2010

DUPAGE
AMATEUR RADIO CLUB

DARC TEST EQUIPMENT BANK

EQUIPMENT INVENTORY PROGRAM DETAILS

ASSET	MANUF.	MODEL	DESCRIPTION
ANTENNA ANALYZER			
MFJ-1	MFJ	MFJ-259B	Antenna Analyzer - 1.8 to 170MHz
COMMUNICATIONS MONITOR			
MOTO-1	Motorola	R2012D	Communications System Service Monitor, Spectrum Analyzer
RF METER			
HKGD-1	Heathkit	HD-1250	Solid State Dip Meter
HKDM-1	Heathkit	IM-4180	FM Deviation/Audio Monitor w/Scope Output
OSCILLOSCOPE			
OSCEL-1	Elenco	MO-1252	35MHz - 2 Channel Oscilloscope
OSCTK-1	Tektronix	468	100MHz - 2 Channel - 4 Trace Digital Storage Oscilloscope
OSC-TK-2	Tektronix	475	200MHz - 2 Channel Oscilloscope
OSCTK-3	Tektronix	2465B	400MHz - 4 Channel Oscilloscope w/Auto Setup
SIGNAL GENERATOR			
HPSG-1	HP	8640B	AM/FM Signal Generator/Freq. Counter - 500khz to 1100Mhz
HPSG-2	HP	8640B	AM/FM Signal Generator/Freq. Counter - 500kHz to 550MHz
VOM			
VOM-1	Fluke	8600A	Digital Bench Volt/Ohm Meter w/Auto ranging Functions
WATT METER			
WMEL-1	Bird	100D	Wattmeter Element 100D - 200-500Mhz - 100Watt
WMEL-2	Bird	50D	Wattmeter Element 50D - 200-500Mhz - 50Watt
WMKIT-1	Bird	Model 43	Wattmeter w/8 Plug-In Elements - w/100Watt Dummy Load
WM-2	Bird	Model 43	Wattmeter

This equipment is available for checkout to any DARC member in good standing. The program is available without charge and with assistance from the committee. We will be happy to assist you to determine your needs and training as necessary for proper operation of these test instruments.

The loan period is 2 weeks; if you need more time we will try to accommodate you, depending on the needs of other members. All users will be required to sign the club's Indemnification Agreement, and loan request.

All forms are provided here for contact information, loan period and the equipment inventory information.

Please contact Ed Worst, K9EW for any additional information.

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MFJ-259B — ANTENNA ANALYZER

Description

The MFJ-259B RF analyzer is a compact battery powered RF impedance analyzer. Four basic circuits are integrated into the unit; a 1.8-170MHz variable frequency oscillator, a frequency counter, a 50 ohm RF bridge, and an eight-bit micro-controller. This unit is capable of a wide variety of useful antenna or impedance measurements.

Features & Capabilities

Find true antenna resonant frequency.	Trim dipoles and verticals.
Adjust your Yagi, quad, loop and other antennas.	Change antenna spacing and height and watch SWR, resistance and reactance change instantly.
Perfectly tune HF mobile antennas in seconds -- without subjecting your transceiver to high SWR.	Measure length of a roll of coax, coax loss, velocity factor, and impedance.
Check SWR outside the ham bands without violating FCC rules.	Measure distance in feet to a short or open in faulty coax.
Measure inductance and capacitance. measure resonant frequency and approximate Q of traps, stubs, transmission lines, RF chokes, tuned circuits and baluns.	Measure your antennas 2:1 SWR bandwidth on one band, or analyze multiband performance from 1.8 to 170Mhz.
Includes frequency counter, RF signal generator, SWR Analyzer, RF resistance and Reactance Analyzer, Coax Analyzer, Capacitance and Inductance	Adjust your antenna tuner for a perfect 1:1 match without creating QRM.

Includes:
Operator Manual on CD

Requires:
PL259 for antenna measurements

Cautions:
DO NOT CONNECT TO TRANSMITTER—SEVERE DAMAGE WILL RESULT!

Uses

- Antenna network tuning and alignment
- Cable fault detection
- Determining resonance at operating frequencies
- Establishing SWR & impedance ratings
- Testing antenna configurations “on-the-fly”
- Measuring transmit frequency

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MOTOROLA R2012D — SERVICE MONITOR

Description

This Communication System Analyzer (Service Monitor) is designed to monitor and service radio equipment over a frequency range of 1Mhz -1Ghz. The service monitor will generate signals, measure modulation and frequency errors and perform a variety of tests.

Features & Capabilities

Spectrum Analyzer	Duplex Offset Generator
Frequency Counter	Modulation Oscilloscope
RF Wattmeter	AC/DC Digital-Analog Voltmeter
Multimode Code Synthesizer	General Purpose Oscilloscope
Sweep Generator	Signal Encoder/Decoder
Signal Strength Meter	Automatic Scan Latch Counter

Includes:
Operator Manual on CD
Power Cable
Microphone — Antenna

Requires:
Cables for transmitter measurements.

Cautions:
DO NOT EXCEED 150 WATTS INPUT

Uses

- Test and align transmitters and receivers
- Evaluate transmitter power, modulation, overall operation
- Evaluate receiver sensitivity, selectivity and performance
- Test tone encoders and decoders
- Ensure compliance with FCC requirements
- Test and set transmitter deviation

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HEATHKIT HD-1250 — DIP METER

Description

This is a battery operated, Solid State Dip Meter that is used to determine the approximate resonant frequency of energized or de-energized circuits in the frequency range of 1.6 to 250MHz. In the oscillation or injection mode, you can determine the resonant frequency of tuned circuits. In the absorption mode it will locate sources and frequency of RF energy.

Features & Capabilities

Grid Dip Oscillator	Absorption Wave Meter
Limited Signal Generator Function	Transmitter, Amplifier, Antenna Testing Capability

Includes:
Operator Manual on CD
Power Cable
Loading Coils by Frequency Range
Carrying Case

Requires:
Cables for transmitter measurements.
9 Volt Battery (if not installed)

Cautions:
Use caution around live transmitting antennas.

Uses

- Receiver alignment (GDO mode): Preset tuned circuits; use as signal generator for aligning
- RF and (if in range) IF stages.
- Transmitter adjustment: (GDO mode): Preset tuned circuits.
- Transmitter Adjustment: (AWM mode): Determine frequency; peak tuned circuits; perform final stage neutralization; check for parasitic oscillations.
- Adjust traps (GDO mode): Adjust series and shunt traps in transmitter and receiver circuits.
- Measure LC components (GDO mode): Determine unknown values of capacitors, coils, and torroids.
- Measure Q (GDO mode): Determine the relative Q of coils.
- Measure Field Strength (AWM mode): Use to measure field strength in the shack and around antennas.
- Feedline Measurements (GDO mode): Use to measure and adjust quarter and half wavelength stubs and sections. Measure SWR on open line feeders.
- Antenna adjustments (GDO mode): Check antenna traps; adjust element resonance; measure bandwidth. Roughly measure antenna front to back and front to side ratios.

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HEATHKIT IM-4180 — FM DEVIATION METER

Description

The Heathkit FM Deviation Meter measures peak deviation (frequency modulation) of transmitters and signal generators in the 25 to 1000MHz. range. The demodulated audio output signals are available on a front panel speaker jack to permit you to use an oscilloscope to observe the signal wave shapes. The unit is equipped with battery power making it suitable for portable operation.

Includes:
Operator Manual on CD
Battery
Scope Cable

Requires:

Cautions:

Features & Capabilities

Measures Transmitter Deviation	Analyze Distortion
Analyze Modulation	Measure Signal Strength
Measure Preamp Gain	Analyze Audio Quality

Uses

- Tune filters and transmitters
- Visually evaluate audio quality with the oscilloscope output
- Check and set deviation — instantaneous peak-to-peak measurements
- Plot Field Strength Patterns

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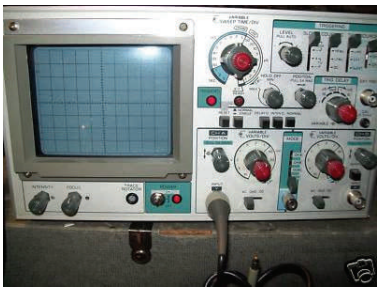
ELENCO MO-1252 — OSCILLOSCOPE

Description

This is a two-channel (dual trace), 35MHz bandwidth oscilloscope with 150mm rectangular CRT display. This is a general purpose scope that will measure accurately at 5,V/DIV on the high brightness display.



Includes:
Operator Manual on CD
Probes
AC Power Cord

Requires:
Additional Cables and connectors as necessary

Cautions:
DO NOT CONNECT DIRECTLY TO TRANSMITTER—SEVERE DAMAGE WILL RESULT!

Features & Capabilities

Vertical measurements to 1mV/DIV (10MHz)	Large Reticulated Display
2 Ch Vertical Amplifiers—10nsec Risetime over 35MHZ Range	Single Trace Option
Delayed Trigger Feature	TTL Level 3Vp-p
AM-FM-CW-SSB Waveform Displays	Time & Frequency Measurements with High Accuracy

Uses

- Voltage Measurements
- Audio, Data, RF Measurements
- Calibration of Equipment
- Visual Display of Complex Waveforms
- Monitor Transmitted Signals In Real-Time

For more info, and on-line training:
www.arrl.org/tis/info/HTML/Hands-On-Radio
http://cmccord.co.uk/Radio/oscilloscope.htm

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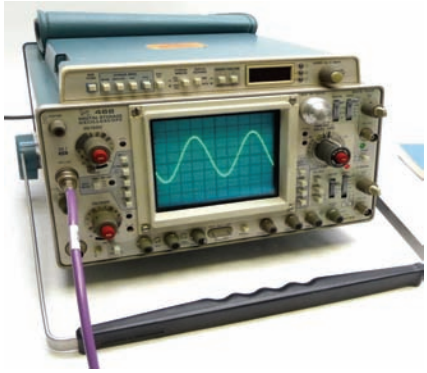
TEKTRONIX 468 — OSCILLOSCOPE

Description

The Tektronix 468 is a 2 channel, 4 trace, DC to 100MHz digital storage oscilloscope. The 468 has an easy-to-use storage function with cursor measurement of time and voltage. Measurement values are indicated on a 4 digit seven segment LED display.



Features & Capabilities

100MHz Analog Oscilloscope	10MHz Single Shot Digital Scope Feature
2ns/DIV Max. Sensitivity	Time & Voltage Cursor Measurements w/LED Display
Dual Time Base w/B-delay	Vertical Measurements from 5mV to 5V/DIV

Includes:
Operator Manual on CD
Probes
AC Power Cable

Requires:
Additional Cables and connectors as necessary

Cautions:
DO NOT CONNECT DIRECTLY TO TRANSMITTER—SEVERE DAMAGE WILL RESULT!

Uses

- Voltage Measurements
- Audio, Data, RF Measurements
- Calibration of Equipment
- Visual Display of Complex Waveforms
- Monitor Transmitted Signals In Real-Time

For more info, and on-line training:
www.arrl.org/tis/info/HTML/Hands-On-Radio
http://cmccord.co.uk/Radio/oscilloscope.htm

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TEKTRONIX 475 — OSCILLOSCOPE

Description

The Tektronix 475 is a 2 Channel (Dual Trace), DC to 200MHz oscilloscope with calibrated vertical deflection in the range of 2 millivolts to 5 volts per division. The trigger circuits provide stable sweep triggering over the entire vertical deflection bandwidth.

Features & Capabilities

Dual Time Base/Delayed Sweep	Sweep Rate 1ns/DIV
200MHz Analog Oscilloscope	10MHz Single Shot Digital Scope Feature
Automatic, Normal or Single Sweep Triggering	Delayed and Mixed Sweep Features
Dual Time Base w/B-delay	Vertical Measurements from 5mV to 5V/DIV

Includes:

Operator Manual on CD

Probes

AC Power Cord

Requires:

Additional Cables and connectors as necessary

Cautions:

DO NOT CONNECT DIRECTLY TO TRANSMITTER—SEVERE DAMAGE WILL RESULT!

Uses

- Voltage Measurements
- Audio, Data, RF Measurements
- Calibration of Equipment
- Visual Display of Complex Waveforms
- Monitor Transmitted Signals In Real-Time

For more info, and on-line training:
www.arrl.org/tis/info/HTML/Hands-On-Radio
http://cmccord.co.uk/Radio/oscilloscope.htm

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TEKTRONIX 2465B — OSCILLOSCOPE

Description

The Tektronix 2465B is a portable oscilloscope that has four vertical channels with DC to 400MHz, 250MHz and 150MHz bandwidths. This scope is equipped with AUTO, SAVE, and RECALL functions. The AUTO function works with almost any signal. The SAVE and RECALL functions record and restore as many as 30 instrument setups. There are two of these scopes in our program.

Features & Capabilities

4 Independent Channels	1ns/DIV Sweep Rate
2mV/DIV Vertical Sensitivity	Cursor Measurement Feature
Auto Setup and Ranging	Save & Recall Setups
Digital Display on CRT	Single Sequence Triggering

Includes:
Operator Manual on CD
Probes
AC Power Cable

Requires:
Additional Cables and connectors as necessary

Cautions:
DO NOT CONNECT DIRECTLY TO TRANSMITTER—SEVERE DAMAGE WILL RESULT!

Uses

- Voltage Measurements
- Audio, Data, RF Measurements
- Calibration of Equipment
- Visual Display of Complex Waveforms
- Monitor Transmitted Signals In Real-Time

For more info, and on-line training:
www.arrl.org/tis/info/HTML/Hands-On-Radio
http://cmccord.co.uk/Radio/oscilloscope.htm

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HP 8640B—SIGNAL GENERATOR (2 AVAIL.)

Description

The HP 8640B is a Signal Generator capable of internal AM & FM Modulation or external pulse modulation in the frequency range of 500Khz to 550Mhz, or 500Khz to 1100Mhz with the doubler option. (We have one in each range in our program). This generator will output levels of +19 to -145DBM (2 volts to .013 microvolts). This generator has extremely low phase noise.

Includes:
Operator Manual on CD

Requires:
Type-N connector/adaptor for antenna measurements

Cautions:
DO NOT CONNECT TO TRANSMITTER—SEVERE DAMAGE WILL RESULT!

Features & Capabilities

RF Output in AM & FM & PM Modes	Calibrated, Metered Outputs to 0.5dB
Internal 6-Digit Counter	Phase-Locked-Loop Cavity
Wide Bandwidth	Frequency Stability to <0.05ppm/hr
Output Power Range +18dBm-145dBm	Low SSB Noise Factor
Digital Frequency Output Display	External Count to 550MHz

Uses

- Monitor external signals from transmitter up to 550MHz (or 1100MHz)
- AM-FM Receiver Testing and Calibration
- Sensitivity & Alignment Testing

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FLUKE 8600A — DIGITAL MULTIMETER

Description

This is a 4½ digit Digital Multimeter with push button selection of various ranges and functions. The meter is capable of Auto-ranging on AC, DC, or Kilohms. The selectable ranges are 200Mv, 2Volts, 20Volts, 200Volts and 1200Volts. Two units are available, one has an internal battery option and the other is 120 volt AC only.

Includes:
Operator Manual on CD
Internal Rechargeable Battery
AC Line Cord
Probes

Requires:
Additional probes as necessary

Cautions:
DO NOT EXCEED MAX INPUT LEVELS AS DAMAGE TO THE INSTRUMENT WILL RESULT.

Features & Capabilities

High Accuracy	Auto Ranging
Push-Button Selection for Range and Function	Floating Decimal Point
Self-Zeroing	Overload Protection
10mV to 11,999V AC or DC	10nA to 1.9999A AC & DC
10mOhms to 19.999megOhms	Front Panel Input Connectors
Rechargeable Battery or AC Operation	Auto Polarity

Uses

- Measures Voltage, Current, Amperage, Resistance
- Check Continuity
- Test Diodes & Transistors
- Verify Component Values

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BIRD MODEL 42—RF WATTMETER (2 AVAIL.)

Description

This is the Bird Model 43 Wattmeter, long considered the industry standard for RF metering. Along with plug in elements in various power and frequency ranges, any transmitter and antenna can be measured. The program has numerous RF measurement slugs and a kit containing a 100Watt 50Ohm dry dummy load. The Bird 43 is capable of RF measurements in the range of 2 to 30MHz and 100 to 1000MHz range. Measurements up to 100Watts.

Includes:

Operator Manual on CD

Requires:

PL259 jumper for antenna measurements

Cautions:

DO NOT EXCEED SLUG RATINGS.

Features & Capabilities

100D Slug 200-500MHz, 100Watt	50D Slug 200-500MHz, 50Watt
Kit Available w/8 Slugs & 100W Dummy Load	PL259 TO PL250 Jumper Required

Uses

- Measures Antenna SWR, Loss, Reflectivity
- Measures Transmitter Output Power
- Measures Antenna Line Return Loss
- In-Line Measurements

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NOTES

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WAIVER & RELEASE OF LIABILITY

DUPAGE AMATEUR RADIO CLUB TEST EQUIPMENT POOL INDEMNIFICATION AGREEMENT

(PLEASE PRINT)

Borrower: _____ **Call Sign:** _____

Equipment: _____ **ID No.:** _____

In consideration for the loan of the above-listed equipment, the borrower (1) waives any claim he or she may have against, and (2) holds the DuPage Amateur Radio Club ("DARC"), its officers, trustees , specifically including its Test Equipment Pool trustee or trustees, committee members, directors, employees, individual members, members of their families, and their successors and assigns, harmless from any loss or liability and further indemnifies them from any claim brought by any person for any loss or liability resulting from any damages to property, whether real or personal, and from injuries or other harm to any person arising from the use of the equipment and assumes all risk for any such loss, liability, or claim.

As an inducement for the loan of the equipment, the borrower states that: (1) he or she has examined the equipment at the time he or she is taking possession, that it is in proper working order and that he or she possesses the knowledge and skill needed to make these determinations; (2) he or she understands the proper and intended use of the equipment, is competent to put the equipment to such use and will not use the equipment in any other manner; and (3) he or she understands that the use of any electronic devices, including the borrowed equipment, can pose serious risks and dangers to the user and to other persons and their property. The borrower further certifies that he or she is a member in good standing of the DuPage Amateur Radio Club, that he or she is competent to sign this agreement, and that the equipment is loaned for his or her personal use only.

By:_____ _____ **County, Illinois this** _____ **, 2010**

Signed: _____ **Date of Birth:** _____

City, ST, ZIP: _____

Authorized DARC Representative: _____

If the borrower is a minor, the undersigned parent certifies that all of the inducements made by the borrower are true and the undersigned undertakes all of the obligations see forth in paragraph one above.

Parent/Guardian: _____

The DuPage Amateur Radio Club, Inc.
P.O. Box 71 Clarendon Hills, IL 60514

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EQUIPMENT LOAN REQUEST FORM

DUPAGE AMATEUR RADIO CLUB TEST EQUIPMENT POOL
EQUIPMENT REQUEST FORM

(PLEASE PRINT)

Equipment Type: _____

Serial Number: _____

Start Date: _____

End Date: _____

Renewable (Y/N)?: _____

Trustee: _____

Trustee Signature: _____

Loan Agreement:
I, the undersigned, acknowledge that I am a member in good standing of the DuPage Amateur Radio Club and that I understand and agree to the terms of the equipment loan.

- I agree that while in my possession the equipment shall be my responsibility;
- I agree that I understand the safe use and handling of the equipment;
- I agree to store, use, and care for the equipment safely and in accordance with its proper function while it is in my possession;
- I agree that any damage caused to persons or property by the equipment due to incorrect or otherwise unsafe storage, handling, or use of the equipment while in my possession is my sole responsibility;
- I agree to return the equipment in a timely fashion when the term of the loan expires;
- I agree that should the equipment be damaged while in my possession as a result of accident or incorrect use, handling, or storage, I will reimburse the club for all reasonable expenses for repair or replacement.

Name/Call: _____

Signature: _____

Phone: _____

E-Mail: _____

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