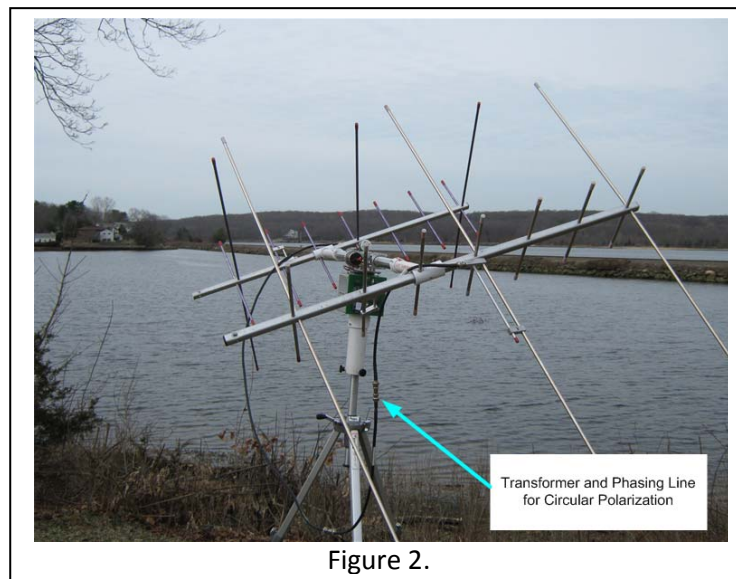
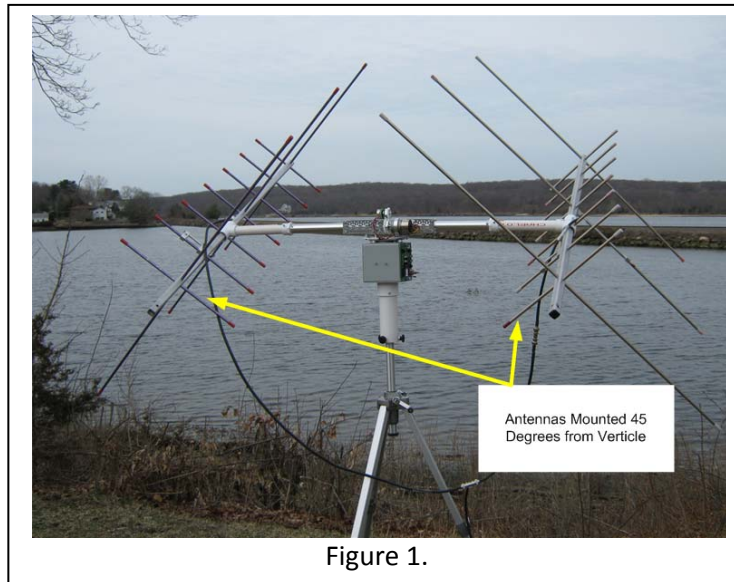


Tricked-Out WRAPS Satellite Antenna Rotator

By: Mark Spencer, WA8SME

Hams, by their very nature, want to make their equipment do things that the equipment was not designed to do...myself included. The WRAPS rotator, described in January 2014 QST, was designed to be a battery operated, portable antenna rotator system for ARROW or Elk class hand held antennas. A number of the builders of the WRAPS had made requests/suggestions on how to improve WRAPS, one suggestion caught my interest. I revisited the WRAPS to "trick it out" to handle two ARROWs to get circular polarization capabilities. Figure 1 and 2 illustrates the result.



A wordy article is not necessary for this modification of the original WRAPS rotator so the meat of this project will be illustrated through pictures. I used most of the existing WRAPS project parts, the added parts to make it a dual antenna capable rotator cost an additional \$80 over the price of the parts for the

basic WRAPS (parts list is included in Figure 7). Still pricy, still portable and battery operated, but it is what it is. There is no modification to the board or the firmware so it is a straight mechanical modification. Someone could make it into a 180 degree EL rotator, but it would require an adjustment of the EL gearing to accommodate that added 90 degrees. The firmware should not need to be changed. The WRAPS PCB and programmed PIC are available through the AMSAT store. There are no plans at this time to offer a complete kit of parts or completed systems.

If you would like additional information, please contact me at msspencer@arrl.org or at 860-381-5335 (EST). I will have the tricked out WRAPS on display at the ARRL/ETP booth in Dayton Hamvention for show and tell. If you are there, please stop by for a look see and demonstration. The original WRAPS will also be on display at the AMSAT booth in Dayton.

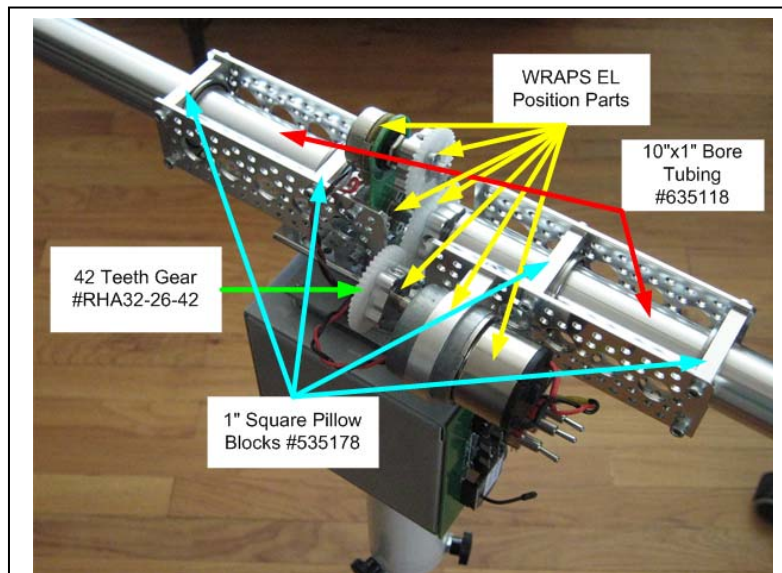


Figure 3. The Tricked-Out WRAPS EL section.

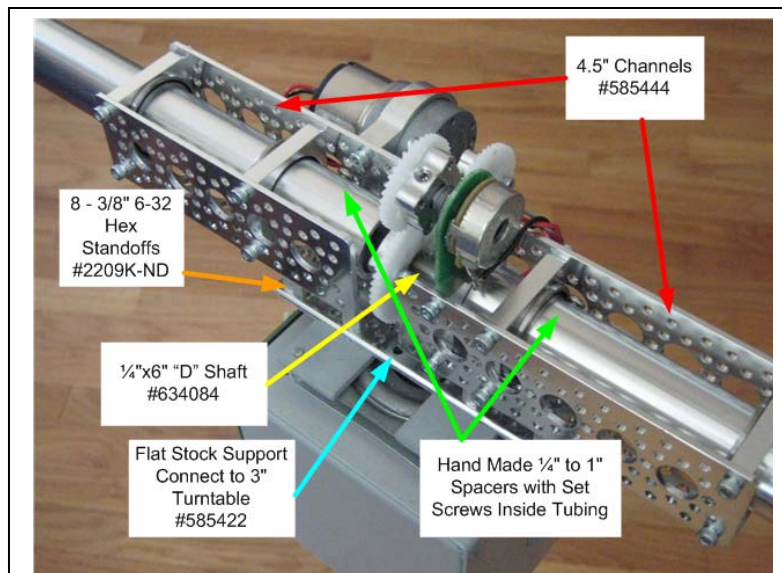


Figure 4.

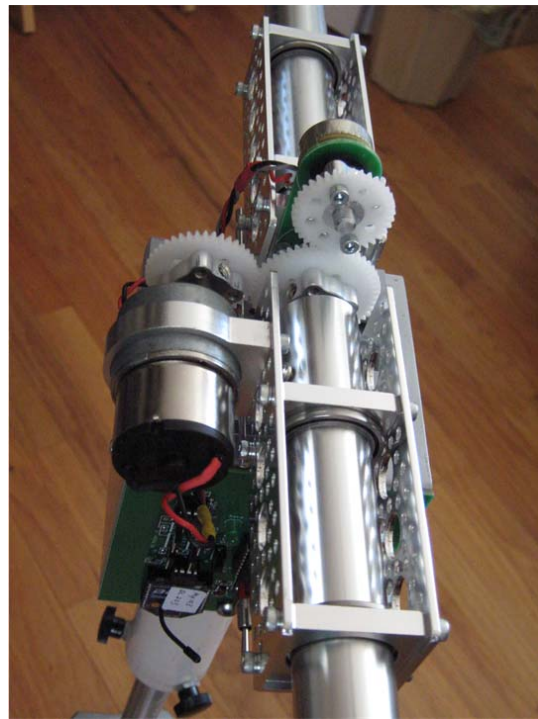


Figure 5.

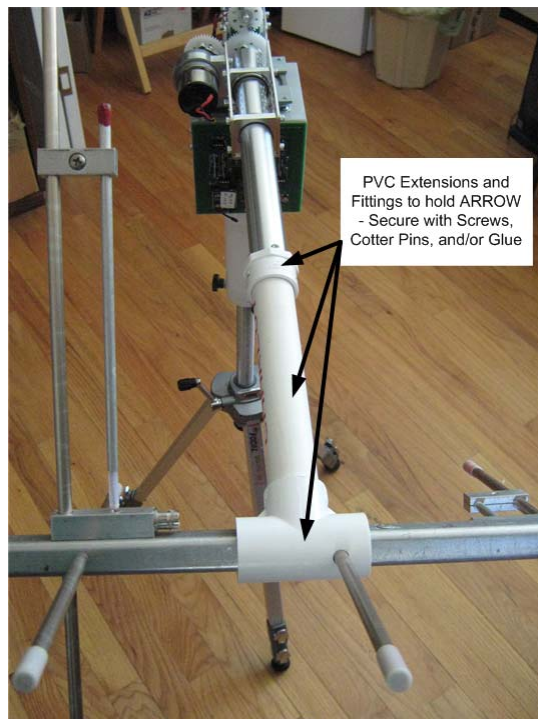


Figure 6.

Tricked Out WRAPS ROTOR PARTS LIST				
	ND = Digikey.com			
	others Servocity.com			
Mechanical				
Number	Part Number	Description	Price Each	Price
2	585444	4.5" Al Channel	\$4.99	\$9.98
1	585422	Dual Flat Bracket	\$1.49	\$1.49
1	545576	6mmx.770" Set Screw Hub	\$4.99	\$4.99
1	RHA32-26-42	42 Tooth Gear	\$4.32	\$4.32
1	634084	1/4"x6" D-Shaft	\$2.89	\$2.89
4	535178	1" Square Bearing Quad Pillow Block	\$9.99	\$39.96
2	635118	10" 1" Bore Tubing	\$3.49	\$6.98
1	632106	1/4" Socket Head Cap Screws (1 pak)	\$1.69	\$1.69
1	632110	3/8" Socket Head Cap Screws (1 pak)	\$1.89	\$1.89
8	2209K-ND	6-23 by 3/8" threaded hex standoffs	\$0.40	\$3.20
as needed	hardware	6-32 flat washers		
as needed	hardware	6-32 screws 1/4" and 3/8"		
1	Local Hardware	3/4" PVC Tee	\$0.59	\$0.59
2	Local Hardware	1/2" to 3/4" PVC Coupling 1/2" Male Threaded	\$0.52	\$1.04
1	Local Hardware	7" - 3/4" PCV Pipe Section	\$1.00	\$1.00
				\$77.39

Figure 7.