F)	2-6.8	2.3-7.6	2.1	2.1-2.7
Minimum Object Distance	0.64m/25 in	4m/13ft	0.9m/35 in	0.6m/23.6 in
M.O.D. Area (mm)	22x17	50x37	.....	92.2x69.2
Horizontal Field Angle	56° to 1.5°	30° to 0.7°	50.8° to 1.5°	60.4° to 3.7°
Back Focal Distance (mm)	Adjustable	Adjustable	78.27	75.3
Clear Aperture Front (mm)	.....	.....	.....	185.2
Clear Aperture Rear (mm)	.....	.....	.....	39.1
Integral Range Extenders	.....	Available	x1.5, x2	x1.5, x2
Servo Iris	Yes	Yes	Yes	Yes
Servo Zoom	Yes	Yes	Yes	Yes
Lens Assembly Weight	26Kg/58 lb	35Kg/77 lb	20Kg/44 lb	27Kg/60 lb
Reader Service Number	**1022**	**1023**	**1024**	**1025**

CAMERA LENS

Manufacturer	Canon		Fujinon	
Model Number	**P40x18BIE**	**P14x16.5ESM**	**P17x16.5ESM**	**P15x16.5ESM**
Type	**BCTV Zoom**	**BCTV Zoom**	.....	**BCTV Zoom**
Zoom Range (mm)	18-720	16.5-230	16.5-280	16.5-250
Relative Aperture (F)	2.3	2.1-2.2	2.1-2.7	2.1-2.3
Minimum Object Distance	2.5m/8.2ft	0.75m/29.5 in	0.75m/2.46ft	0.75m/2.46ft
M.O.D. Area (mm)	53x40	72x54	.....	66.7x50
Horizontal Field Angle	50.7° to 1.4°	54°50′ to 4°16′	54°50′ to 3°30′	54°50′ to 3°55′
Back Focal Distance (mm)	75	66.36	.....	.....
Clear Aperture Front (mm)	200	173	.....	.....
Clear Aperture Rear (mm)	36	.....	.....	.....
Integral Range Extenders	x2	x2	x1.5, x2	x1.5 or x2
Servo Iris	Yes	Yes	Yes	Yes
Servo Zoom	Yes	Yes	Yes	Yes
Lens Assembly Weight	30Kg/66 lb	25Kg/55 lb	46.3 lb	18Kg/39 lb
Reader Service Number	**1027**	**1028**	**1029**	**1030**

CAMERA LENS

Manufacturer	Schneider			
Model Number	**Varlogon 2.1/33-1000**	**Varlogon 2.1/20-600**	**Varlogon 2.1/16-480**	**Varlogon 2.1/16-240**
Type	**TV37 Tele/OB**	**TV25 Standard**	**TV31 Wide Angle**	**TV51 Wide Angle**
Zoom Range (mm)	33-1000	20-600	16-480	16-240
Relative Aperture (F)	2.1-6.3	2.1-6.3	2.1-3.3	2.1-3.1
Minimum Object Distance	2.9m/10ft	0.85m/33.5 in	0.4m/15.7 in	0.7m/15.7 in
M.O.D. Area (mm)	102x76	32x24	20.5x15.5	62.5x47
Horizontal Field Angle	29° to 0.98°	45° to 1.6°	56° to 2°	55° to 4.1°
Back Focal Distance (mm)	63.5	61.7	61.7	59.7
Clear Aperture Front (mm)	180	130	130.5	134
Clear Aperture Rear (mm)	38.6	38.6	38.6	40
Integral Range Extenders	x1.7	x1.7, 1.17 closeup	x1.7	x2
Servo Iris	Yes	Yes	Yes	Yes
Servo Zoom	.....	.....	.....	Yes
Lens Assembly Weight	19.5Kg/43 lb	16Kg/35 lb	17.5Kg/38.5 lb	25Kg/55 lb
Reader Service Number	**1032**	**1033**	**1034**	**1035**

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More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Camera Lenses
Fujinon 93

CAMERA LENS

Image format 1-inch. Optical lens systems for use, and adaptable, with various models of TV cameras.

Manufacturer	Angenieux			Canon
Model Number	**15x12.5**	**15x13**	**42x12.5**	**Tele 42x24**	**PV10x15BIE**
Type	.....	.....	**Studio/OB**	**Sports/OB**	**Studio**
Zoom Range (mm)	12.5-188	13-195	12.5-525	24-1000	15-150
Relative Aperture (F)	2.5-3.5	1.5-2.1	1.5-5.3	1.7-5.7	1.8
Minimum Object Distance	0.6m/2ft	0.8m/2.1ft	0.64m/25 in	4m/13ft	1.6m/63 in
M.O.D. Area (mm)	27x35	41x55	22x17	50x37	.....
Horizontal Field Angle	54° to 4°	52.5° to 3.75°	56° to 1.5°	30° to 0.7°	46.2° to 5°
Back Focal Distance (mm)	Adjustable	Adjustable	Adjustable	Adjustable	67.59
Clear Aperture Front (mm)	.....	.....	.....	.....	.....
Clear Aperture Rear (mm)	.....	.....	.....	.....	.....
Integral Range Extenders	x1.6, tele	x2	.....	.....	x1.7, x2
Closeup Diopters	.....	.....	Available	Available	.....
Servo Iris	Yes	Yes	Yes	Yes	.....
Servo Zoom	Yes	Yes	.....	.....	.....
Lens Assembly Weight	5.5 lb	44 lb	26Kg/58 lb	34Kg/75 lb	5Kg/11 lb
Reader Service Number	**1003**	**1004**	**1005**	**1006**	**1007**

Manufacturer	Canon			Fujinon	
Model Number	**PV18x11BIE**	**PV25x20B**	**PV40x13.5BIE**	**K10x15RW**	**K12x14ERM**
Type	**TV Zoom**	**Field**	.....	**BCTV Zoom**	**BCTV Zoom**
Zoom Range (mm)	11-200	20-500	13.5-540	15-150	14-168
Relative Aperture (F)	1.6-2	1.8-3	1.7	1.8	1.9
Minimum Object Distance	0.6m/23.6 in	2.5m/8.2ft	2.5m/8.2ft	1.3m/51 in	0.95m/37.4 in
M.O.D. Area (mm)	49x37	.....	.....	1034x775	66x49
Horizontal Field Angle	60.4° to 3.7°	35.5° to 1.5°	50.7° to 1.7°	46°12′ to 4°53′	46°08′ to 4°22′
Back Focal Distance (mm)	62.8	64.98	.....	60.47	59.47
Clear Aperture Front (mm)	185.2	.....	.....	88.5	88.5
Clear Aperture Rear (mm)	42.4	.....	.....	.....	.....
Integral Range Extenders	x1.5, x2	x1.5, x2	x2	.....	x2
Closeup Diopters	.....	.....	.....	.....	.....
Servo Iris	Yes	Yes	Yes	Yes	Yes
Servo Zoom	Yes	Yes	Yes	.....	Yes
Lens Assembly Weight	27Kg/59 lb	28Kg/61.7 lb	66 lb	4Kg/8.8 lb	2.9Kg/6.4 lb
Reader Service Number	**1008**	**1009**	**1010**	**1011**	**1012**

Manufacturer	Fujinon				Schneider
Model Number	**R14x12.5ESM**	**R14x14ESM**	**R17x12.5ESM**	**R28x11ESM**	**Varlogon 2/17-170**
Type	**High Resolution**	.....	.....	.....	**TV24 Studio**
Zoom Range (mm)	12.5-175	14-200	12.5-212	11-310	17-170
Relative Aperture (F)	1.6-1.7	1.6	1.6-2.0	1.6-3.1	2
Minimum Object Distance	0.75m/29.5 in	1m/3.3ft	0.75m/2.46ft	0.95m/3.12ft	1.5m/59 in
M.O.D. Area (mm)	69.52	57.2x42.9	.....	.....	108x81
Horizontal Field Angle	54°13′ to 4°11′	49°8′ to 3°40′	.....	.....	41° to 4.4°
Back Focal Distance (mm)	60.61	60.1	.....	.....	60
Clear Aperture Front (mm)	173	147	.....	.....	98
Clear Aperture Rear (mm)	.....	.....	.....	.....	33.1
Integral Range Extenders	x2	x2	x1.5, x2	x1.7	x1.5, x2, x2.5
Closeup Diopters	.....	.....	.....	.....	.....
Servo Iris	Yes	Yes	Yes	Yes	Yes
Servo Zoom	Yes	Yes	Yes	Yes	.....
Lens Assembly Weight	25Kg/55.1 lb	21.6 lb	52.9 lb	60.6 lb	6.5Kg/14.3 lb
Reader Service Number	**1013**	**1014**	**1015**	**1016**	**1017**

Manufacturer	Schneider		
Model Number	**Varlogon 1.7/12.5-375**	**Varlogon 1.7/26-800**	**Varlogon 1.7/12.5-190**
Type	**TV35 Wide Angle**	**TV39 Tele/OB**	**TV63**
Zoom Range (mm)	12.5-375	26-800	12.5-190
Relative Aperture (F)	1.7-5.1	1.7-5.1	1.7-2.5
Minimum Object Distance	0.4m/15.7 in	2.9m/9.5ft	0.4m/15.7 in
M.O.D. Area (mm)	19x14.5	96x72	43.3x32.5
Horizontal Field Angle	53° to 1.9°	27° to 0.92°	53° to 3.9°
Back Focal Distance (mm)	59.7	59.7	71.6
Clear Aperture Front (mm)	130.5	180	134
Clear Aperture Rear (mm)	40	40	40
Integral Range Extenders	x1.7	x1.7	x2
Closeup Diopters	.....	.....	.....
Servo Iris	Yes	Yes	Yes
Servo Zoom	.....	.....	.....
Lens Assembly Weight	17.5Kg/38.5 lb	19.5Kg/43 lb	19Kg/41.8 lb
Reader Service Number	**1018**	**1019**	**1020**

CAMERA LENS

Image format ½ and ⅔-inch. Optical lens systems for use, and adaptable, with various models of TV cameras. ½-inch units are indicated under type.

Manufacturer	Angenieux			Canon	
Model Number	**15x9**	**15x7**	**25x10**	**J13x9B*IE II**	
Type	**ENG/EFP**	**ENG/EFP(½")**	**Studio/EFP**	**TV Zoom**	**J15x8.5BIE**
Zoom Range (mm)	9-135	7-105	10-250	9-117	8.5-128
Relative Aperture (F)	1.5-1.9	1.4-1.8	1.4-2.8	1.6-1.9	1.6
Minimum Object Distance	0.8m/31 in	0.8m/31 in	0.9m/36 in	0.8m/31 in	0.6m/1.7 ft
M.O.D. Area (mm)	48x36	44x34	27x20	56x42	.....
Horizontal Field Angle	51° to 3.75°	48° to 3.5°	46° to 2°	52.1° to 4.3°	54.1° to 3.9°
Back Focal Distance (mm)	Adjustable	Adjustable	Adjustable	1,3,4,6,7,8"	.....
Clear Aperture Front (mm)	.....	.....	.....	72.6	.....
Clear Aperture Rear (mm)	.....	.....	.....	... .	.....
Integral Range Extenders	x2	x2	Attachments	x2	x2
Servo Iris	Yes	Yes	Yes	Yes	Yes
Servo Zoom	Yes	Yes	Yes	Yes	Yes
Lens Assembly Weight	2.1Kg/4.7 lb	1.7Kg/3.7 lb	6.2Kg/13.7 lb	1.45Kg/3.2 lb	20.9 lb
Reader Service Number	**975**	**976**	**977**	**978**	**979**

Manufacturer	Canon			Fujinon	
Model Number	**PH13x6.6BIE**	**J20x8.5B*IE**	**J25x11.5B*IE**		**A10x11*RM**
Type	**ENG(½")**	**TV Zoom**	**TV Zoom**	**A3.5x6.5*RM**	**ENG Zoom**
Zoom Range (mm)	6.6-86	8.4-170	11.5-288	6 5-23	11-110
Relative Aperture (F)	1.4	1.6-2.I	1.6-2.1	1.7	1.6-1.9
Minimum Object Distance	0.8m/31 in	0.6m/24 in	1.5m/59 in	0.3m/.98ft	1m/39.3 in
M.O.D. Area (mm)	56x42	39x3C	41x31	.....	74x56
Horizontal Field Angle	51.7° to 4.3°	54.7° to 3°	41.9° to 1.8°	68°11' to 21°39'	43°45' to 4°35'
Back Focal Distance (mm)	33	.....	.....	.. ..	.....
Clear Aperture Front (mm)	.....	132.9	137	61	60
Clear Aperture Rear (mm)	.....	.....	.....	.....	.....
Integral Range Extenders	.....	x2	x2	.....	.....
Servo Iris	Yes	Available	Available	Yes	Yes
Servo Zoom	Yes	Available	Available	Yes	Yes
Lens Assembly Weight	3.75 lb	8Kg/17.6 lb	10Kg/22 lb	3.2 lb	1.2Kb/2.6 lb
Reader Service Number	**980**	**981**	**982**	**983**	**984**

CAMERA LENS

Manufacturer	Fujinon				
Model Number	**A12x9*RM**	**A12x9*ERM**		**A14x9.5*ERM**	**A17x8.5*ESM**
Type	**ENG/EFP Zoom**	**ENG/EFP Zoom**	**A14x9ERM**	**ENG/EFP Zoom**	**EFP**
Zoom Range (mm)	9-109	9-108	9-126	9.5-133	8.5-145
Relative Aperture (F)	1.7-1.9	1.7-1.9	1.7-2	1.7-2	1.5-2
Minimum Object Distance	0.8m/31 in	0.8m/31 in	0.8m/2.6ft	0.8m/31 in	0.7m/27.6 in
M.O.D. Area (mm)	59.7x44.8	80x45	.....	49.3x37	51x39
Horizontal Field Angle	52°06' to 4°40'	52°06' to 4°40'	52°6' to 4°	49°40' to 3°47'	54°44' to 3°28'
Back Focal Distance (mm)	.....	.....	.....	.....	.....
Clear Aperture Front (mm)	71	71	.....	.....	.....
Clear Aperture Rear (mm)	.....	.....	.....	72.5	131
Integral Range Extenders	.....	x2.2	x2, macro	x2	x2
Servo Iris	Yes	Yes	Yes	Yes	Yes
Servo Zoom	Yes	Yes	Yes	Yes	Yes
Lens Assembly Weight	1.8Kg/4 lb	1.9Kg/4.2 lb	3.3 lb	1.7Kg/3.7 lb	10.8Kg/24 lb
Reader Service Number	**985**	**986**	**987**	**988**	**989**

Manufacturer	Fujinon			Schneider	
Model Number	**A17x9*ERM**	**A22x12.5*ERM**	**A30x11*ESM**	**Varlogon 1.8/10-100**	**Varlogon 1.7/9-126**
Type	**ENG/EFP**	**ENG/EFP**	**EFP**	**TV41 ENG**	**TV44 ENG/EFP**
Zoom Range (mm)	9-153	12.5-275	11-330	10-100	9-126
Relative Aperture (F)	1.7-2.3	2-2.8	1.6-2.4	1.8	1.7-2.1
Minimum Object Distance	0.9m/35.4 in	1.8m/71 in	1.7m/67 in	1m/39.3 in	0.8m/31 in
M.O.D. Area (mm)	48x36	54x41	41x31	85x64	54x41
Horizontal Field Angle	52°06' to 3°17'	38°47' to 1°50'	43°36' to 1°32'	46° to 5.2°	54° to 4°
Back Focal Distance (mm)	.....	.....	.....	40.8	42.5 to 47.6
Clear Aperture Front (mm)	.....	98	136	66	72
Clear Aperture Rear (mm)	80	.....	.....	23.7	29.5
Integral Range Extenders	x2	x2	x2	x2	x2
Servo Iris	Yes	Available	Yes	Yes	Yes
Servo Zoom	Yes	Available	Yes	Yes	Yes
Lens Assembly Weight	2.3Kg/5 lb	3.98Kg/8.8 lb	9.2Kg/20.3 lb	2.3Kg/5.1 lb	1.5Kg/3.3 lb
Reader Service Number	**990**	**991**	**992**	**993**	**994**

Manufacturer	Schneider				
Model Number	**Varlogon 1.7/8.5-125**	**Varlogon 1.4/12-240**	**Varlogon 1.4/87-260**	**Varlogon 1.4/11-330**	**Varlogon 1.4/18.5-550**
Type	**TV43 ENG/EFP**	**TV27B EFP**	**TV46 EFP Wide Angle**	**TV45 EFP Standard**	**TV47 EFP Tele**
Zoom Range (mm)	8.5-125	12-240	8.7-260	11-330	18.5-550
Relative Aperture (F)	1.7-2.1	1.4-2.8	1.4-3.5	1.4-3.5	1.4-3.5
Minimum Object Distance	0.8m/31 in	1.5m/59 in	0.4m/15.7 in	.85m/33.5 in	2.9m/10 ft
M.O.D. Area (mm)	55.7x41.7	52x39	19.3x14.4	30x22	45x34
Horizontal Field Angle	53° to 4.1°	.....	52.5° to 2°	42.5° to 1.6°	26.4° to 1°
Back Focal Distance (mm)	41.6	40.9	41.1	41.1	41.1
Clear Aperture Front (mm)	71	98	180	132	180
Clear Aperture Rear (mm)	25.2	34	38.4	38.4	38.4
Integral Range Extenders	x2	0.67 closeup	.....	1.17 closeup	.....
Servo Iris	Yes	Yes	Yes	Yes	Yes
Servo Zoom	Yes	.....	Yes	Yes	Yes
Lens Assembly Weight	3.1Kg/6.9 lb	7.8Kg/17.2 lb	17.5Kg/38.5 lb	16Kg/35.2 lb	19.5Kg/42.9 lb
Reader Service Number	**995**	**996**	**997**	**998**	**999**

Manufacturer	Schneider	Tamron Company	
Model Number	**Varlogon 1.4/6.5-91**	**665H**	**466H**
Type	**TV54 ENG(½")**		
Zoom Range (mm)	4.5-182	10-100	9-126
Relative Aperture (F)	1.4-2.6	1.6	1.6-1.9
Minimum Object Distance	2.5ft	1m/3.3ft	1m/3.3ft
M.O.D. Area (mm)	53x40	.....	.....
Horizontal Field Angle	70° to 2°	47.5° to 5°	52.6° to 4°
Back Focal Distance (mm)	35.7	39.03	38.98
Clear Aperture Front (mm)	72	64.2	76.5
Clear Aperture Rear (mm)	30	24.3	24.8
Integral Range Extenders	x2, macro	1:8.8 closeup	1:9.9 closeup
Servo Iris	Yes	Yes	Yes
Servo Zoom	Yes	Yes	Yes
Lens Assembly Weight	1.5Kg/3.3 lb	1.7 lb	2.08 lb
Reader Service Number	**1000**	**1001**	**1002**

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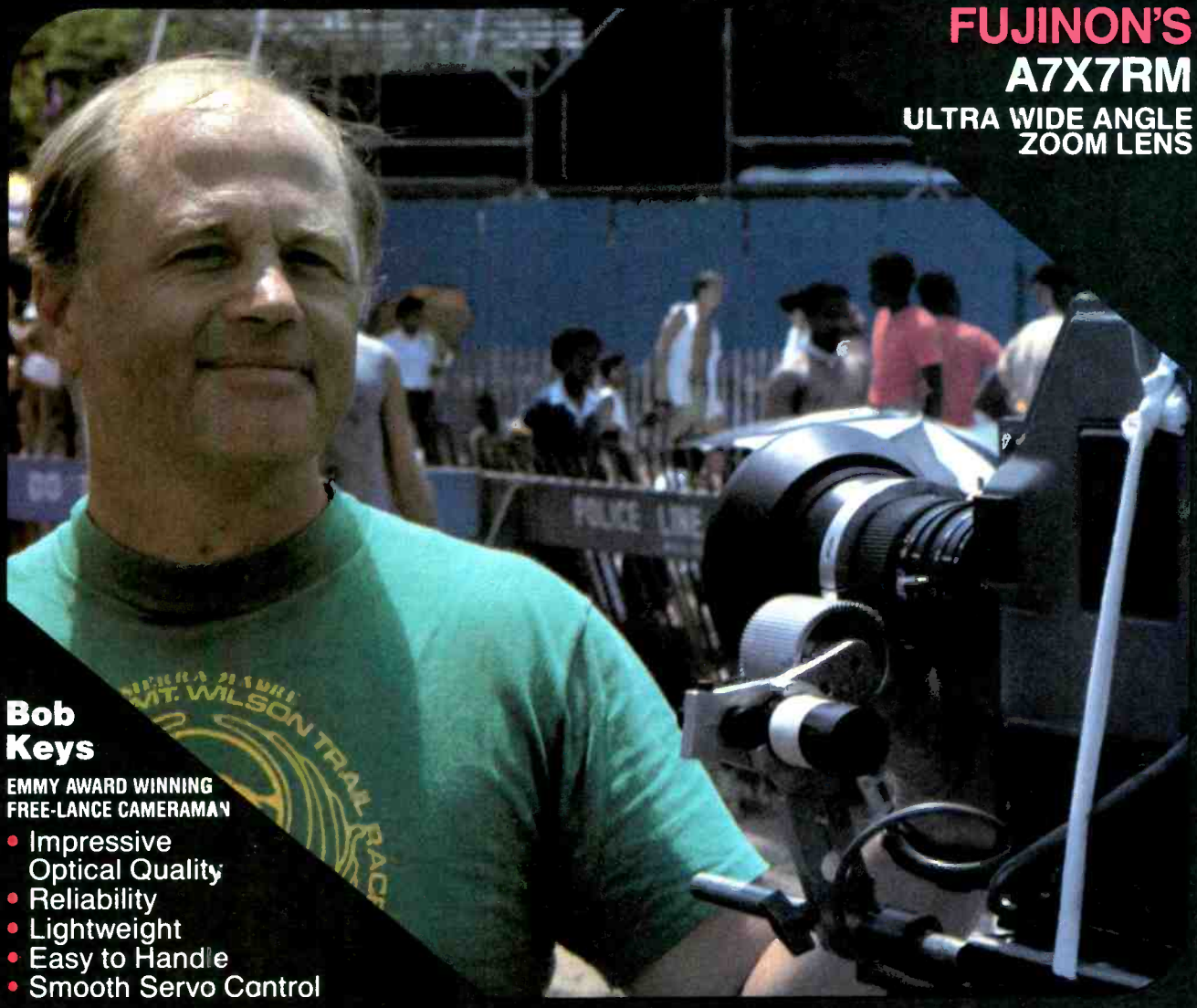

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TRANSMITTING EQUIPMENT

Determining FM Operating Power

By Dane Erickson

Determining FM operating power is generally not considered high on the list of difficult engineering tasks. However, some chief engineers may find themselves in an embarrassing position during an FCC inspection because of their lack of familiarity with FCC rules governing determination of FM operating power. This article will review FCC requirements and point out some common pitfalls.

FM broadcast stations have the option of determining power by the *direct* or the indirect method. The direct method uses the reflectometer indication as the official operating power. The indirect method uses a formula to calculate the official power from the plate voltage and plate current readings. Because there is no requirement to notify the FCC or obtain prior approval for either method, selection of an inappropriate method may not be revealed until the station experiences the FCC inspection.

The Direct Method

Use of the direct method requires calibrating the reflectometer into a dummy load wattmeter at intervals of six months or less. The calibration must be performed at least at the 90%, 100% and 105% power levels. The results of the calibration must be entered in the maintenance log. Because the plate voltage (E_p) and plate current (I_p) must be in "substantial agreement" between operation into the dummy load and operation into the antenna, the corresponding E_p and I_p values should also be logged to show compliance with this requirement. A significant difference in transmitter parameters suggests transmission line or antenna mismatch problems which should be investigated.

If a station has access to:
1) A dummy load and wattmeter of sufficient capacity to dissipate 105% of authorized transmitter output power;
2) Transmission line fittings for switching between the antenna and the dummy load;
3) A wattmeter element with a frequency range covering the FM broadcast band;
4) A wattmeter element with a full scale power no greater than five times the 90% power level;
then the station is free to calibrate the reflectometer and determine power by the direct method. Possibly the major advantage of the direct method is that operators are not required to calculate power—the reflectometer indication is accepted as the official operating power.

The Indirect Method

Because a dummy load and wattmeter are relatively expensive, most stations forgo these instruments and by default must use the indirect method. Because Section 73.267(b) requires "a dummy load of substantially zero reactance and a resistance equal to the transmission line characteristic impedance," a directional wattmeter by itself is not acceptable for power calibration purposes;

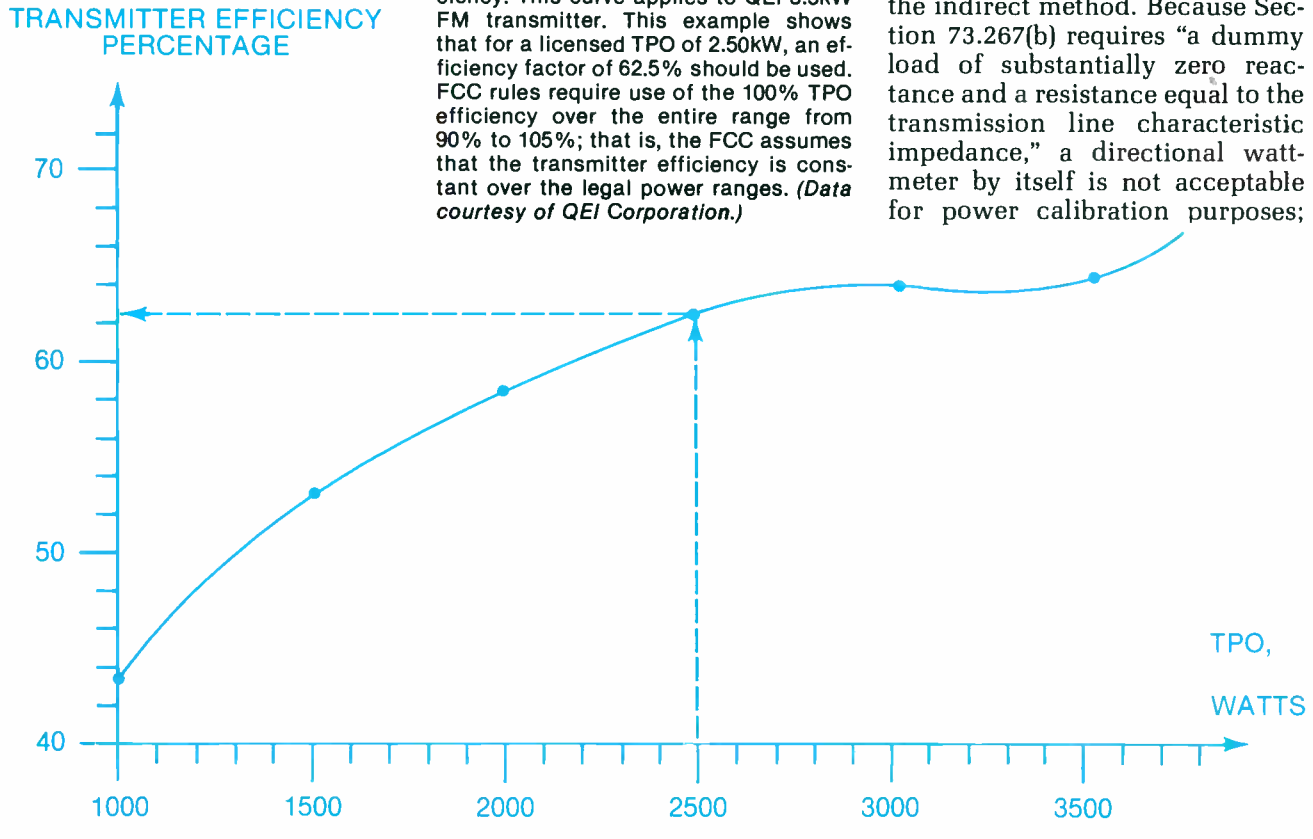

Figure 1. Typical graph of transmitter power output (TPO) vs. transmitter efficiency. This curve applies to QEI 3.5kW FM transmitter. This example shows that for a licensed TPO of 2.50kW, an efficiency factor of 62.5% should be used. FCC rules require use of the 100% TPO efficiency over the entire range from 90% to 105%; that is, the FCC assumes that the transmitter efficiency is constant over the legal power ranges. *(Data courtesy of QEI Corporation.)*

Ep, kV													
4.00	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80
3.98	2.19	2.24	2.29	2.34	2.39	2.44	2.49	2.54	2.59	2.64	2.69	2.74	2.79
3.96	2.18	2.23	2.28	2.33	2.38	2.43	2.48	2.52	2.57	2.62	2.67	2.72	2.77
3.94	2.17	2.22	2.27	2.31	2.36	2.41	2.46	2.51	2.56	2.61	2.66	2.71	2.76
3.92	2.16	2.21	2.25	2.30	2.85	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.74
3.90	2.15	2.19	2.24	2.29	2.34	2.39	2.44	2.49	2.54	2.58	2.63	2.68	2.73
3.88	2.13	2.18	2.23	2.28	2.33	2.43	2.43	2.47	2.52	2.57	2.62	2.67	2.72
3.86	2.12	2.17	2.22	2.27	2.32	2.36	2.41	2.46	2.51	2.56	2.61	2.65	2.70
3.84	2.11	2.16	2.21	2.26	2.30	2.35	2.40	2.45	2.50	2.54	2.59	2.64	2.69
3.82	2.10	2.14	2.19	2.23	2.28	2.33	2.38	2.42	2.47	2.52	2.57	2.61	2.66
	0.88	0.90	0.92	0.94	0.96	0.98	1.00	1.02	1.04	1.06	1.08	1.10	1.12
													Ip, A

Figure 2. Sample tabulation of allowable combinations of plate voltage and plate current. Tabulation applies to a station with a licensed TPO of 2.5kW and an FCC efficiency factor of 62.5%. Nominal final RF stage parameters are 3.90kV at 1.00A. Although tabulations of upper and lower limiting values of transmitter parameters are no longer required to be posted at the operator's duty position, such a tabulation is prudent. A tabulation allows lesser grade operators to simply read E_P and I_P values and see if they intersect in a *safe* area. Lesser grade operators are relieved from having to know the efficiency factor and to multiply terms. Of course, it is imperative that the chief operator, or whoever prepares the tabulation, bases it on the correct efficiency factor and tailors the E_P and I_P ranges to values appropriate for the transmitter actually installed.

an actual dummy load and wattmeter must be used.

Stations which have not calibrated the reflectometer into a dummy load wattmeter must determine operating power by the indirect method. The indirect method operating power is defined as the product of plate voltage, plate current and an efficiency factor. The FCC requires the efficiency factor to be selected by the following methods, in order of preference:

1) *By actual measurement using a dummy load wattmeter.* The efficiency factor is the ratio of the dummy load wattmeter power and the plate input power ($E_P \times I_P$). However, if a dummy load wattmeter is available, the station might as well determine power by the direct method.

2) *By reference to the manufacturer's test data provided at the time of installation.* To be acceptable, this test must have been performed at the currently authorized power and frequency, and for the specific transmitter in use. If a 20kW transmitter is installed and the authorized transmitter power is 18kW, the test data must be for the 18kW level, not the 20kW level.

3) *By reference to the graph of transmitter efficiency as function of output power.* This graph, found in the transmitter instruction manual, is required as part of the type acceptance data submitted to the FCC. Although this is generally the least accurate source, it is by far the most common means of determining the efficiency factor.

If an inspection occurs, and it is determined that the indirect method must be used, the inspector will require documentation of the efficiency factor. If the efficiency factor in use is determined to be inconsistent with the above criteria, then as far as the FCC is concerned, the station is operating at some other power than expected.

If the efficiency factor is too high, the station may have been operating at less than 90% of authorized power. Because underpower operation will not cause interference, a monetary forfeiture would probably not be assessed. However, at least an advisory notice would be issued, and regardless of any FCC action, you would have to explain to the station manager why unnecessary underpower operation occurred.

If the efficiency factor is too low, the station may have been operating at more than 105% of authorized power. If a review of the operating logs shows extended overpower operation, based upon an efficiency factor determined according to FCC rules, a monetary forfeiture is possible.

Even if the efficiency factor has been correctly determined, duty operators must still multiply plate voltage, plate current and the efficiency factor; divide this product by the authorized transmitter out-

put power; and verify that operating power is within the permissible range of 90% to 105% of authorized power. Before the operator deregulation docket (Docket 20817, effective August 7, 1981), stations using the indirect method and using lesser grade operators were required to post a graph or tabulation of allowable combinations of plate voltage and plate current. The duty operator then only needed to ensure that the E_p and I_p values intersected in a "safe" area on the graph or tabulation. Because written operator instructions are no longer mandatory, station licensees and designated chief operators have more responsibility for ensuring that duty operators are properly maintaining power.

A thorough understanding of FCC rules governing determination of FM operating power will ensure that you are not inadvertently operating with improper power levels and should help provide peace of mind when you are inspected. If after reading this article, you realize that you are incorrectly using the direct method, or the efficiency factor you are using came from such dubious sources as the third prior chief engineer's fondness for "XX" percent or a yellowed piece of paper taped to the remote control unit suggesting "ZZ" percent, you would be well advised to document your efficiency factor per FCC rule section 73.267(c)(3). If you are fortunate enough to have access to a dummy load wattmeter, make sure your power calibrations are timely and include all required data.

Editor's Note: Ericksen prepared this material before the commission's action on lesser requirements of log keeping and other technical considerations. It is the opinion of Ericksen and this editor that stations should continue to maintain operating and maintenance logs as documentation of the broadcast activity. By having the information on file, should the facility be inspected, the station's response to a possible rule citation will be made easier. At the same time, a properly kept log could lead to information regarding non-standard operation and to answers in case of equipment failure.

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AURAL STL SYSTEM

Aural STL receiver/transmitter, typically operating in 940 to 960MHz spectrum with 50Ω RF impedances. Overall intent of system is for stereo operation.

Manufacturer	**ITAME**	**Marti Electronics**	**McMartin Industries**	**Micro Control Inc.**	**Moseley Associates**
System Designator	**UHF-2-80C**	**STL-10;R-10**	**9500 Series**	**PTS-10/PRS-10**	**PCL-505/C & PCL-505**
Composite/Dual	Either	Dual	Composite or dual	Composite or dual	Composite or dual
AF Response (± dB/Hz):					
Composite	.....	.....	0.1/50-60k	0.25/30-60k	0.3/30-60k
Dual	± 1/30-15k	10.25/20-15k	0.1/80-15k	0.25/40-15k	0.4/30-15k
Distortion:					
Composite	.....	.....	<0.35%, 30Hz-50kHz	<0.4%	<0.4%
Dual	1%	0.29%, 40Hz-15kHz	<0.3%, 30Hz-15kHz	<0.4%, 40Hz-15kHz	<0.4%
Signal/Noise Ratio	60dB	70dB	>70dB	>65dB	>68dB
Crosstalk Sub/Main	.....	60dB	< – 50dB	< – 43dB	< – 43dB
Stereo Separation	.....	60dB	>45dB, 1kHz	>40dB typically	>35dB
Modulation Capacity:					
Baseband	± 75kHz overall	± 67kHz	± 48kHz	.....	± 60kHz/ ± 40kHz
Multiplex	.....	± 67kHz	± 12kHz	.....	± 15kHz/ ± 10kHz
Transmitter Model	**UHF-2-80C**	**STL-10**	**9500**	**PTS-10**	**PCL-505/C; PCL-505**
RF Output	10W	10W	3.5-12W adj	10W max	5-10W adj
Frequency Stability	1x10^{-6} error	0.00025%	± 1ppm/year	0.0005%	0.0005%
AM Noise	.....	< – 60dB	– 70dB	< – 65dB	< – 70dB
Input Level/Impedance:					
Dual	+ 14dBm 600Ω bal	+ 8dBm, 600Ω bal	1.24Vrms, 10kΩ	+ 10(± 2)dBm, 600Ω bal	+ 10dBm, 600Ω
Composite	.....	.....	1.24Vrms, 10kΩ	1Vrms, unbal	3.5p-p, 10kΩ
Multiplex	.....	+ 4dBm, 600Ω unbal	0.53Vrms, 10kΩ	.....	1.5Vp-p, 2kΩ
Powering Requirement	125/220Vac50-60Hz	110/220Vac, 80W	110/220Vac, 70W	110/220Vac, 125W	110/220Vac, 80W
Receiver Model	**UHF-2-80C**	**R-10**	**9503**	**PRS-10**	**PCL-505/C; PCL-505**
Design	.....	Double conversion	Multiple conversion	Double conversion	Double conversion
Sensitivity:					
Dual	1μV 20dB SNR	<14μV for 60dB SNR	<20μV for 60dB SNR	>10μV, 50dB SNR	<2μV, 20dB SNR
Composite	.....	.....	<30μV for 60dB SNR	>50μV, 60dB SNR	<2μV, 20dB SNR
Usable Bandwidth:					
Dual Baseband	.....	10Hz-15kHz	30Hz-15kHz	.....	30Hz-15kHz
Composite Baseband	.....	.....	30Hz-75kHz	.....	1Hz-80kHz
Dual Multiplex	.....	25kHz-80kHz	18kHz-32kHz	.....	22kHz-85kHz
Composite Multiplex	.....	.....	110kHz-240kHz	.....	100kHz-240kHz
Reader Service Number	**880**	**881**	**882**	**883**	**884**

AURAL STL SYSTEM

Manufacturer	**Moseley Associates**	TFT	
System Designator	**PCL-606/C & PCL-606**	**7700 Series**	**8300 Series**
Composite/Dual	Composite and dual	Composite and dual	Composite
AF Response (± dB/Hz):			
Composite	0.1/30-53k	0.2/50-75k	0.1/30-53k
Dual	0.25/30-15k	0.2/30-15k	.....
Distortion:			
Composite	<0.2%	<0.25%	0.2%
Dual	<0.25%	<0.25%	.....
Signal/Noise Ratio	>72dB	70dB	75dB
Crosstalk Sub/Main	< – 54dB	46dB	50dB
Stereo Separation	>48dB	>45dB	>50dB
Modulation Capacity:			
Baseband	± 50kHz/ ± 40kHz	± 48kHz	± 50kHz
Multiplex	± 12.5κHz/ ± 10kHz	± 12kHz	± 10kHz
Transmitter Model	**PCL-606/C; PCL-606**	**7700**	**8100**
RF Output	5-10W adj	12W	14W
Frequency Stability	0.00025%	0.0001%	0.0001%
AM Noise	.....	< – 65dB	< – 65dB
Input Level/Impedance:			
Dual	+ 10dBm, 600Ω	+ 4dBm, 600Ω	.....
Composite	3.5Vp-p, 6kΩ	+ 4dB, 300Ω	+ 4dB, 10kΩ
Multiplex	1.5Vp-p, 6kΩ	+ 2dB, 300Ω	+ 2dB, 10kΩ
Powering Requirement	110/220Vac, 70W	110/220Vac, 70W	110/220Vac, 80W
Receiver Model	**PCL-606/C; PCL-606**	**7707/7705**	**8101**
Design	Triple conversion	Triple conversion	Double conversion
Sensitivity:			
Dual	<15μV, 60dB SNR	<20μV, 60dB SNR	.....
Composite	<30μV, 60dB SNR	40μV, 60dB SNR	<30μV, wideband
Usable Bandwidth:			
Dual Baseband	30Hz-15kHz	15kHz	.....
Composite Baseband	1Hz-80kHz	75kHz	75kHz
Dual Multiplex	22kHz-85kHz	39kHz-75kHz	.....
Composite Multiplex	110kHz-185kHz	110kHz-220kHz	110kHz-220kHz
Reader Service Number	**885**	**886**	**887**

ENG MICROWAVE SYSTEM

Transmitter/receiver equipment operating in (2, 7, 13)GHz spectrum. Transmitters are typically portable and/or mobile. Receivers are typically rack-mounted. Video into transmitters and out of receivers is 1V P-P, 75Ω; audio from receivers is approximately +8dBm, 600Ω, balanced. FM modulation is used.

Manufacturer	Broadcast Microwave Services		Harris Broadcast Microwave	
Transmitter Model	**TBT-50D(50C)**	**TBT 50A**	**TBT 202 Series(1)**	**FV2/2.5G Global IX**	**FV2/2.5MP**
Frequency Range	13GHz(7GHz)	2, 2.5GHz	2, 7, 13GHz	1.9-2.7GHz	2, 2.5GHz(2)
Frequency Agile	Yes	Yes	No	55 channels	.....
Crystal Control	No	No	Yes	.....	12 channels
Aural Subcarriers	3 standard	2 standard	3	2	2
IF Input	No	No	No	Yes	Yes
Audio Input(s)	Line	Line	Line	2 mic or line	2 line
RF Output Power	1W, 2W	12W max	5W max	3W	1W
Powering by ac	115Vac	110Vac	115Vac	115/220Vac	115/220Vac
Powering by dc	28Vdc	28Vdc	No	.....	−24Vdc
Dimensions (inches)	.....	4x5.5x1.8	5.25x19x17	.....	14.75x7.25x8.5
Weight (pounds)	2	2	31 w/o power amp	15	14
Receiver Model	**TBR 2K-13(-7)**	**TBR 50A**	**TBR 202(1)**	**FV2CR (2.5CR)**	**FV2/2.5MP**
Frequency Range	13GHz(7GHz)	2, 2.5GHz	2, 7, 13GHz	1.99-2.11(2.45-2.69)	2, 2.5GHz
Frequency Agile	Yes	Yes	No	21(60) channels	12 channels
IF Output	No	No	No	Yes	Yes
System Noise Figure	8dB	8dB	8dB	3dB	.....
Video Response (±dB/Hz)	0.5/to 5M	0.5/to 5M	0.5/to 4.5M	0.6/to 4.2M	0.4/to 4.2M
Signal/Noise Ratio	65dB	65dB	65dB	70dB	70dB
Audio Response (±dB/Hz)	0.5/40-15k	1/40-15k	1/40-15k	1/40-15k	1/40-15k
Signal/Noise Ratio	58dB	58dB	58dB	66dB	70dB
Harmonic Distortion	<1%, 9dBm, 4kHz	<1%, 9dBm, 4kHz	<1%, 9dBm, 4kHz	1%	1%
Powering by ac	115Vac	115Vac	115Vac	115/220Vac	115/220Vac
Powering by dc	12-32Vdc option	12-32Vdc	.....	−24, +28Vdc	−24Vdc
Dimensions (inches)	.....	5.5x4x2	5.25x19x17	5.25x19x15	14.75x7.25x8.5
Weight (pounds)	8	2	30	35	17
Reader Service Number	**603**	**604**	**605**	**606**	**607**

(1) Values given for TBT/R-202-7. (2) 1.915 to 1.99GHz not available.

ENG MICROWAVE SYSTEM

Manufacturer	Harris Broadcast Microwave		Ikegami Electronics	M/A-COM Video Systems	
Transmitter Model	**FV 7MP**	**FV 11/13MP**	**ML-83 System**	**MA-Super 2MX(MA-2MX)**	**MA-2CP(MA-2.5CP)**
Frequency Range	6.875-7.125GHz	10.55-13.35GHz	1.99-2.11GHz	1.99-2.11GHz(3)	1.99-2.11(2.3-2.7)
Frequency Agile	.....	.....	7 channel	21 channels	.....(Yes)
Crystal Control	12 channels	12 channels	No	No	Yes
Aural Subcarriers	2	2	2	2	2
IF Input	Yes	Yes	.....	.....	.....
Audio Input(s)	2 line	2 line	2(−50, −20dBs)	2 mic or line	2 line
RF Output Power	250mW, 1W	0.63W	0.2W	12W typical	2W, PA option
Powering by ac	115/230Vac	115/220Vac	.....	115/230Vac	115/230Vac
Powering by dc	−24Vdc	−24Vdc	12Vdc	11.5-28Vdc	12Vdc
Dimensions (inches)	14.75x7.25x8.5	14.75x7.25x8.5	Camera mountable	4x5.5x7	5.5x7x13.5(16.5)
Weight (pounds)	14	14	.....	5	18(23)
Receiver Model	**FV7/8MP(FV7CR)**	**FV11/13MP**	**TA-83/RX**	**MA-2MR(MA-2GUX)**	**MA-2P(MA-2.5CP)**
Frequency Range	6.875-8.5GHz	10.55-13.35GHz	1.99-21.11GHz	1.99-2.11GHz	1.99-2.11(2.3-2.7)
Frequency Agile	60 channels(FV7CR)	Xtal only	7 channel	21 channels	Yes
IF Output	Yes	Yes	.....	.....	.....
System Noise Figure	6dB	.....	.....	3dB	4.0dB(3.5dB)
Video Response (±dB/Hz)	0.4/to 4.2M(0.6)	0.4/to 4.2M	1/40-4.5M	0.25/10k-5.5M	0.25/10k-8M
Signal/Noise Ratio	70dB(68dB)	70dB	55dB	65dB(−35dBm RCL)	65(67dB)
Audio Response (±dB/Hz)	1/40-15k	1/40-15k	1/50-12k	0.25-1	−1.5/50-25k
Signal/Noise Ratio	70dB(66dB)	70dB	60dB	66dB(−35dBm RCL)	60(65)dB
Harmonic Distortion	1%	1%	1%	1%	1%
Powering by ac	115/220Vac	115/220Vac	115Vac	115/230Vac	115/230Vac
Powering by dc	−24Vdc(−24)	−24Vdc	.....	11.5-28Vdc	11-16(12)Vdc
Dimensions (inches)	14.75x7.25x8.5 (rack)	14.75x7.25x8.5	Rack-mount	4x5.5x7	5.5x7x16.5
Weight (pounds)	17(35)	17	.....	5	23
Reader Service Number	**608**	**609**	**610**	**611**	**612**

(3) Super 2MX also covers 2.45-2.5 and 2.3-2.7GHz with MA-2MR. MA-2MX/MA-2GUX covers only 1.99-2.11GHz.

ENG MICROWAVE SYSTEM

Manufacturer	M/A-COM Video Systems		RF Technology Inc.		
Transmitter Model	**MA-7CP(MA-7EP)**	**MA-13CP(MA-13FA)**	**RF-203/Wireless camera unit**	**RF-202(251)**	**RF-701**
Frequency Range	6.875-7.125GHz(4)	10.55-13.25GHz(5)	1.99-2.11GHz	1.99-2.11GHz(6)	6.875-125GHz
Frequency Agile	30 channels	(MA-13FA only)	13 channels	13(9) channels	30 channels
Crystal Control	.....	1 channel	No	No	No
Aural Subcarriers	2	1	2	2	2
IF Input	.....	.....	No	No	No
Audio Input(s)	2 line	1 line	1 mic, 1 line	2 line (& 1 mic)	2 line
RF Output Power	0.5W	+ 17dBm(50mW)	0.2W	2"(1W)	1W
Powering by ac	115/230Vac	115/230Vac	.....	120/240Vac	120/240Vac
Powering by dc	12Vdc	11.5-15Vdc	10.5-17Vdc	10.5-17Vdc	12-17Vdc
Dimensions (inches)	5.5x7x16.5	4.5x4.5x8	6x4.25x2	7x7.5x3	8x8x4
Weight (pounds)	23	7(18)	2	7	8
Receiver Model	**MA-7CP(MA-7EP)**	**MA-13CP(MA-13FA)**	**RF-200 Compact**	**RF-204C(254C)**	**RF-700(– 704C)(7)**
Frequency Range	6.875-7.125GHz(4)	10.55-13.25GHz(5)	1.99-2.11GHz	1.99-2.11GHz	6.875-7.125GHz
Frequency Agile	Yes	(MA-13FA only)	Yes	Yes	Yes
IF Output	.....	.....	.....	.....	.....
System Noise Figure	4dB	9.5(8)dB	5dB	2.5dB	3dB
Video Response (± dB/Hz)	0.5/to 5.5M	0.5/300-5M(10k-8M)	0.5/to 4.5M	0.5/to 4.5M	0.5/to 4.2M
Signal/Noise Ratio	67dB	65dB	65dB	60dB	70(60)dB
Audio Response (± dB/Hz)	1/50-15k	– 1.5/50-15k	1/50-15k	1/50-15k	1/50-15k
Signal/Noise Ratio	65dB	60dB	60dB	.....	65dB
Harmonic Distortion	1%	1.5%(1%)	1%	1%	1%
Powering by ac	115/230Vac	115/230Vac	120/240Vac	110/220Vac	120/240Vac
Powering by dc	12Vdc	.....(11.5-15Vdc)	10.5-20Vdc	.....	12/17Vdc(701)
Dimensions (inches)	5.25x7x16.5	5.25x5.8x10.5	8.75x6.75x5	5.25x19x8	6.75x5x10(rack)
Weight (pounds)	23	12.5(18)	11	23	12(23)
Reader Service Number	**613**	**614**	**615**	**616**	**617**

(4) The MA-7EP system covers 6.4-7.4GHz with a 1W output. (5) The MA-13FA system covers 12.95-13.2GHz. Also available is MA-13EP, 13GHz; MA-15CP, 15GHz; and MA-23VFM 22/23GHz. (6) RF-251/254C system covers 2.45-2.5GHz. (7) RF-704C central receiver.

Manufacturer	TerraCom (Loral Corporation)	
Transmitter Model	**TCM-6 Series**	**TCM-7 Series**
Frequency Range	1.7-15.35GHz	1.7-15.35GHz
Frequency Agile	Plug-in synthesizers	Yes
Crystal Control	.....	Plug-in oscillators
Aural Subcarriers	2	1 and digital
IF Input	Yes	.....
Audio Input(s)	2 line	1 line
RF Output Power	5 to 0.15W per band	0.5 to 0.04W per band
Powering by ac	110/220Vac	115/230Vac
Powering by dc	± 24 or ± 48Vdc	– 22 to – 28Vdc
Dimensions (inches)	16.25x9.5x12	7.5x5.5x10
Weight (pounds)	45	10.5
Receiver Model	.....	.....
Frequency Range	Per transmitter	Per transmitter
Frequency Agile	Per transmitter	Per transmitter
IF Output	Yes	.....
System Noise Figure	8 to 12dB per band	7.5 to 11dB per band
Video Response (± dB/Hz)	0.5/20-10M	0.25/20-6M
Signal/Noise Ratio	76 to 67dB per band	72 to 67dB per band
Audio Response (± dB/Hz)	1/to 15K	1/20-15K
Signal/Noise Ratio	.....	70dB
Harmonic Distortion	1%	1%
Powering by ac	110/220Vac	With transmitter
Powering by dc	± 24 or ± 48Vdc	.....
Dimensions (inches)	16.25x9.5x12	With transmitter
Weight (pounds)	45	12.5
Reader Service Number	**618**	**619**

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Modulation Monitors

MODULATION MONITOR, FM

Modulation monitoring system for FM broadcast spectrum, 88-108MHz. RF input impedance typically 50Ω. Deviation at 100% is ±75kHz. Standard 75μs de-emphasis.

Manufacturer	**Belar Electronics Lab**	**McMartin Industries**	**QEI Corporation**	**Rohde & Schwarz**	**TFT**
Model Number	**FMM-2**	**TBM-3700**	**691 Test Set**	**FKD/FKDL**	**763**
Frequency Selector	.....	.....	Tuned PLL	Tuned PLL	Crystal control
Signal Level from					
Transmitter Direct	1-10Vrms	0.1-1W	0.2-10Vrms	7.5Vrms ±3dB	1-7Vrms
Off-Air	1-10Vrms	.....	3mV	.....	100μV for 56dB S/N(1)
Modulation Range	0-133%	To 133%	0-133% (−70, +3dB)	0-77.5kHz	0-133%
Input Attenuator	.....	Yes	Yes	No	50Ω
Frequency Response	±0.1dB, 50Hz-75kHz	±0.5dB/30Hz-75kHz	±0.2dB/30Hz-75kHz	±0.5dB/40Hz-65kHz	0.25dB/100Hz-75kHz
Accuracy at 5kHz	>2%	±0.5dB	±2% over range	5% error	±0.29% @ 100%
Peak Modulation:					
Peak Level Adjust	1-199%	50-120%	0-199%	No	.....
Residual AM	Built-in metering	Built-in metering	Built-in metering	No	0-70dB
Composite Output	Yes	1Vp-p, 300Ω	Yes	Yes	5Vrms, 5kΩ
Audio Output	+10dBm, bal	+2dBm, 600Ω, bal	+10dBm bal, L/R	+6dBm, L/R/mono	5Vrms, 5kΩ @ 400Hz
Distortion	0.02%	0.25%, 30Hz-15kHz	0.05% THD/0.1% IMD	0.3%, 30Hz-15kHz	0.1%, max
Signal/Noise Ratio	80dB	66dB below 100%	>75dB	66dB	75dB, 400Hz
Carrier Failure	Yes	Yes	Indicator	Indicator, closure	Yes
Modulation Failure	Optional	.....	Indicator	.....	Yes
Stereo Monitor Output	Yes	Yes	Integral	Integral	1Vrms, 600Ω
SCA Monitor Output	Yes	Yes	Integral	Integral	1Vrms, 600Ω
ATS Capable	Suitable	.....	Yes	Yes	.....
Reader Service Number	**620**	**621**	**622**	**623**	**624**

(1) Using preselector 764A/765A.

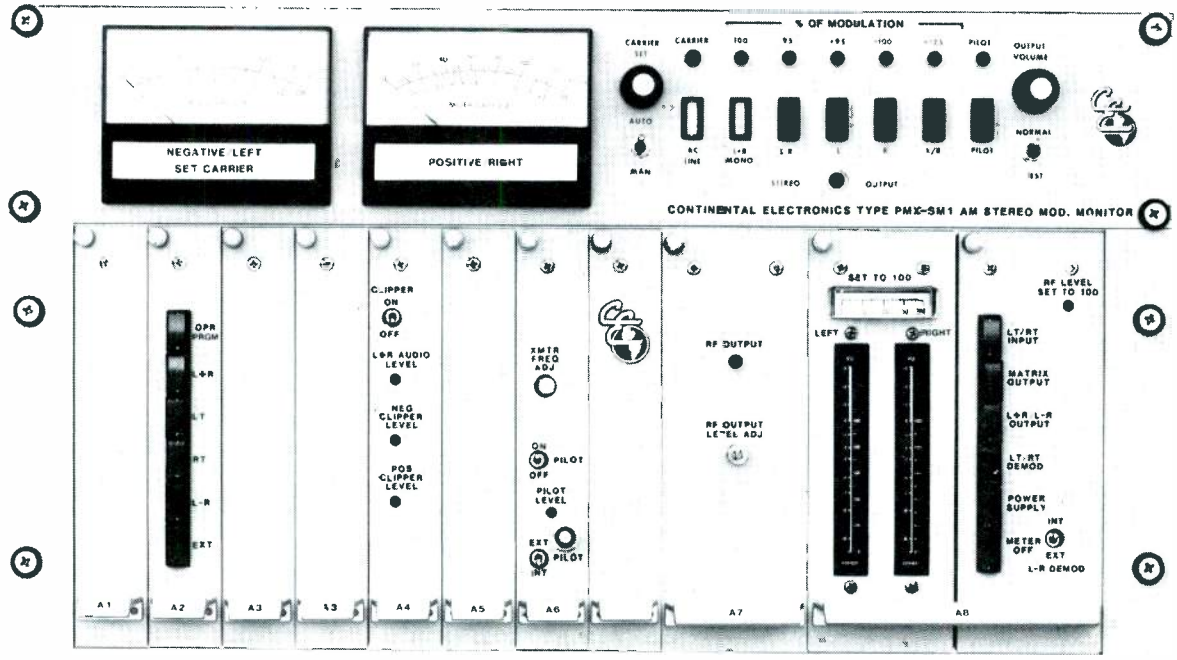
MODULATION MONITOR, AM

Equipment to monitor amplitude modulation parameters.

Manufacturer	**Belar Electronics Lab**		**Boonton Electronics Corporation**		**Harris Broadcast**
Model Number	**AMM-2A**	**AMM-3**	**32AD AM & FM**	**8210 AM & FM**	**AM-90**
Frequency Range	200kHz-160MHz	200kHz-160MHz	10MHz-1.2GHz	2MHz-1.5GHz	450kHz-30MHz
Frequency Selector	Broadband	Broadband	Automatic	Automatic	Wideband
Signal Level Input:					
From Feedline	5-10Vrms	5-10Vrms	7Vrms max	7Vrms max	1-10Vrms
From Off-Air	5-10Vrms	5-10Vrms	10mV to 520MHz	10mV to 520MHz	N.A.
Modulation Range	−100, +133%	−100, +133%	10%, 100%, 300% ranges	10%, 100% ranges	−100, +140%
	.....	.....		.....	.....
Input Attenuator	1kΩ potentiometer	1kΩ potentiometer	Automatic	Automatic	No
AF Response of Meter	±0.5dB/20Hz-25kHz	±0.5dB/20Hz-25kHz	30Hz-100kHz	<30Hz-15kHz	0, −0.5dB/20Hz-20kHz
Peak Modulation:					
Indicators	Flasher	Flasher	LED readout	LED readout	Flashers, programmable
Audio Signal Output	+10dBm, 600Ω	+10dBm, 600Ω	1Vrms, 600Ω	1Vrms, 600Ω	+10dBm, 600Ω
Distortion	0.25%	0.25%	0.5%THD, 90% AM	0.5%THD, 90% AM	0.15%
S/N Ratio	75dB	75dB	.....	.....	75dB
Carrier Failure	Indicator	Indicator	.....	.....	Lamp, closure
Modulation Failure	.....	.....	.....	.....	Lamp, closure
Calibrator	Yes	Yes	Yes	Yes	Yes
ATS Compatible	.....	.....	No, IEEE-488 bus	No	Yes
Frequency Counter	No	No	No	No	No
Reader Service Number	**776**	**777**	**778**	**779**	**780**

Manufacturer	**Marconi Electronics**	**QEI Corporation**	**RE Instruments**	**TFT**
Model Number	**2305 AM & FM**	**571**	**AFM3**	**753**
Frequency Range	500kHz-2GHz	540-1600kHz	6MHz-1.002GHz	500kHz-4MHz
Frequency Selector	Auto or by GPIB-bus	Broadband	Tuned PLL	Wideband
Signal Level Input:				
From Feedline	25W	2-10Vrms	10Vrms	1-10Vrms
From Off-Air	.....	Use #572 monitor	3mV-10Vrms	100μV with preselector
Modulation Range	To 99.9%	0-133%	To 100%	To 133%
Input Attenuator	Yes	.....	3-step, 40dB	Yes
AF Response of Meter	.....	−0.2dB/30Hz-10kHz	30Hz-15kHz	±0.5dB/30Hz-25kHz
Peak Modulation:				
Indicators	LCD display	Flasher	Meter	.....
Audio Signal Output	3Vrms, 600Ω max	2.5Vrms, 600Ω	1V	0dBm, 600Ω
Distortion	.....	0.25% max	0.2%	<0.15%
S/N Ratio	.....	>75dB below 100%	0.005% to 200MHz	>75dB below 100%
Carrier Failure	No	Yes	.....	Yes
Modulation Failure	No	.....	No	Yes
Calibrator	Yes	Yes	Yes	Yes
ATS Compatible	IEEE-488-bus	.....	.....	.....
Frequency Counter	Yes	No	No	With preselector
Reader Service Number	**781**	**782**	**783**	**1499**

Your winning combination for AM Stereo



Is AM Stereo ready to move up?

Market-place decisions notwithstanding, the recent introduction of receivers able to decode signals from any of the four systems in use today makes it easier for broadcasters to move ahead with AM Stereo plans.

Which system is #1?

The PMX (Magnavox) System was first selected by the FCC to be the Industry Standard for AM Stereo.

We established the system's viability during the 1979 NAB Show.

The politically-inspired "market-place" decision hasn't affected the technical performance of the PMX System one bit.

Hearing is believing.

With the PMX System, AM Stereo music sounds like FM Stereo music. So it makes for higher listener appeal and better numbers. For audience and the bottom line.

The Winning Combination

Our Type 302A Exciter, developed for the PMX System, and our new Type PMX-SM1 AM Stereo Modulation Monitor give you a superior package for AM Stereo broadcasting.

We've built a world-wide reputation for high-quality AM transmitters that offer unmatched on-air reliability with complete transparency.

Ultimately, the day-to-day operation of your AM Stereo System will depend upon equipment and service.

We stand on our track record of providing the best of both.

If you're considering AM Stereo, or if you just want more facts, give us a call. You can't lose.

Continental Electronics Mfg. Co.
PO Box 270879 Dallas, Texas 75227.
Phone: (214) 381-7161

Continental Electronics

Circle (28) on Reply Card

TRANSMITTER, AMPLITUDE MODULATION

Standard Broadcast 535 to 1635kHz.

Radio transmitting equipment for generation, modulation and amplification of amplitude-modulated signals from audio signals. The RF output impedance is 50Ω. Audio signals applied to the transmitter are approximately +10dBm for 100% modulation, 600Ω balanced. Additional model numbers and their associated power levels of transmitters with similar performance specifications are given.

Manufacturer	Continental Electronics			CSI Electronics	
Model Number	**316F**	**315R-1**	**317C-2**	**T-1-A**	**T-50-A**
Power Output Level	10.6kW	5.5kW	60kW	1.1kW	55kW
Frequency Stability (±)	5Hz	5Hz	5Hz	10Hz	10Hz
Carrier Shift	<3%, at 100%	<2%	1% at 100%	.....	.....
Modulation Capability	125%	125%	125%	100%	100%
AF Response (± dB/Hz)	1.5/20-10k	1/20-10k	0.3, −0.8/10-15k	1.5/50-10k	1.5/50-10k
Harmonic Distortion	<3%	<2%, at 5kW	<2.5%, 95% modulated	2.5%	2.5%
AM Noise Figure	−60dB	−63dB	−60dB	−55dB	−55dB
Power Consumption	28.4kW	13kVA	60% efficient	3.75kW	27kW
Final Amplifier	(2)4CX10000	3CX3000F7	(2)4CX35000C	(2)7527A	3CX10000A3
Modulator Final	Solid-state	3CX3000F7	(2)3CX3000A1	(2)7527A	(2)4CX3000A
Drivers	Solid-state	Solid-state	Tube type	Tube type	Tube type
Other Models	315F 5.5kW	314R-1 1.1kW	.....	T-3-A 3.3kW	T-25-A 30kW
	.....	.....	.....	T-5-A 6kW	T-100-A 110kW
	.....	.....	.....	T-10-A 12kW	.....
Reader Service Number	**382**	**383**	**384**	**385**	**386**

TRANSMITTER, AMPLITUDE MODULATION

Standard Broadcast 535 to 1635kHz

Manufacturer	Elcom-Bauer	Harris Broadcast			
Model Number	**750**	**SX-1**	**MW-10B**	**SW-50B**	**VP-100A**
Power Output Level	50kW	1.1kW	11kW	50kW	110kW
Frequency Stability (±)	5Hz	10Hz synthesizer	20Hz	20Hz(3.2 to 22MHz)	20Hz
Carrier Shift	2% at 100%	<2% at 100%	<2% at 95%	<2% at 100%	<5% at 100%
Modulation Capability	125%	125%	125%	125%	100% continuous
AF Response (± dB/Hz)	1.5/50-10k	+0.5, −1.5/20-12.5k	1/20-10k	1.5/20-12.5k	1.5/40-10k
Harmonic Distortion	2%	1% THD, 1.5% IMD	2% at 100%	<3% at 95%	<3% at 95%
AM Noise Figure	−63dB	−60dB	−60dB	−55dB	−55dB
Power Consumption	73kW	1.5kW typical	20.5kW	89kW	155kW
Final Amplifier	(2)4CX20000B	High power MOSFET	3CX15000H3	4CV50,000E	4CV100,000C
Modulator Final	(2)4X2000B	Solid-state	4CX15000A	4CV50,000E	4CV100,000C
Drivers	Solid-state	Solid-state	Solid-state	4CX1500A	4CX1500A
Other Models	715C 15kW	SX-2.5 2.5kW	MW-50C 50kW	SW-100A	.....
	725 25kW	SX-5 5kW	.....	.....	.....
	710C 10kW	SXD series	.....	.....	.....
	705C 5kW	.....	.....	.....	.....
Reader Service Number	**387**	**388**	**389**	**390**	**391**

TRANSMITTER, AMPLITUDE MODULATION

Standard Broadcast 535 to 1635kHz

Manufacturer	ITAME	LPB		Marconi Communications	
Model Number	**EAM 2.000A**	**TX2-20**	**AM-250**	**B6034**	**B6026**
Power Output Level	2kW	25kW	150kW	50kW	750kW
Frequency Stability (±)	±1Hz	0.003%	10Hz	10Hz	10Hz
Carrier Shift	.....	<2% at 100%	<2% at 100%	4% at 100%	5% at 100%
Modulation Capability	125%	125%	125%	125%	100%
AF Response (± dB/Hz)	±1/30-10k	1/20-15k	1/20-15k	1.5/30-10k	1/60-7.5k
Harmonic Distortion	2%	2% max at 100%	2% max, 100%	3% at 90%	3% at 95%
AM Noise Figure	−60dB	−55dB max	−60dB max	−59dB	−60dB
Power Consumption	6kW,220/380Vac3ϕ50Hz	95W	1.2kW	117kW	1170kW
Final Amplifier	EIMAC triode	Solid-state	Solid-state	(2)4CX35000C	(3)VCP2002
Modulator Final	Solid-state	Solid-state	Solid-state	(2)4CX1500B	(2)VCP2002
Drivers	Solid-state	Solid-state	Solid-state	Solid-state	Tube type
Other Models	EAM 2.000B 2kW	TX2-30-TIS	AM-50 55W	.....	B6021 500kW
	EAM 5.000A 5kW	TX2-20L	AM-100 110W	.....	.....
	EAM 5.000B 5kW	TX-20D	.....	.....	.....
Reader Service Number	**392**	**393**	**394**	**395**	**396**

TRANSMITTER, AMPLITUDE MODULATION

Standard Broadcast 535 to 1635kHz

Manufacturer	McMartin Industries		Nautel Maine	Radio Systems	RCA Broadcast
Model Number	BA-5K	BA-50K	AMPFET 1	TR-20	BTA-5SS
Power Output Level	6kW	50kW	1kW	20W	5kW
Frequency Stability (±)	5Hz	5Hz	0.0005% (5Hz)	0.002%	3.5Hz
Carrier Shift	3% at 100%	2% at 100%	3% at 100% mod.	2%	1.5% at 100%
Modulation Capability	125%	125%	125%	100%	125%
AF Response (± dB/Hz)	1/10-10k	1.5/40-10k	± 0.5/50-10k	± 1/20-15k	1/20-12k
Harmonic Distortion	2.5% at 100%	2% at 95%	2%	2%	3% at 95%
AM Noise Figure	– 60dB	– 63dB	– 60dB	– 60dB	– 60dB
Power Consumption	3.5kW	106.99kVA	1.43kW	100W	11.4kW
Final Amplifier	(4)4-1000A	(2)4CX20000A	Solid-state	Solid-state	Solid-state
Modulator Final	(4)4-1000A	(2)4CX20000A	Solid-state	Solid-state	Solid-state
Drivers	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state
Other Models	BA-1K 1kW	BA-5K2 5.5kW	AMPFET 5 5kW	.....	.....
	BA-2.5K 3kW	BA-10K 11kW	AMPFET 10 10kW	.....	.....
Reader Service Number	397	398	399	400	445

Standard Broadcast 535 to 1635kHz

Manufacturer	Singer			TTC/Wilkinson	
Model Number	S1-A-5	AM-2500D	AM50000D	AM-1000B	AM-20000C
Power Output Level	5.5kW	3kW	55kW	1kW	26.5kW
Frequency Stability (±)	0.0005%	5Hz	5Hz	.....	.....
Carrier Shift	2% at 100%	3% at 100%	3% at 100%	3% at 100%	5%
Modulation Capability	125%	125%	125%	125%	125%
AF Response (± dB/Hz)	1.5/50-10k	1.5/50-10k	1.5/50-10k	2/40-10k	1.5/50-10k
Harmonic Distortion	2.5%	2.5%	3%, 90% mod	3%	3.5% at 95%
AM Noise Figure	– 55dB	– 45dB	– 55dB	– 55dB	– 54dB
Power Consumption	12kVA	10kW	140kW	4kW	60kW
Final Amplifier	4CX5000A	(2)4 1000A	4CX35000C	(2)4-400C	4CX20000B
Modulator Final	(2)4CX5000A	(2)4-1000A	(2)4CX15000A	(2)4-400C	(2)4CX10000D
Drivers	Solid-state	Tube type	Tube type	Solid-state/tube	4-400A, 6146B
Other Models	S1-A-1 1.2kW	AM-1000D 1.2kW	.....	AM2500B 2.5kW	AM-10000D
	S1-A-10 12kW	.....	.....	AM5000D 5kW	.....
	.....	.....	.....	AM3000B	.....
Reader Service Number	446	447	448	449	450

TRANSMITTER, FM Broadcast

Radio transmitting equipment for frequency modulated signals in the 88-108MHz spectrum. 100% modulation results in a carrier deviation of ±75kHz, per FCC 73.310. RF output impedance is typically 50Ω. Values given are for monophonic aural transmissions.

Manufacturer	AEG Telefunken	Broadcast Electronics Inc.		C N Rood BV	Continental Electronics
Model Number	S3149	FM-3.5	FM30	SC/204 SFMT	314R-1
Power Output Level	300W	3.5kW	30kW	50W	2.5kW
Feed Line Size	Type N	1⅝" EIA	3⅛" EIA	.....	1⅝" EIA
Carrier Stability (±)	700Hz	300Hz	300Hz	300Hz w/TCXO	500Hz
Modulation Capacity (±)	140kHz	200kHz	200kHz	200kHz	100kHz
AF Response (±dB/Hz)	0.3/40-75k	0.5/30-15k	0.5/30-15k	0.15/20-15k	1/per 75μs curve
Harmonic Distortion	0.3%	0.08%	0.08%	0.03%	0.25% THD
Pre-Emphasis	75μs	0, 25, 50, 75μs	0, 25, 50, 75μs	0, 25, 50, 75μs	75μs, other options
AM Noise	−66dB	−55dB	−55dB	−70dB	−55dB
FM Noise	−66dB	−75dB	−75dB	−70dB	−65dB
RF Harmonic Suppression	80dB	80dB	80dB	60dB	77dB
Recommended Exciter	S3161-C	FX-30	FX-30	.....	Continental 802A
Power Consumption	600W	6.8kW	50kW	110W	4.9kW
Input Power Requirements	110/220Vac	208/240Vac1ϕ	208/240Vac3ϕ	110/220Vac	220/250Vac3ϕ
Overall Efficiency	.....	52%	60%	.....	50%
Automatic Recycle	.....	Yes	Yes	.....	Yes
Final PA Tubes	Solid-state	4CX3500	8990	Solid-state	5CX1500A
Driver Tubes	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state
IPA Tubes	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state
Related Models	S3161-C, 100W	FM-15A, 1.5kW	FM Series	.....	315R-1, 5kW
	S3168, 3kW	FM-5A, 5kW	.....	.....	.....
	S3175, 1kW	.....	.....	.....	.....
	S3152, 10kW	.....	.....	.....	.....
Reader Service Number	737	738	739	740	741

Manufacturer	Continental Electronics		CSI Electronics		
Model Number	316F	817R-1	T-1-F	FM-1200-E	T-25-F
Power Output Level	11kW	50kW	1.5kW	13kW	27.5kW
Feed Line Size	3⅛" EIA	6⅛" EIA	1⅝" EIA	3⅛" EIA	3⅛" EIA
Carrier Stability (±)	500Hz	500Hz	250Hz	250Hz	250Hz
Modulation Capacity (±)	100kHz	100kHz	150kHz	150kHz	100kHz
AF Response (±dB/Hz)	1/per 75μs curve	1/per 75μs curve	0.5/30-15k	0.5/30-15k	0.5/30-15k
Harmonic Distortion	0.25% THD	0.25% THD	0.5%	0.2%	0.5%
Pre-Emphasis	75μs, other options	75μs, other options	75μs	75μs	75μs
AM Noise	−55dB	−55dB	−55dB	−55dB	−55dB
FM Noise	−65dB	−65dB	−65dB	−65dB	−65dB
RF Harmonic Suppression	80dB	80dB	.....	80dB	.....
Recommended Exciter	Continental 802A	Continental 802A	EX-20-F	EX-20-F	EX-20-F
Power Consumption	17.7kW	80kW	1.7kW	18.5kW	36kW
Input Power Requirements	220/250Vacϕ	205/250Vac3ϕ	190/450Vac1ϕ	190/460Vac3ϕ	290/460Vac3ϕ
Overall Efficiency	56%	62%	.....	.....	.....
Automatic Recycle	Yes	Yes	.....	.....	Yes
Final PA Tubes	4CX10000D	4CX15000A	3CX1500A7	3CX10000A7	3CX15000A7
Driver Tubes	4CX250B	4CX250B	Solid-state	Solid-state	6874
IPA Tubes	Solid-state	Solid-state	Solid-state	5CX1500A	3CX3000A7
Related Models	316R-2, 20kW	317C, 50kW	.....	FM-5000-E, 5kW	T-20-F, 22kW
	316R-3, 25kW	817R-2A, 40kW	.....	FM-3500-E, 3.5kW	.....
Reader Service Number	742	743	744	745	746

Manufacturer	Elcom-Bauer	Harris Broadcast			ITAME
Model Number	SS-250	FMD-50K	FM-5K	FM-20K	EFM-100TDA
Power Output Level	250W	50kW	5.1kW	21.5kW	125W
Feed Line Size	Type N	6⅛" EIA	3⅛" EIA	3⅛" EIA	Type N
Carrier Stability (±)	300Hz	300Hz	300Hz	300Hz	500Hz
Modulation Capacity (±)	150kHz	100kHz	100kHz	100kHz	.....
AF Response (±dB/Hz)	1/50-15k	0.5/30-15k	0.5/30-15k	0.5/30-15k	1/30-18k
Harmonic Distortion	0.25% THD	0.15%	0.15%	0.2%	0.5%
Pre-Emphasis	50, 75μs	0, 25, 50, 75μs	0, 25, 50, 75μs	0, 25, 50, 75μs	50μs
AM Noise	−60dB	−50dB	−50dB	−52dB	−70dB
FM Noise	−65dB	−80dB	−80dB	−80dB	1mW
RF Harmonic Suppression	75dB	Per FCC	Exceeds FCC rules	Exceeds FCC rules	Per FCC, CCIR
Recommended Exciter	#690	MX-15	MX-15	MX-15	FM-80A, FM-70A
Power Consumption	0.9kW	80kW	10.15kW	30.15kW	250W
Input Power Requirements	115Vacϕ	208/240Vac3ϕ	208/240Vac3ϕ	208/240Vac3ϕ	125/220Vac1ϕ
Overall Efficiency	28%	63%	66%	.....	.....
Automatic Recycle	Yes	Yes	Yes	Yes	.....
Final PA Tubes	Solid-state	8090	4CX5000A	4CX15000A	Solid-state
Driver Tubes	Solid-state	Solid-state	4CX250B	4CX250B	Solid-state
IPA Tubes	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state
Related Models	SS-150, 150W	.....	FM-Series with power	FM-Series with power	EFM-20T-DA 20W
	SS-500, 500W	.....	levels covering 100W	levels covering 100W	.....
	.....	.....	to 40kW	to 40kW	.....
Reader Service Number	747	748	749	750	751

High Technology Or Low Price

Do you want a fully remote controlled FM transmitter with features for total automation and satellite feed? Must you have microprocessor logic, digital diagnostics, each with a back-up system? Do you demand a super-low distortion exciter and total solid-state for your new one kilowatt transmitter ...or a 3.5KW with only one tube?
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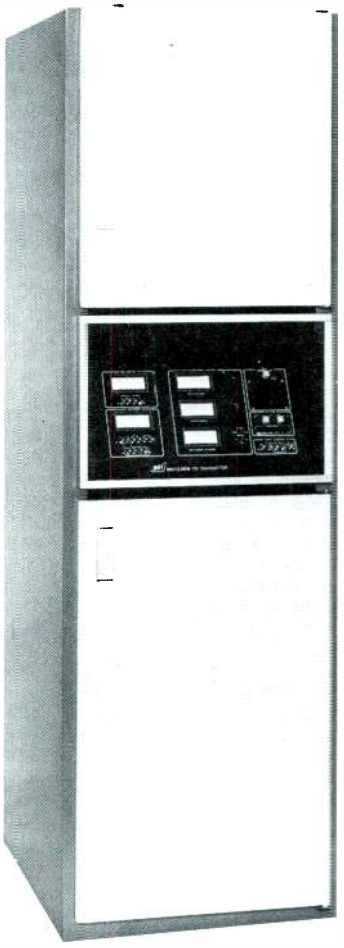
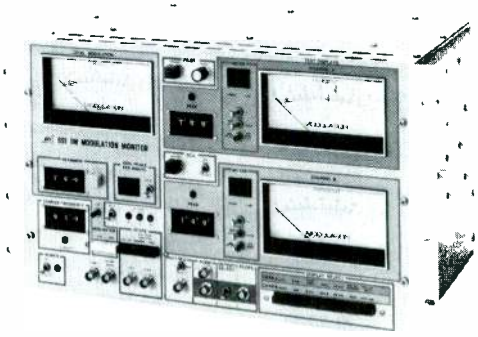
Price or Technology?



The New 695T3.5KW



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Circle (30) on Reply Card

TRANSMITTER, FM Broadcast

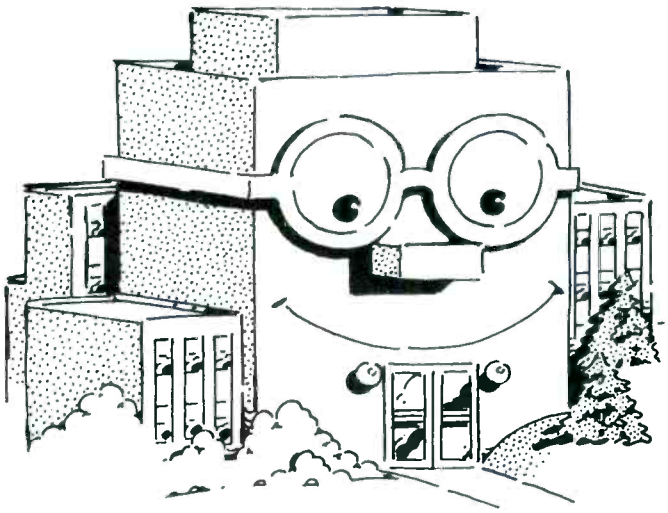
Manufacturer	**ITAME**	**Larcan Communications**	**Marconi**	**McMartin Industries**	
Model Number	**EFM-10000DA**	**FMT25F**	**6523**	**B-9100**	**BF-5M**
Power Output Level	10kW	25kW	1kW	80-120W	3.5-5.5kW
Feed Line Size	1⅝"	3⅛"	1⅝" EIA	Type PL259	1⅝" EIA
Carrier Stability (±)	500Hz	350Hz	200Hz	500Hz	500Hz
Modulation Capacity (±)	.....	100kHz	200kHz	150kHz	150kHz
AF Response (± dB/Hz)	1/30-18k	0.5/30-15k	0.2/40-43k	0.5/30-15k	0.5/30-15k
Harmonic Distortion	0.5%	0.4%	0.6%	0.3% THD	0.3%
Pre-Emphasis	50μs	0, 75μs	50, 75μs	50, 75μs	75μs
AM Noise	−70dB	−61dB	−55dB	−65dB	−55dB
FM Noise	−60dB	−67dB	−60dB	−65dB	−65dB
RF Harmonic Suppression	1mW, per FCC, CCIR	80dB	Exceeds CCIR	.....	.....
Recommended Exciter	FM-80A, FM-70A	S3161-C	B6503	BFM-8000	BFM-8000
Power Consumption	19kW	37kVA	2.8kW	275W	12.5kW
Input Power Requirements	220/308Vac3ϕ50Hz	208/240Vac3ϕ	220Vac	110/220Vac	208/240Vac3ϕ
Overall Efficiency	.....	.....	.....	.....	.....
Automatic Recycle	.....	Yes	Yes	.....	.....
Final PA Tubes	EIMAC Triode	9011	4CX1000A	Solid-state	3CX3000A7
Driver Tubes	Solid-state	Solid-state	Solid-state	Solid-state	.....
IPA Tubes	Solid-state	Solid-state	Solid-state	Solid-state	4CX250BC
Related Models	EFM-5000DA, 5kW	FMT 15F, 15kW	.....	B-950	BF-1M, 1.5kW
	.....	FMT 10F, 10kW	.....	.....	BF-3.5M 3.5kW
Reader Service Number	**752**	**753**	**754**	**755**	**756**

Manufacturer	**McMartin Industries**	**NEC America**		**QEI Corporation**	**Rohde & Schwarz**
Model Number	**BF-55M**	**FBN-7010S**	**FBN-7200E**	**695T3.5kW**	**NU 351 (NU Series)**
Power Output Level	55kW (Dual BF-25M)	1kW	20kW	3.5kW	5kW
Feed Line Size	6⅛" EIA	⅞"	3⅛" EIA	1⅝"	Various
Carrier Stability (±)	500Hz	500Hz/yr	500Hz	200Hz	.....
Modulation Capacity (±)	150kHz	100kHz	100kHz	75kHz	.....
AF Response (± dB/Hz)	0.5/30-15k	0.3/30-53k	0.3/30-53k	0.5/30-15k	0.1/40-43k
Harmonic Distortion	0.3% THD	0.5%(−46dB)	0.5%	0.25%	0.4%
Pre-Emphasis	75μs std.	50, 75μs	50, 75μs	75μs	50, 75μs
AM Noise	−55dB	−50dB	−50dB	−55dB	−68dB, 40kHz
FM Noise	−65dB	−63dB	−63dB	−75dB	−40dB, 2kHz
RF Harmonic Suppression	.....	70dB(1mW)	70dB	80dB	1μs
Recommended Exciter	BFM-8000	HPS-4536B	HPA-4536B	QEI 695	SU 155
Power Consumption	98kVA	2.5kW	35kW	6.4kW	10kVA
Input Power Requirements	208/240Vac3ϕ	220Vac	220/308/440Vac3ϕ50Hz	208/240Vac1ϕ	220/380Vac3ϕ50Hz
Overall Efficiency	.....	.....	.....	52%	50%
Automatic Recycle	Yes	Yes	Yes	Yes	Yes
Final PA Tubes	3CX19000A7	Solid-state	4CX15000A	3CX3000A7	Tube in 3, 5, 10 and 20kW levels
	.....	.....	.....	.....	.....
Driver Tubes	3CX1500A7	Solid-state	Solid-state	Solid-state	Solid-state
IPA Tubes	4CX250B	Solid-state	Solid-state	Solid-state	NU series covers 0.5kW to 20kW
Related Models	BF-25M, 27.5kW	FBN series includes	FBN series includes	695T1kW, 1kW	.....
	BF-30M, 30kW	transmitter systems	transmitter systems	695T5kW, 5kW	.....
	BF-10M, 15kW	from 150W to 20kW	from 150W to 20kW	.....	.....
Reader Service Number	**757**	**758**	**759**	**760**	**761**

Manufacturer	**Singer Broadcast**		**Thomson-LGT**	**TTC/Wilkinson**	
Model Number	**S1-F-5**	**FM55000EP/Dual**	**EVHF1000(FM)**	**FM5000E**	**FM30000E**
Power Output Level	2.5-5.5kW	60kW(2xFM27500E)	1kW	5kW	30kW
Feed Line Size	3⅛"	6⅛" EIA	Type N	1⅝" EIA	3⅛" EIA
Carrier Stability (±)	0.001%	0.0005%	$1x10^{-8}$/year	1kHz	1kHz
Modulation Capacity (±)	100kHz	100kHz	75kHz	150kHz	150kHz
AF Response (± dB/Hz)	0.5/75μs curve	1.5/75μs curve	0.2/40-55k	1/50-15k	1/50-15k
Harmonic Distortion	0.5% max	0.5% max	0.5% max	0.5% THD	0.5% THD
Pre-Emphasis	50, 75μs	50, 75μs	50, 75μs	50, 75μs	75μs
AM Noise	−52dB	−50dB	−40dB	−60dB	−55dB
FM Noise	−63dB	−60dB	−65dB	−65dB	−65dB
RF Harmonic Suppression	Per FCC	80dB	60dB	.....	.....
Recommended Exciter	S1-10-E	FM-40E	Integral exciter	FME-10	FME-10
Power Consumption	10.5kVA	87kW	.....	9.5kW	45kW
Input Power Requirements	208/240Vac3ϕ	220Vac3ϕ	110/240Vac	208/240Vac3ϕ	208/240Vac3ϕ
Overall Efficiency	.....	.....	.....	.....	.....
Automatic Recycle	Yes	Yes	Yes	Yes	Yes
Final PA Tubes	3CX3000A7	3CX20000A7	Solid-state	4CX5000A	8990
Driver Tubes	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state
IPA Tubes	4CX250B	5CX1500A	Solid-state	4CX250B	4CX250B
Related Models	S1-F-3, 3.5kW	FM16000EP, 18kW	EVHF100(FM), 100W	FM2500E, 2.5kW	FM25000E, 25kW
	S1-F-1, 1.5kW	FM24000EP, 26kW	.....	FM1500E, 1.5kW	FM20000E, 20kW
	.....	FM40000EP, 44kW	.....	FM1000E, 1kW	FM10000E, 10kW
	.....	.....	.....	FM-250E, 250W	
Reader Service Number	**762**	**763**	**764**	**765**	**766**

Buying an AM, FM or SW transmitter?

Let's talk company, product and price.



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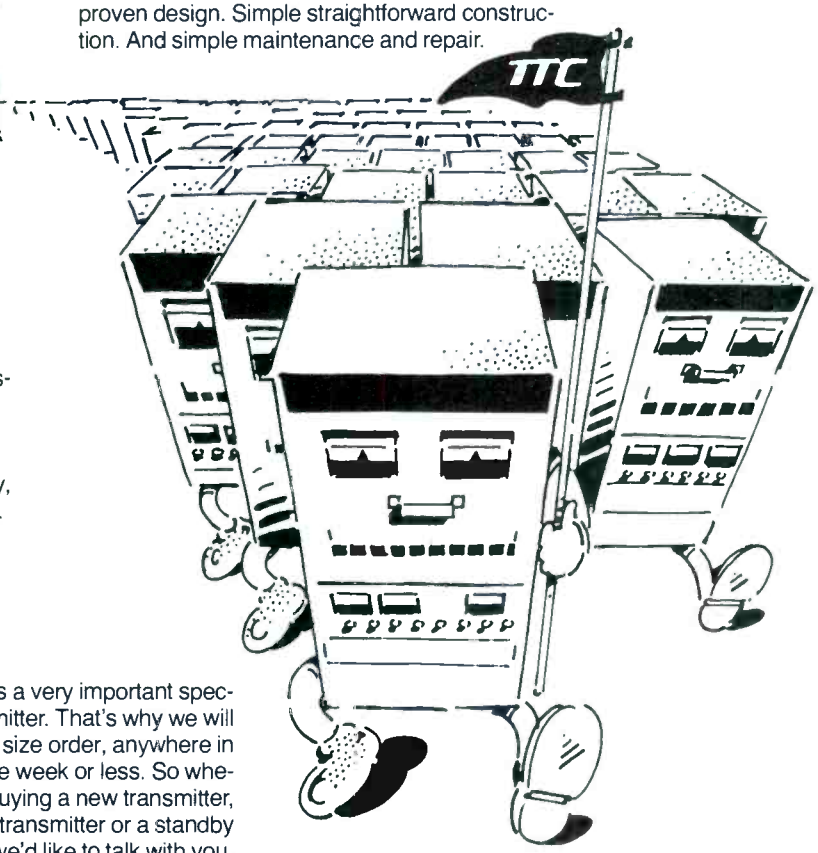

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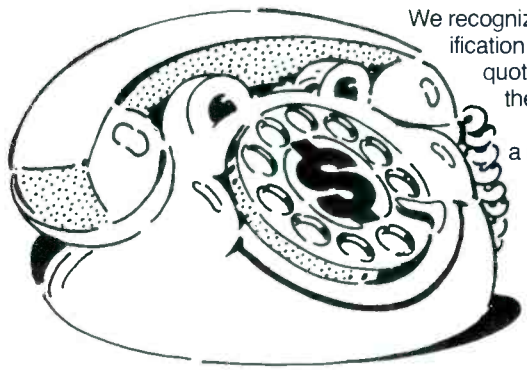

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Circle (31) on Reply Card

TRANSMITTER, UHF Television

Transmitting equipment for generation, modulation and amplification of the visual and aural carrier from baseband video and audio. The RF output impedance is 50Ω. Input video to the exciter is 1V P-P, 75Ω. Input audio to the exciter is typically +10dBm, 600Ω balanced. The aural carrier is 4.5MHz above the visual . Sideband response and envelope delay characteristics shall fall within FCC regulations, per applicable sections of Part 73, Volume III.

Manufacturer	**Acrodyne**	**Comark Corporation**	**EMCEE**	**Harris Broadcast**	**Larcan Communications**
Model Number	**2TT-3480(1)**	**CCT-U-55(2)**	**TTU1000DR(3)**	**TVE-55(4)**	**TTF 2 F**
Visual:					
Output Power Peak	10kW	55kW	1kW	55kW	2kW
Carrier Regulation	3%	5%	3%	500Hz	.....
Response vs. Brightness	0.25dB	5%	0.5dB	0.75dB	0.75dB
Modulation Capacity	2%	3%	95%	0%	2%
Incidental Phase Mod	.....	.....	2°	2°	−40dB
Differential Phase/Gain	±1°/0.5dB	3°/0.5dB	3°/0.4dB	3°/0.5dB	3°/0.5dB
Linearity (Low Freq.)	5%	0.75dB	0.4dB	1dB	0.75dB
Signal/Noise Ratio	54dB	55dB	55dB	50dB	−55dB
K Factors 2T, 12.5T	3%, ±0.1dB	.....	2%	2%, 5%	2%, 5%
Harmonic Radiation	−80dB	−60dB	−60dB	−70dB	−75dB
Visual PA Tube/Type	2 TH 382	EEV klystron	TH 331	5-cavity klystron	RS 1054L tetrode
IPA Tube/Type	Solid-state	Solid-state	TH 328	Solid-state	YD 1381 triode
IF Level Modulation	Yes	Philips PD5580	Yes	Yes	Yes
SAW Filtering	No	Option	Yes	Yes	Yes
Aural:					
Output Power	1kW	12kW	100W	11kW	0.2kW
Modulation Capability	±50kHz	25kHz nominal	±40kHz	±70kHz	50kHz
AF Response (±dB/Hz)	0.5/30-15k	Per FCC	1/50-15k	0.5/30-15k	0.5/30-15k
Harmonic Distortion	0.5%	.....	0.5%	0.5%	−75dB
FM Noise	−60dB	Per FCC	60dB	−59dB	−60dB
AM Noise	−50dB	Per FCC	55dB	−55dB	−50dB
Aural PA Tube/Type	Combined in visual	EEV klystron	IF diplexed	5-cavity klystron	Internal diplexed
IPA Tube/Type	.....	Solid-state	.....	Solid-state	.....
Cooling System	Air	Water	Air	Vapor-phase	Air
Input Power Requirement	208Vac3ϕ	.....	220Vac 1ϕ	480Vac3ϕ	208/240Vac 1 or 3ϕ
Power Consumption	35kW	178kW	5.5kW	135kW	10kVa
Power Factor	.....	.....	0.98	>0.9	ca. 0.9
Reader Service Number	**353**	**354**	**355**	**356**	**357**

(1) TT-300/3000U series includes models at 10, 30, 200W, 1, 2.5 and 5kW. The TT-200/2000 series includes similar power levels for non-US installations. (2) Comark also offers the CCT-U-10 (10kW) and CCT-U-30 (30kW). (3) The EMCEE line includes the TTU 10RM (10W), TTU 100RM & DR (100W), TTU 1000RM (1kW) and TTU 1000B (1kW). RM models are modulated translators; DR denotes transmitters. (4) Also available are the Harris TVE30 (30kW), TVE-220 (220kW) and TVE-110 (110kW); the TVU-1 is a 1kW system.

TRANSMITTER

UHF Television

Manufacturer	**Marconi Broadcast**	**NEC**	**Philips TV**	**RCA Broadcast**	**Rohde & Schwarz**
Model Number	**B7321(5)**	**PCU-755H(6)**	**Systems Inc.**	**TTU-60D(8)**	**NT Series**
Visual:					
Output Power Peak	55kW	55kW	55kW	60kW	10W-10kW
Carrier Regulation	.....	2%	2%	3% or ±365Hz	.....
Response vs. Brightness	.....	2%	0.75dB	−1, +1.5dB	.....
Modulation Capacity	3%	.....	0.5%	3%	.....
Incidental Phase Mod	.....	.....	<−40dB	2°	.....
Differential Phase/Gain	3°/0.95dB	3°/5%	1.5°/0.5dB	±3°/0.5dB	⩽±3°
Linearity (Low Freq.)	0.9dB	.....	2%	1dB	⩽5%
Signal/Noise Ratio	49dB	52dB	55dB	55dB	⩾63dB
K Factors 2T, 12.5T	2%, 1% bar	1.5%	2%, 5%	1.5%, <8%	.....
Harmonic Radiation	−60dB	−80dB	−60dB	<−60dB	<−60dB
Visual PA Tube/Type	VA 935A	VA953/4/5	Ext/Int klystron	4 Int cavity klystron	Tetrode
IPA Tube/Type	Solid-state	Solid-state	Solid-state	Solid-state	Tetrode or solid-state
IF Level Modulation	Yes	Yes	Yes	Yes	Yes
SAW Filtering	.....	.....	Yes	Yes	.....
Aural:					
Output Power	5.5kW or 11kW	5.5kW or 11kW	5.5kW	12kW	10% or 20% of visual
Modulation Capability	50kHz	50kHz	100kHz	50kHz	±50kHz
AF Response (±dB/Hz)	1/30-15k	1/30-15k	0.5/30-15k	1/30-15k	−1/30-15k
Harmonic Distortion	1%	1%	0.5%	1%	0.4%
FM Noise	−60dB	−60dB	−60dB	−60dB	−60dB
AM Noise	−50dB	−50dB	−55dB	−50dB	−46dB
Aural PA Tube/Type	VA 935A	VA 953	Ext/Int klystron	4 Int cavity klystron	Tetrode
IPA Tube/Type	.....	.....	Solid-state	Solid-state	Solid-state
Cooling System Type	Vapor-phase	Vapor-phase	Vapor-phase	Vapor-phase	Air or water
Input Power Requirement	.....	480Vac3ϕ	.....	480Vac3ϕ	220Vac3ϕ
Power Consumption	264kW	264kW	130kW w/ABC klystron	156kW w/pulsar	28kVA for 10kW
Power Factor	0.9	0.9	0.9	0.9	⩾0.9
Reader Service Number	**358**	**359**	**360**	**361**	**362**

(5) The Marconi line includes models from 4, 10, 25 and 40kW. (6) The NEC line includes models for 10, 20, 40, 60, 80 and 110kW. (7) The Philips line includes the LDM 1742 (25kW) and the LDM 1208/1219 (110kW). (8) RCA also provides TTU units for 30, 55, 110, 165 and 220kW.

TRANSMITTER

UHF Television

Manufacturer	Singer Broadcast	Thomson-LGT	Townsend Associates		TTC/Wilkinson
Model Number	CTU-55BT(9)	EUHF-1000S(10)	TA-1000 ATU(11)	TA-55NV	XL 1000MU(12)
Visual:					
Output Power Peak	55kW	1kW	1kW	55kW	1kW
Carrier Regulation	3%	.....	.....	3%	.....
Response vs. Brightness	.....	.....	.....	−1.5dB	0.5dB
Modulation Capacity	8%	.....	5%	5%	.....
Incidental Phase Mod	.....	.....	.....	.....	.....
Differential Phase/Gain	5°/0.9dB	1.5°/0.5dB	3°/1dB	3°/1dB	2°/0.25dB
Linearity (Low Freq.)	0.9dB	.....	1dB	1dB	.....
Signal/Noise Ratio	51dB	.....	60dB	60dB	.....
K Factors 2T, 12.5T	.....	.....	.....	.....	2%
Harmonic Radiation	−60dB	−60dB	−60dB	−60dB	−60dB
Visual PA Tube/Type	Ext. cavity klystron	TH 347	RCA 4628	VA 953H Varian	TH 347
IPA Tube/Type	.....	Solid-state	Solid-state	Solid-state	Solid-state
IF Level Modulation	Yes	Yes	Yes	Yes	Yes
SAW Filtering	.....	.....	Yes	Yes	.....
Aural:					
Output Power	5.5 or 11kW	100W	100W	11kW	100W
Modulation Capability	25kHz	50kHz	25kHz	50kHz	25kHz
AF Response (± dB/Hz)	1/30-15k	/30-15k	1/75μsec curve	1/75μsec curve	.....
Harmonic Distortion	1%	.....	1%	1.5%	.....
FM Noise	−60dB	−60dB	−58dB	−58dB	.....
AM Noise	−52dB	.....	−50dB	−50dB	.....
Aural PA Tube/Type	.....	IF diplexed	Solid-state	VA 953H Varian	IF diplexed
IPA Tube/Type	.....	.....	Solid-state	Solid-state	Solid-state
Cooling System Type	Water	Air	Air	Vapor-phase	Air
Input Power Requirement	.....	208/220Vac 1 or 3ϕ	.....	.....	208/230Vac 1 or 3ϕ
Power Consumption	190kVa	4.2kW	8.15kW	146.7kW w/phasor	4.8kVa
Power Factor	0.9	.....	.....	.....	.....
Reader Service Number	**363**	**364**	**365**	**366**	**367**

(9) Singer also offers the CTU-15BT (15kW) and CTU-30BT (30kW). (10) The Thomson-CSF/LGT line includes other models of translators and transmitters. (11) The Townsend line includes additional models for 100W, 10, 30, 60, 110, 165 and 220kW. (12) MU denotes audio/video modulation; VU is a translator with VHF input; UU represents UHF input to a translator.

TRANSMITTER, VHF Television

Transmitting equipment for generation, modulation and amplification of the visual and aural carrier from baseband video and audio. The RF output impedance is 50Ω. Input audio to the exciter is typically +10dBm, 600Ω balanced. The aural carrier is 4.5MHz above the visual. Sideband response and envelop delay characteristics shall fall within FCC regulations, per applicable sections of Part 73, Volume III.

Manufacturer	Acrodyne	EMCEE Broadcast	Harris Broadcast		Larcan Communications
Model Number	TT-3500VH(1)	TTV100DR(2)	TV-30L(3)	TVD-100H(4)	TTC30000FL(FH)(5)
Frequency/Channel	7-13	54-216MHz/2-13	54-88MHz/2-6	174-216MHz/7-13	2-6(7-13)
Visual:					
Output Power Peak	12.5kW	100W	30kW	100kW	30kW
Carrier Regulation	±250Hz	3%	±250Hz	250Hz	±250Hz
Response vs. Brightness	0.25dB	±0.5dB	0.75dB	0.75dB	±0.75dB
Modulation Capability	3%	95%	0%	0%	2%
Incidental Phase Mod	.....	3°	1.5°	1.5°	−40dB
Differential Phase/Gain	±1°/0.5dB	3°/0.5dB	1°/3%	1°/3%	3°/0.5dB
Linearity (Low Freq.)	5%	5%	1dB, 10%	1dB	0.75dB
Signal/Noise Ratio	54dB	55dB	55dB	55dB	−55dB
K Factors 2T, 12.5T	<3%, ±0.1dB	3%	2%, 5%	2%, 5%	2%, 5%
Harmonic Radiation	−30dB	−60dB	−80dB	−80dB	−80dB
Visual PA Tube/Type	TH561	Solid-state	9007/8988 Vis.Dr.	8984/8988 Vis.	9007 Tetrode
IPA Tube/Type	RCA 8791	Solid-state	Solid-state	Solid-state	Solid-state
IF Level Modulation	Yes	Yes	Yes	Yes	Yes
SAW Filtering	No	Yes	Yes	Yes	Yes
Aural:					
Output Power	1250W	10W	6kW	14kW	1.6kW
Modulation Capability	±50kHz	±40kHz	±70kHz	±70kHz	±50kHz
AF Response (± dB/Hz)	0.5/30-15k	1/50-15k	0.5/30-15k	0.5/30-15k	0.5/30-15k
Harmonic Distortion	<0.5% at 25kHz	0.5%	0.5%	<0.5%	0.75%
FM Noise	−60dB at 25kHz	60dB	−60dB	−60dB	−60dB
AM Noise	−50dB	55dB	−55dB	−55dB	−50dB
Aural PA Tube/Type	Combined to visual	Solid-state	3CX10000	8807	8806
IPA Tube or Type	.....	Solid-state	Solid-state	Solid-state	Solid-state
Cooling System Type	Water	Air	Air	Air	Air
Input Power Requirement	208Vac3ϕ	120/240Vac1ϕ	208Vac3ϕ	480Vac3ϕ	208-240Vac3ϕ
Power Consumption	37kVa	1kVa	50kW	172kW	62kVa
Power Factor	.....	0.98	0.97	0.97	0.95
Reader Service Number	**368**	**369**	**370**	**371**	**372**

(1) Other power levels include 100, 250 and 500W, 1, 2.5, 5 and 10kW. TT-200 Series are applicable for non-US installations. (2) Also available are the TTV100RM modulated translator and TTV10 systems. (3) Other TV series models include the 10H, 18H, 20L, 25H, 30L and 35H; the TVH-5 is a 5kW highband system. (4) Other TVD models include the 36H, 40L, 50H, 60L and 70H, and are dual units of the TV series. (5) Also available are models for 3, 5/6 and 16kW levels; the TTC12000FH is highband.

TRANSMITTER

VHF Television

Manufacturer	Marconi Broadcast	NEC	Philips TV	RCA Broadcast	
Model Number	B7433	PCN-1225BH(6)	Systems Inc.	TTG-50H(7)	TTG-35/35H
Frequency/Channel	174-230MHz/7-13	7-13	7-13	174-216MHz/7-13	174-216MHz/7-13
Visual:					
Output Power Peak	10kW	25kW	17.5kW	50kW	70kW
Carrier Regulation	2%	2%	2%	3% or ±250Hz	3% or ±250Hz
Response vs. Brightness	.....	.....	.....	±0.75dB	±0.75dB
Modulation Capability	3%	.....	0.5%	1%	1%
Incidental Phase Mod	−46dB	.....	.....	±3°	±3°
Differential Phase/Gain	20nsec/5%	1°/3%	3°/0.5dB	±2°/0.5dB	±2°/0.5dB
Linearity (Low Freq.)	2%	.....	1dB	0.75dB	0.75dB
Signal/Noise Ratio	54dB	52dB	55dB	55dB	55dB
K Factors 2T, 12.5T	2%, 1% bars	2.5%	2% 2T	2%, 5%	2%, 5%
Harmonic Radiation	1mW	−80dB	−40dB	−80dB	−80dB
Visual PA Tube/Type	TH361	8F68R	YL1430	8984 tetrode	8984 tetrodes
IPA Tube/Type	Solid-state	Solid-state	YL1450	Solid-state	Solid-state
IF Level Modulation	Yes	Yes	Yes	Yes	Yes
SAW Filtering	Yes	Yes	.....	Yes	Yes
Aural:					
Output Power	1kW	2.5 or 5kW	2kW	6.6kW	13.2kW
Modulation Capability	To 50kW	100kHz	To 100kHz	±50kHz	±50kHz
AF Response (±dB/Hz)	1/30-15k	0.5/30-15k	1/30-15k	0.5/30-15k	0.5/30-15k
Harmonic Distortion	1%	0.5%	1%	0.5%	0.5%
FM Noise	−60dB	−60dB	−60dB	−60dB	−60dB
AM Noise	−50dB	−50dB	−50dB	−53dB	−53dB
Aural PA Tube/Type	Solid-state	7F71R	YL1450	8977 tetrode	8977 tetrode
IPA Tube or Type	.....	Solid-state	Solid-state	Solid-state	Solid-state
Cooling System Type	Air	Air	Air	Air	Air
Input Power Requirement	.....	.....	.....	440Vac3ϕ	208 or 440Vac3ϕ
Power Consumption	25kW	56kVa	40kW	85kW	133kW
Power Factor	0.9	.....	0.9	0.94	0.94
Reader Service Number	**373**	**374**	**375**	**376**	**377**

(6) The PCN-1200 series includes models for power levels of 1, 2, 5, 10 and 13kW, including low and highband VHF. (7) In the TTG series are additional power levels as indicated by the model numbers 16L, 17H, 30L, 30H and 35H. The dual systems TTG-X/X includes 16/16L, 17/17H, 30/30L, 30/30H and 50/50H. Additional models are offered for CCIR-B, D and K1.

Manufacturer	Rohde & Schwarz GmbH	Thomson-LGT	Townsend Associates	TTC/Wilkinson
Model Number	NT Series	EVHF-100S(8)	TA-1000ATL(H)	MA-TVF-10
Frequency/Channel	174-230MH	2-13	2-6(7-13)	54-216MHz/2-13
Visual:				
Output Power Peak	100W-2kW	100W	1kW	10W
Carrier Regulation	.....	<±65Hz	.....	.....
Response vs. Brightness	.....	.....	.....	.....
Modulation Capability	.....	.....	5%	.....
Incidental Phase Mod	.....	.....	.....	.....
Differential Phase/Gain	≤±3°	-/0.3dB	3°/1dB	2°/0.5dB
Linearity (Low Freq.)	<5%	±0.5dB	1dB	.....
Signal/Noise Ratio	≥63dB	>60dB	.....	.....
K Factors 2T, 12.5T	.....	2%	.....	2%
Harmonic Radiation	−60dB	−60dB	−60dB	−70dB
Visual PA Tube/Type	Tetrode	Solid-state	Solid-state	Solid-state
IPA Tube/Type	Solid-state	Solid-state	.....	.....
IF Level Modulation	Yes	Yes	Yes	.....
SAW Filtering	.....	Yes	Yes	.....
Aural:				
Output Power	10% or 20% of visual	10W	100W	2W
Modulation Capability	±50kHz	±25kHz	25kHz	25kHz
AF Response (±dB/Hz)	−1/30-25k	0.5dB/30-15k	1/75μs	30-15k
Harmonic Distortion	0.4%	0.5%	1%	.....
FM Noise	−60dB	−60dB	−58dB	.....
AM Noise	−46dB	−50dB	−50dB	.....
Aural PA Tube/Type	Solid-state	Solid-state	Solid-state	Solid-state
IPA Tube or Type	Solid-state	Solid-state	.....	.....
Cooling System Type	Air	Air	Air	Air
Input Power Requirement	220Vac	230 or 110Vac1ϕ	.....	.....
Power Consumption	0.9kVa for 100W	800W	6.1kW	75Va
Power Factor	>0.9	.....	.....	.....
Reader Service Number	**378**	**379**	**380**	**381**

(8) Both 10W and 1kW transmitters are also available.

fyi...

More information on the manufacturers who advertised in this issue can be obtained by referring to their advertisements on the pages given.

Transmitters

SERVICE CENTERS

The manufacturers advertising in the 1983 SPEC BOOK have provided the addresses and telephone numbers of Service Centers and Parts Depots for your convenience.

ADM Technology
1626 E. Big Beaver
Troy, MI 48084
313-524-2100

Barco Electronics n.v.
Th. Sevenslaan, 106
B-8500 Kortrijk, Belgium
Tel. (0) 56/21.11.24
Tlx 85.842 barind b

Elector USA
5128 Calle del Sol
Santa Clara, CA 95050
408-727-1506

Elector USA
30 Chapin Road
Pine Brook, NJ 07058
201-882-0584

Electro & Optical Systems Ltd.
31 Progress Court
Scarborough, Ontario
Canada M1G 3V5
416-439-9333

Broadcast Systems
8222 Jamestown Drive
Austin, TX 78758
512-836-6011

BSI Great Lakes
14764 Norman
Livonia, MI 48154
313-464-2131

BSI Midwest
Box 300 E
El Dorado Springs, MO 64744
417-876-6254

BSI Northeast
14216 Chesterfield
Woodbridge, VA 22191
703-494-4998

BSI Southeast
Box 179
Cropwell, AL 35054
205-525-5467

BSI West
1025 Pomeroy Road
Nipomo, CA 93444
805-541-3080

Camera Mart
456 West 55th St.
New York, NY 10019
212-757-6977

Video Service Department
800 Tenth Ave.
New York, NY 10019
212-757-6977

Cetec Vega
9900 Baldwin Place
El Monte, CA 91731
213-442-0782

Continental Electronics Mfg. Company
P.O. Box 270879
Dallas, TX 75227
214-381-7161

Philip Drake Electronics Ltd.
23 Redan Place
London, W2 2SA UK
Tel. 01-221 1476
Tlx 87515

Television Equipment Associates
Boway Road, Box 393
South Salem, NY 10590-0393
914-763-8893

EEV
7 Westchester Plaza
Elmsford, NY 10523
914-592-6050

EEV Canada Ltd.
67 W. Moore
Rexdale, Ontario
Canada M9V 3Y6
416-745-9494

English Electric Valve Company Ltd.
Waterhouse Lane
Chelmsford CM1 2QU UK
Tel. 0245 61777
Tlx. 99103

Enertec/Schlumberger
Departement Audio-Professionnel
1, rue Nieuport – BP 54
78140 Velizy-Villacoublay, France
Tel.: (3) 946.96.40
Tlx: Enerson 697430F

Equipto Electronics
417 Woodlawn Ave.
Aurora, IL 60507
312-897-4691

Fujinon Optical
672 White Plains Road
Scarsdale, NY 10583
914-472-9800

Fujinon Optical
118 Savarone Way
Carson, CA 90746
213-532-2861

Clifford B. Hannay & Son
402 Main St.
Westerlo, NY 12193
518-797-3791

Hughey & Phillips
3050 N. California St.
Burbank, CA 91504
213-849-1104

Jamison Door
Hagerstown, MD 21740
301-733-3100

JVC Company
41 Slater Drive
Elmwood Park, NJ 07407
201-794-3900

JVC Company
1011 W. Artesia Blvd.
Compton, CA 90220
213-537-6020

JVC Company
2250 Lively Blvd.
Elk Grove Village, IL 60007
312-364-9300

JVC Company
407 Garden Oaks Blvd
Houston, TX 77018
713-694-0666

Larcan Communications Equipment
6520 Northam Drive
Mississauga, Ontario
Canada L4V 1H9
416-678-9970

Leader Instrument Corporation
380 Oser Avenue
Hauppauge, NY 11788
516-231-6900

LeBlanc & Royale Communications
514 Chartwell Rd
Oakville, Ontario
Canada L6J 5C5
416-844-1242

Midwest Corporation
P.O. Box 271, Union Building
Charleston, WV 25321
304-343-8874

Midwest Corporation
One Sperti Drive
Edgewood, KY 41017
606-331-8990

Midwest (Atlanta, GA)
404-875-3753
Midwest (Charlotte, NC)
704-399-6336
Midwest (Cleveland, OH)
216-447-9745
Midwest (Columbus, OH)
614-476-2800
Midwest (Indianapolis, IN)
317-251-5750
Midwest (Louisville, KY)
502-291-2888
Midwest (Miami, FL)
305-592-5355
Midwest (Troy, MI)
313-689-9730
Midwest (Nashville, TN)
615-331-5791
Midwest (Nitro, WV)
304-722-2921
Midwest (Pittsburgh, PA)
412-781-7707
Midwest (Tampa, FL)
813-885-9308
Midwest (Virginia Beach, VA)
804-464-6256
Midwest (Washington, DC)
301-577-4903

Panasonic Company
One Panasonic Way
Secaucus, NJ 07094
201-348-7000
800-447-4700 Continental US
800-322-4400 Illinois
800-447-0890 Alaska/Hawaii

Perrott Engineering Labs
7201 Lee Highway
Falls Church, VA 22046
703-528-5861

Proton USA
19600 Magellan Drive
Torrance, CA 90502
213-323-5010

QEI Corporation
Box D
Williamstown, NJ 08094
609-728-2020

RCA Camera Tube Marketing
New Holland Avenue
Lancaster, PA 17603
717-397-7661 Pennsylvania
800-233-0155

Sony Broadcast Company
Sony Drive
Park Ridge, NJ 07656

TASCAM
7733 Telegraph Road
Montebello, CA 90640
213-726-0303

TEAC Factory Service
539 West Golf Road
Arlington Heights, IL 60005
312-640-6181

TEAC Factory Service
63 Bergen Turnpike
Little Ferry, NJ 07643
201-641-5600

TEAC Factory Service
99-930 Iwaena St.
Unit B-105
Aiea, HI 96701
808-487-3588

TEAC Factory Service
3731 Northcrest Road, Ste 12
Northcrest 85 Business Parkway
Atlanta, GA 30340
404-458-2880

Thomson-CSF
37 Brownhouse Road
Stamford, CT 06902
203-965-7121

TTC/Wilkinson
5970 W. 60 Ave.
Arvada, CO 80003
303-423-1652

TTC/Wilkinson
2360 Industrial Lane
Broomfield, CO 80020
303-465-4141

United Media
4075 Leaverton Court
Anaheim, CA 92807
714-630-8020

Videotek
125 N. York St.
Pottstown, PA 19464
215-327-2292

Videotek
9625 N. 21st Drive
Phoenix, AZ 85021
602-997-7523

Yamaha International
P.O. Box 6600
Buena Park, CA 90622
714-522-9134

Yamaha Canada Music Ltd.
135 Milner Ave.
Scarborough, Ontario
Canada M1S 3R1

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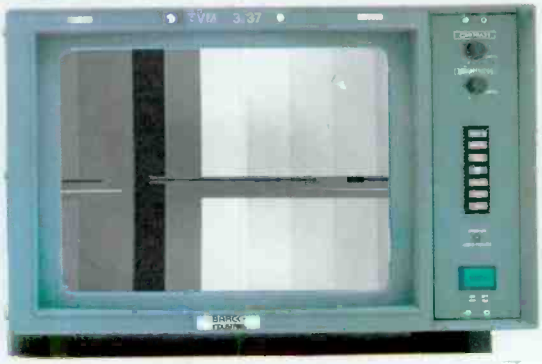

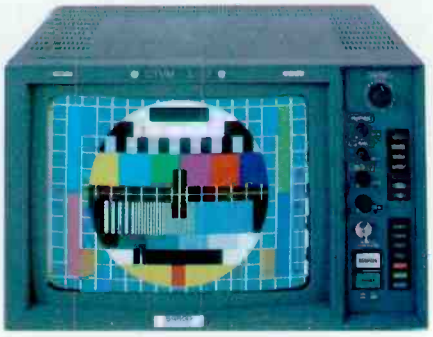

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