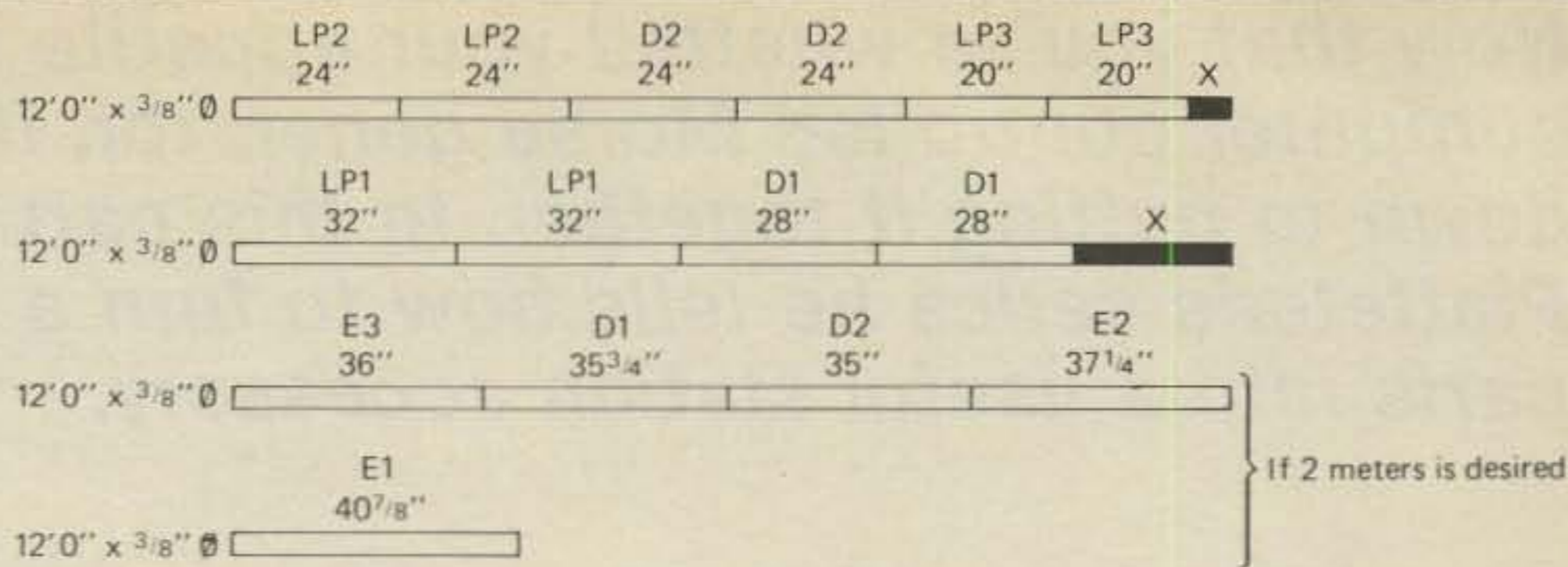


The adjacency of CB and 10 meters, plus the 5th harmonic relationship of 2 meters, makes it possible to use the log periodic yagi concept to construct a single beam to serve all three bands and yet keep physical size within limits of one-man assembly capability. This design also uses readily-available standard tubing lengths.

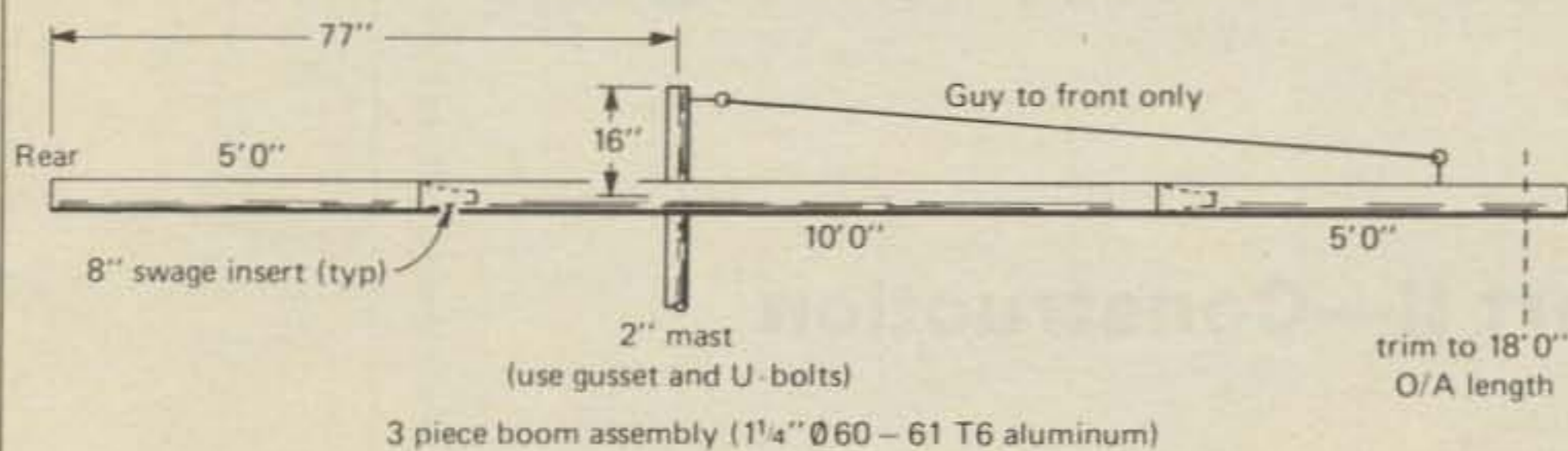
The boom is made from 1 1/4" TV masting, 1- 10' and 2 to 5 foot sections of the swagged down or telescoping variety. Elements are needed in only two diameters: 1/2" and 3/8", from standard 12' lengths (the "orphan" #1 element for 2 meters can be scrounged from an old TV antenna). Mounting hardware has been kept straightforward to avoid the necessity for machining or lathe work.



NOTE:

- (2) 1/2"Ø x 12'0"
 - (6) 1/2"Ø x 6'0"
 - (4) 3/8" x 24"
 - (2) 3/8" x 20"
 - (2) 3/8" x 28"
 - (2) 3/8" x 32"
- (5) 12'0" lengths
 2 whole (directorials)
 3 halved (LP elements)
 Element material = 6061 T6 aluminum tubing.

Fig. 2—Bill of materials and cutting chart.



3 piece boom assembly (1 1/4" Ø 60 - 61 T6 aluminum)

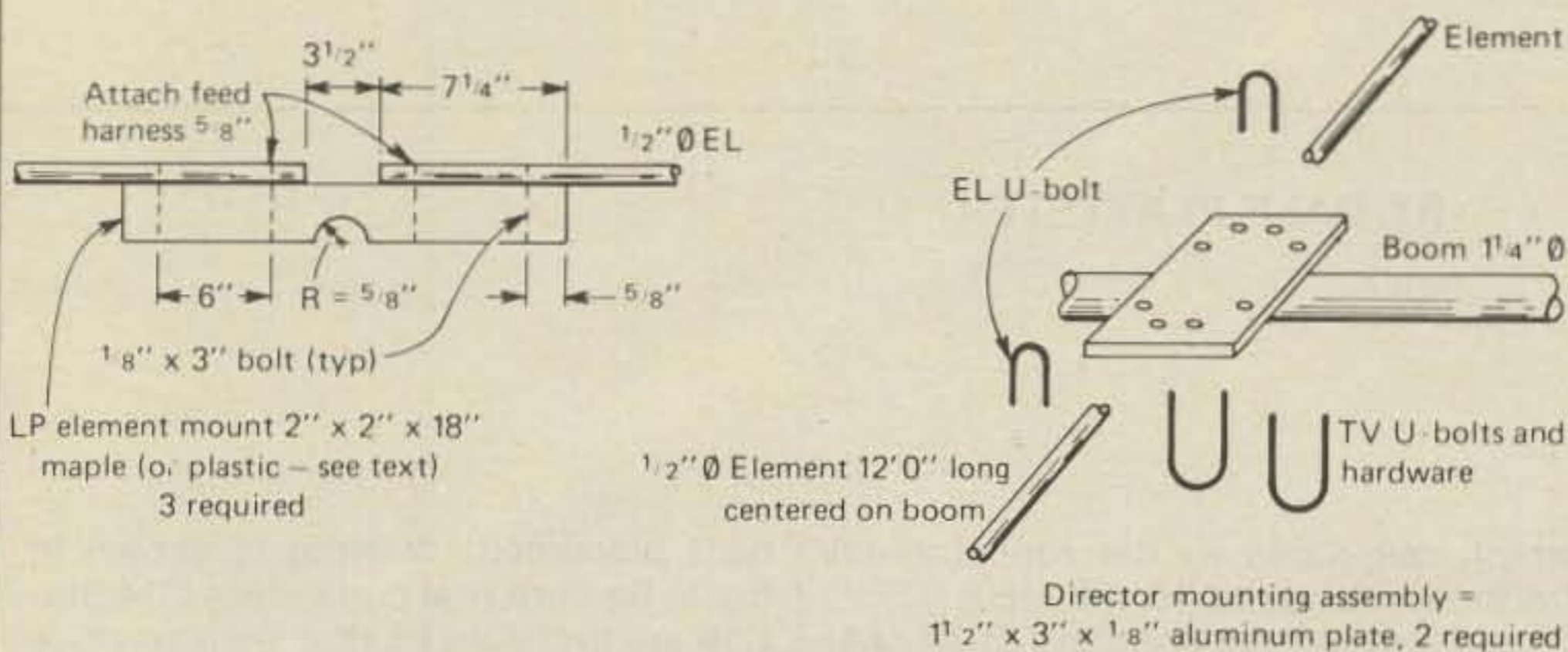


Fig. 3—Element mounting and boom assembly.

The beam consists of 3 sets of log periodic (LP) driven elements, and two directors. For those desiring it, inductively coupled 2 meter elements may be mounted below and close ahead of each LP pair, with a director string out in front. Realizable gain is 8 dB on CB and 10, and as much as 12 dB on 2, over a dipole, not isotropic. The antenna will radiate a useful signal across the entire CB/10 m spread, and all of 2 m, if desired.

Fig. 1 is the general arrangement drawing. Fig. 2 shows the bill of materials and cutting chart.

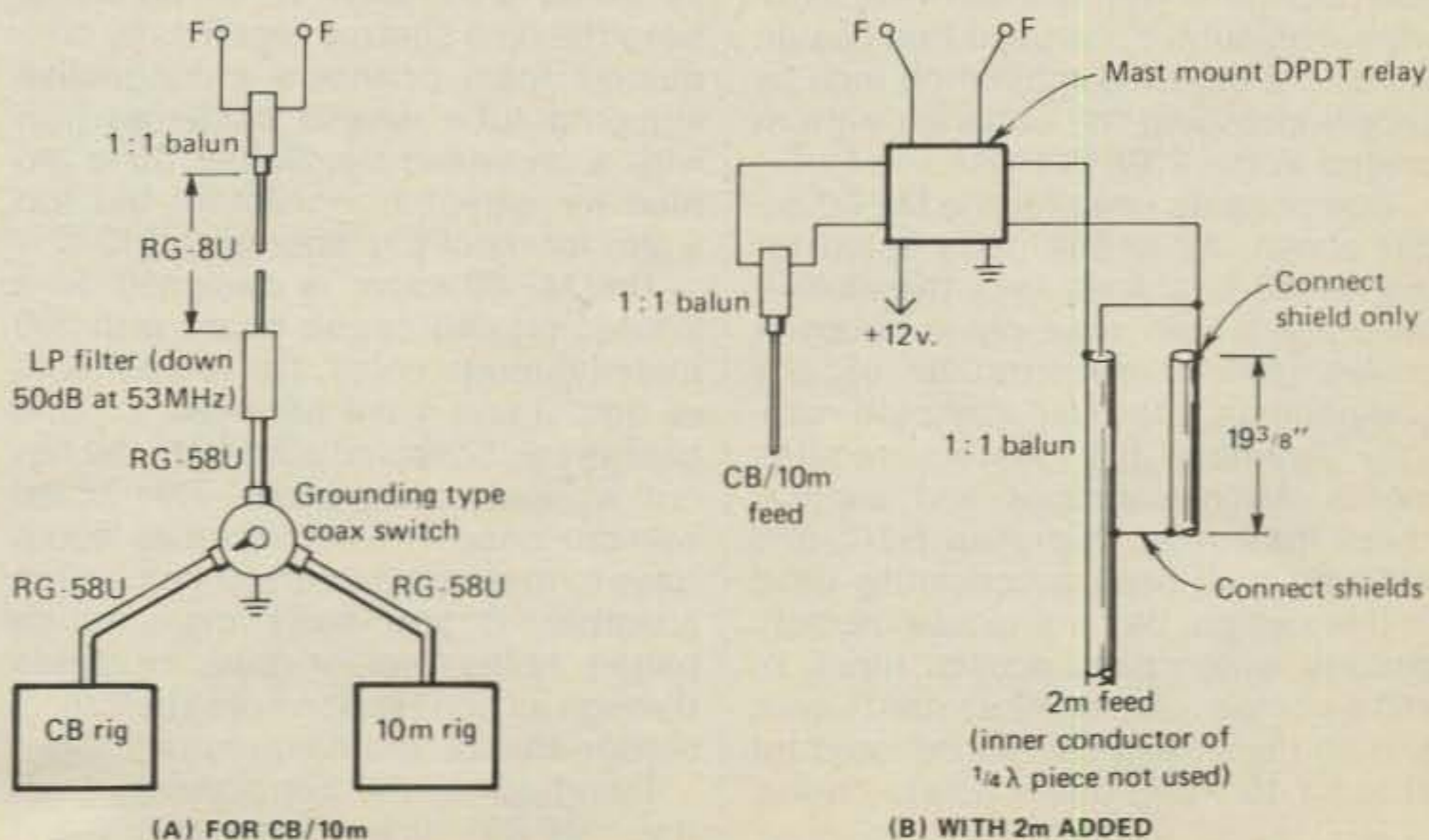
The LP elements are mounted on 2 x 2 x 18 maple blocks saddled to the boom. If you can get it, cyclac or lexan hi-impact plastic would be better,

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but the beam will work FB with hardwood. The directors are grounded to the boom with plates and U-bolts. Fig. 3 gives details. Two meter elements are mounted with small clips or pipe straps. The connecting harness is #8 aluminum wire, with insulating sleeves at crossing points. A 6 1/2" loop terminates the harness and provides good front/back ratio without the necessity of a reflector.

This antenna should not be mounted for vertical polarization unless the top ten feet of mast is nonmetallic, and the feed line brought to the rear of the boom before dropping down.

For optional 2 meter operation, a d.p.d.t. relay and balun may be added as in fig. 4b



(A) FOR CB/10m

(B) WITH 2m ADDED

Fig. 4—Feeding the antenna and two meter option details.