The Tektronix 7000 Oscilloscope series

The Tektronix 7000 series is a wonderful addition to any test bench. They are solidly made and often have interesting circuitry. The wide range of plug-ins provide a study upgrade path. If there is one complaint, it is the use of Tek custom ICs. However, given the choice of some piece of unknown 'scope and a Tek 7000, isn't the choice perfectly clear? I'll never understand how someone can buy a random brand when they could have bought a used Tek. Tektronix also has a FAQ for their 7000 series. It tells you about the year of introduction of each mainframe and plugin and not much more.

I have some preliminary notes on interfacing to the 7000 series .

This price list represents my observation of prices at hamfests. I am *not* offering any of these units for sale. These prices are listed as a public service to prevent others from paying too much. Tucker prices are divided by a constant and rounded. A note on hamfest prices: at a hamfest you more often than not have no means to test what you are getting. And so, the prices reflect that fact. Guaranteed working (and calibrated) instruments will cost more.

The creation of ebay's test equipment category has resulted in a lot of 7000 equipment on the market. Prices have been falling; as a result, the prices in this table should be taken with a large box of (kosher) salt. You will find Phil's test equipment list to be very useful for evaluating ebay prices.

Here's my mapping from mainframe numbers to specification. A mainframe has 4 digits: 7BTS, where B is the bandwidth, T is the type and S is the number of slots.
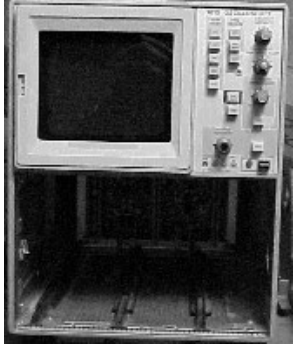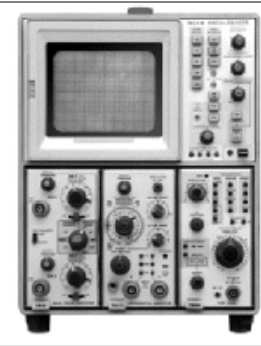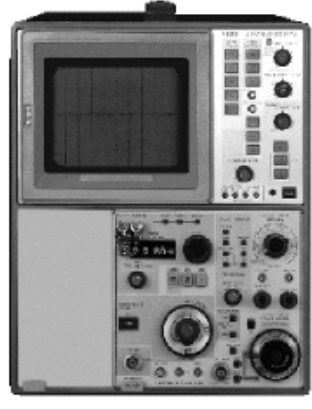
Mainframe quick reference
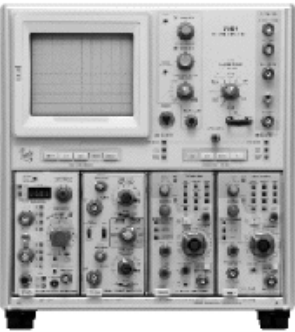
Digit	Bandwidth (MHz)	Type
0		Normal
1	1000	Storage or digitizer
2		Storage
3	65	Storage
4	60	Dual beam
5	100	Computerized
6	100	
7	175/200	
8	400	
9	500	

An illustrated guide to the Tektronix 7000 series

Mainframes

Mainframe	BW(Mhz)	Range$	T/10	Comments
7103/4	1000		500	Highest speed mainframe
7313	65		–	Seldom seen
7403	60			Slowest mainframe
7503/4	100		–	Sometimes seen
7603	100		70	Common mainframe; also USM-281 without readout
7612D	100		200	Programmable digitizer
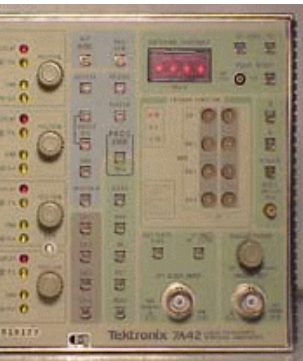
7613	100		100	Variable Persistence
7623	100	100	200	Multimode Storage
7633	100	150	200	Multimode Storage
7704/A	150/200		75	A is 200. non A is 150 MHz
7834	400	200	200	Fast storage
7844	400	200	300	Dual beam; also in rack mount

 7854	400	400	200	Digital storage, IEEE 488; needs calculator keyboard for full use
 7903/4	500	200	130	A is improved; rack mount is 03
7912/AD/HD	500			Flying spot scanner; needs 7A16P/7B90P
7934	500	450	400	Fastest storage

Vertical Amplifiers

Amplifier	BW(Mhz)	Zin	Sens.	Range$	T/5	Comments
 7A11	250	1M	5mV-20V	50	80	Builtin active probe
7A12	120		5mV-5V	50	80	Dual trace w/ push buttons
 7A13	100	1M	1mV-5V	30-50	200	Diff comparator 10K CMRR; comes in mechanical and LED readout
7A14	120		1ma-1A	125	125	AC current probe amp
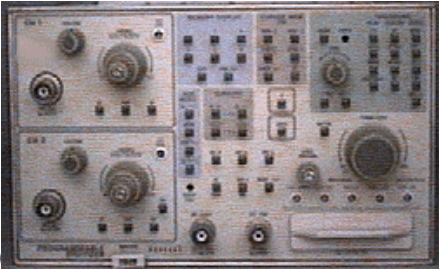
7A15/A/N	80		5mv-5V	60		
7A16/A/P	150/225	50/1M	5mV-5V	45		A is 255 Mhz; P prog.
7A17	150	n.a.	n.a.	25	25	Customizable, rare
7A18/N	75	1M	5mV-5V		40	Dual trace; 06 option?
7A19	600	50	10mV-1V	75	200	
7A21N	1 Ghz	50	direct	75	50	High speed GR-874 inputs, goes directly to mainframe vertical amp; doesn't fit in 7854
7A22	1		10uV-10V	50-75	140	Diff amplifier 100K CMRR

7A24		400	50	5mV-1V	25-50	160	
7A26		200	50	5mV-5V	25-75	100	
7A29/P	7a29p picture !	1000	50	10mV-1V		50	130	Single trace
7A42		350				100	4 trace digital
067-0587-0						200	Special calibration fixture for mainframes, -00 is 200 MHz, -01 is 500 Mhz and -02 is 1 GHz (710x)
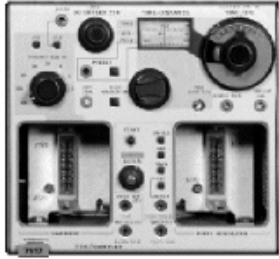
Time bases

Time base	fastest t/div(ns)	Range$	T/5	Comments
7B10	0.2	100-	400	for use with 710x
7B15	0.2	150-	500	Delaying version of 7B10
7B50/A	5	-45	80/140	A is 150 Mhz
7B51	5		85	Delaying sweep
7B52	5		85	Dual channel
7B53A/N	5	20-35	100	Delaying version
7B70	2	35	60	
7B71	2	50-75	70	Delaying
7B80	1	75	100	
7B85	2	50	160	
7B87	2	35-75	190	For use with 7854, has pretrigger
7B90P	2	50-100	180	For use with 7912AD, prog.
7B92/A	0.5	100	180	Dual time base

Miscellaneous

Misc	Range$	T/5	Notes
7CT1N	120-200	180	Curve tracer
7D01	20	40	Logic analyzer; it's hard to find pods
7D02	-150	100	Logic analyzer
DF01		50	Display formatter
DF02		80	Display formatter
7D10		200	Digital event delay
7D11	35	140	Digital event/time delay
7D12	75	60	A/D (needs modules M1, M2 or M3)
7D13	50	40	Multimeter
7D14			Digital Counter to 525 MHz
7D15	75	150	Universal Counter/timer to 225 MHz
7D20	75		Digital storage ; 488
7F10	400		Optical/Electrical [v. rare]
7K11		83	CATV Preamp (for Spectrum Analyzers)
7L5		900	Spectrum Analyzer 20Hz-5Mhz
7L12	850	800	Spectrum Analyzer 100 kHz-1.8 Ghz
7L13	1325	1100	Spectrum Analyzer 1 kHz-1.8 Ghz
7L14	1325	1100	Spectrum Analyzer 10 kHz-1.8 Ghz (digital)
7L18		1040	Spectrum Analyzer 1.5Ghz-18 Ghz
7M13	10		Display "keyboard"
M1		58	DMM module
M2		70	Sample/hold module
M3	75	78	True RMS module

Sampling plug-ins

Sampling	BW(Ghz)	Range$	T/5	Notes
7S11		50-75	200	Vertical amp for plugins
7S12		100-250	280	TDR/Sampler
7S14	1	100-200	300	no plug in sampler
7T11		100-200	200	time base; also comes in A (bug fixes)
7M11		50	200	75 ns delay unit (coaxial)

Sampling slot plug-ins

Unit	BW(Ghz)	Range$	T/5	Notes
S1	1	100	100	350 ps risetime
S2	4.6	95	140	75 ps risetime
S3/A	1	25-100	135/150	Probe, 350 ps risetime
S4	14	50-200	375	25 ps risetime, trigger pickoff
S5	0.350	50	95	slowest head
S6	11.5	50-200	285	30 ps risetime; TDR feedthru
S42	6.5 GHz			Opto-Electrical converter [v. rare]
S50	25 ps	50		Pulser
S51	18 GHz	100	280	Trigger countdown
S52	25 ps	100-200	200	Pulser
S53	1 GHz	50-	230	Trigger Recognizer for 7S12
S54	1 ns		110	Slowest pulser

Thanks to Richard Hager, David DiGiacomo, Alan Shoemake, John Westlake and John Colaw for assistance in compiling this table. And thanks to everyone who emailed saying thanks!

File last written on Nov 21, 2000 at 12:22

e-mail: kahrs@caip.rutgers.edu
home page:http://www.caip.rutgers.edu/~kahrs