

## Appendix F: Parts Lists and Resources for the Experiments

The proper materials must be available to successfully carry out the experiments in this manual. Some of these materials are standard fare for an electronics laboratory and are not considered unique to these experiments (the same parts are used in other courses as well). These parts include:

- Electronic prototyping breadboards
- Standard resistor value collection (five of each standard value between 10  $\Omega$  and 1 M $\Omega$ )
- Common electrolytic capacitor value collection, 1 to 1000  $\mu$ F (three of each standard value in this range)
- Test leads and instrumentation

There are components that are unique to these experiments. The requirements for these depend on the sequence of experiments chosen by the instructor. Since many of the exercises are designed to be performed as a sequence, these special parts are documented according to experiment groups.

### Experiments 1 through 5 (Audio Monitor, AM Transmission and Reception)

#### Semiconductors

Quantity	Industry Part No.	Description	Manufacturer (Vendor)
1	LM-386N	Audio pwr amp	National (Digikey)
1	LM-741N	Operational amp	National (Digikey)
1	LM-318N	HF op amp	National (Digikey)
1	1N60-AM	Germanium diode	Any
2	2N3904	NPN transistor	Any

#### Capacitors

Quantity	Value	Description	Manufacturer (Vendor)
10	0.1 $\mu$ F	Mylar	Panasonic (Digikey)
1	47 pF	Ceramic disc	Panasonic (Digikey)
2	0.001 $\mu$ F	Mylar	Panasonic (Digikey)
2	0.002 $\mu$ F	Mylar	Panasonic (Digikey)
2	0.22 $\mu$ F	Mylar	Panasonic (Digikey)
2	0.0047 $\mu$ F	Mylar	Panasonic (Digikey)
2	0.01 $\mu$ F	Mylar	Panasonic (Digikey)

## Resistors

Quantity	Value	Description	Manufacturer (Vendor)
1	10K	Pot, 10K, cermet, Bournes 3352T-103	Bournes (Digikey P/N 3352T-103-ND)
1	50K	Pot, 50K, cermet, Bournes 3352T-503	Bournes (Digikey P/N 3352T-503-ND)

## Inductors and Transformers

Quantity	Industry Part No.	Description	Manufacturer (Vendor)
1	434-03-473J	47 mH choke	Mouser P/N 434-03-473J
1	434-01-102J	1 mH choke	Mouser P/N 434-01-102J
1	434-02-103J	10 mH choke	Mouser P/N 434-02-103J
2	RWRS-T1015Z	100 uH adjustable	Toko (Digikey P/N TK1219-ND)
1	TK9002-ND	Alignment tool	Digikey P/N TK9002-ND
1	42TL030	Modulation transformer, 100 Ohm CT:100 Ohm CT	Mouser P/N 42TL030

## Miscellaneous

Quantity	Industry Part No.	Description	Manufacturer (Vendor)
1	253-4020	Speaker 2" 8 Ohm	Mouser P/N 253-4020

*Experiments 6 - 8: VCO, Phase Locked Loop, Frequency Modulation*

## Semiconductors

Quantity	Industry Part No.	Description	Manufacturer (Vendor)
2	LM-565N	PLL	National (Digikey)

## Capacitors

Quantity	Value	Description	Manufacturer (Vendor)
4	0.1 uF	Mylar	Panasonic (Digikey)
2	0.047 uF	Mylar	Panasonic (Digikey)
2	0.022 uF	Mylar	Panasonic (Digikey)
2	0.001 uF	Mylar	Panasonic (Digikey)
2	47 pF	Ceramic	Panasonic (Digikey)
1	470 pF	Ceramic	Panasonic (Digikey)

1	150 pF	Ceramic	Panasonic (Digikey)
1	0.0022 uF	Mylar	Panasonic (Digikey)

Experiments 9-13: Fiber Optics, UART, RS232

Semiconductors

Quantity	Industry Part No.	Description	Manufacturer (Vendor)
1	SFH450V	Photoemitter	Infineon (Siemens)
1	SFH350V	Photodetector	Infineon (Siemens)
2	2N3904	NPN transistor	Any
1	HD3-6402R-9	UART, CMOS LSI	Harris/Intersil (Allied P/N 903-4136)
1	LM-555	Timer	National (Digikey)
1	1N914/1N4148	Diode, switching	Any
1	MC1488	RS232 line driver	Motorola (Allied)
1	MC1489	RS232 line rcvr	Motorola (Allied)

Miscellaneous

Quantity	Value	Description	Manufacturer (Vendor)
1 meter	SH4001	Plastic optical fiber	Eska

Capacitors

Quantity	Value	Description	Manufacturer (Vendor)
5	0.1 uF	Mylar	Panasonic (Digikey)
2	0.01 uF	Mylar	Panasonic (Digikey)

Resistors

Quantity	Value	Description	Manufacturer (Vendor)
1	5K	Pot, 5K, cermet, Bournes 3352T-502	Bournes(Digikey P/N 3352T-502ND)
2	330 Ohms	SIP array, 330 Ohms x 9	Panasonic EXB-F10E331 (Digikey P/N Q9331-ND)
2	4.7K Ohms	SIP array, 4.7K Ohms x 9	Panasonic EXB-F10E473 (Digikey P/N Q9473-ND)