HPV Workshop

"A Mutant AM I"

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I bought a bicycle as a 50th birthday gift to myself, in an attempt to relive the nostalgia of a forgotten youth. After experiencing lower back pain, wrist pain, butt pain, and feeling ridiculous in that crazy clothing, I was thankful that the bike was stolen, hoping that the thief would suffer as I did. I subsequently flew to Seattle to buy a used Moulton AM7, believing that the front and rear suspension would solve my problems—alas—then I discovered recumbents and the idea of a Mutant Moulton evolved.

I wanted to retain the significant advantages of the Moulton—in particular the ability to pack it in a suitcase and submit it as an item of luggage. One constraint that I imposed was that the conversion must be reversible—what if it proved to be unsuccessful? Besides, it is simply "not British" to permanently maim a superb, hand built (expensive) bike, not to mention my fear of incurring the wrath of Sir Alex! In retrospect, I found that I never wanted to go back. Every time my spouse lets me ride her Moulton AM5, I realize that the recumbent is the only way to go—I enjoyed painless and pleasant daily commuting on the Mutant for four years, as well as some significant Ohio bike tours, including TOSRV and GOBA.

The Mutant was a wonderful first project, allowing me to get involved in the exclusive world of "Those Magnificent Men (Persons) with their Weird Machines". I had never touched a welding torch, and knew nothing about frame building jigs, but fortunately, I got help from members of Don Harse's "Peach Ridge Pedal Power". Brazing chro-moly steel tubing is an art which can be learned surprizingly fast—one only needs an expert to guide you through the process, and many pieces of practice offcuts. The conversion consists of three parts: the adjustable angle sling seat, the front boom and a headset extension (see sketch). None of the parts are critical, since they are all "add-ons". The materials used are thin walled chro-moly tubing (see resources below) and various steel scrap odds and ends. Rather than use a telescopic front end boom, I discovered that Burley makes a split bottom bracket assembly which is used for "kiddy" pedals on their tandems, allowing a simple adjustable chain length. The Moulton uses a 6mm hex bolt with an 8mm thread as a standard throughout, and I decided to adopt that standard. Thus the various front and rear rack mountings were conveniently used for mounting the conversion.

My approach to the conversion design was empirical and intuitive rather than theoretical and scientific. This in spite of the fact that I teach engineering subjects including Computer Methods and Engineering Design! Is it my way of rebelling against the technology that I teach? I did not use drawings, but only sketches, not more elaborate than the ones shown in this article. The only jig used was a 3/4" plywood board with various wooden pieces attached to make sure that the seat frame is brazed square. Brazing on a plywood jig? "Why not?" says Don Harse, "If it burns, make a new jig. I usually find that I can build three or four bikes before I need to replace the jig." The only power tools used were a drill press, a hand drill (for grinding) and a bench grinder. All parts were brazed using Welco 17 brazing rods and flux.

The result is shown in the photographs. After a few thousand miles it is still in perfect condition, and none of the pieces ever needed to be replaced. Over the years I have made many changes while experimenting with the various components. Most of the components were purchased from Cyclo-pedia—Gaylord Hill runs much more than a mail order house—every phone call provides a wealth of useful information and advice.

- The front lever is a Weinmann locking lever—prior to that I had

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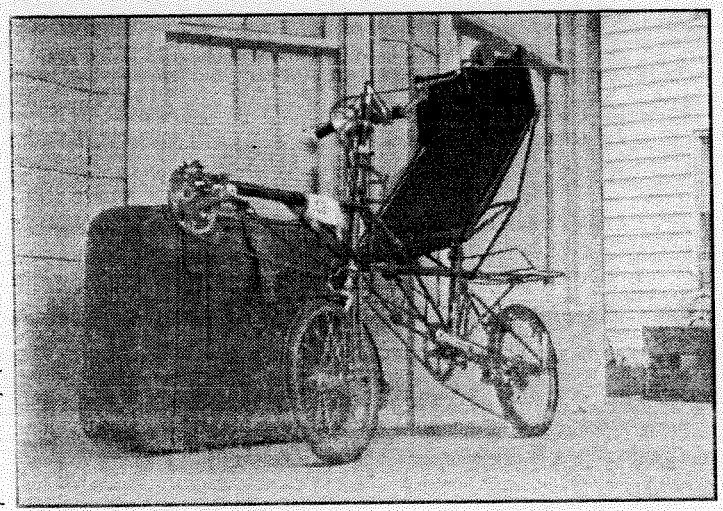


photo courtesy of Israel Urieli

WANTED—One comfortable bike, to fit in one large suitcase.

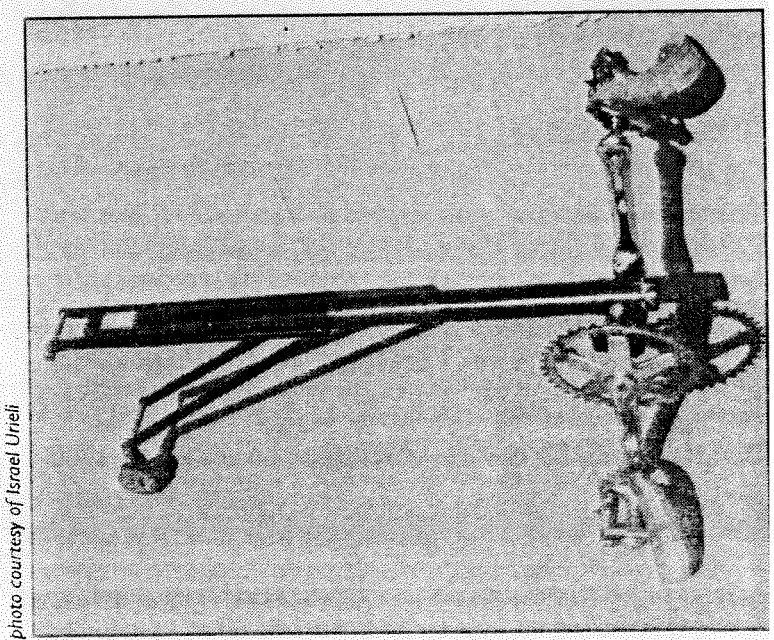
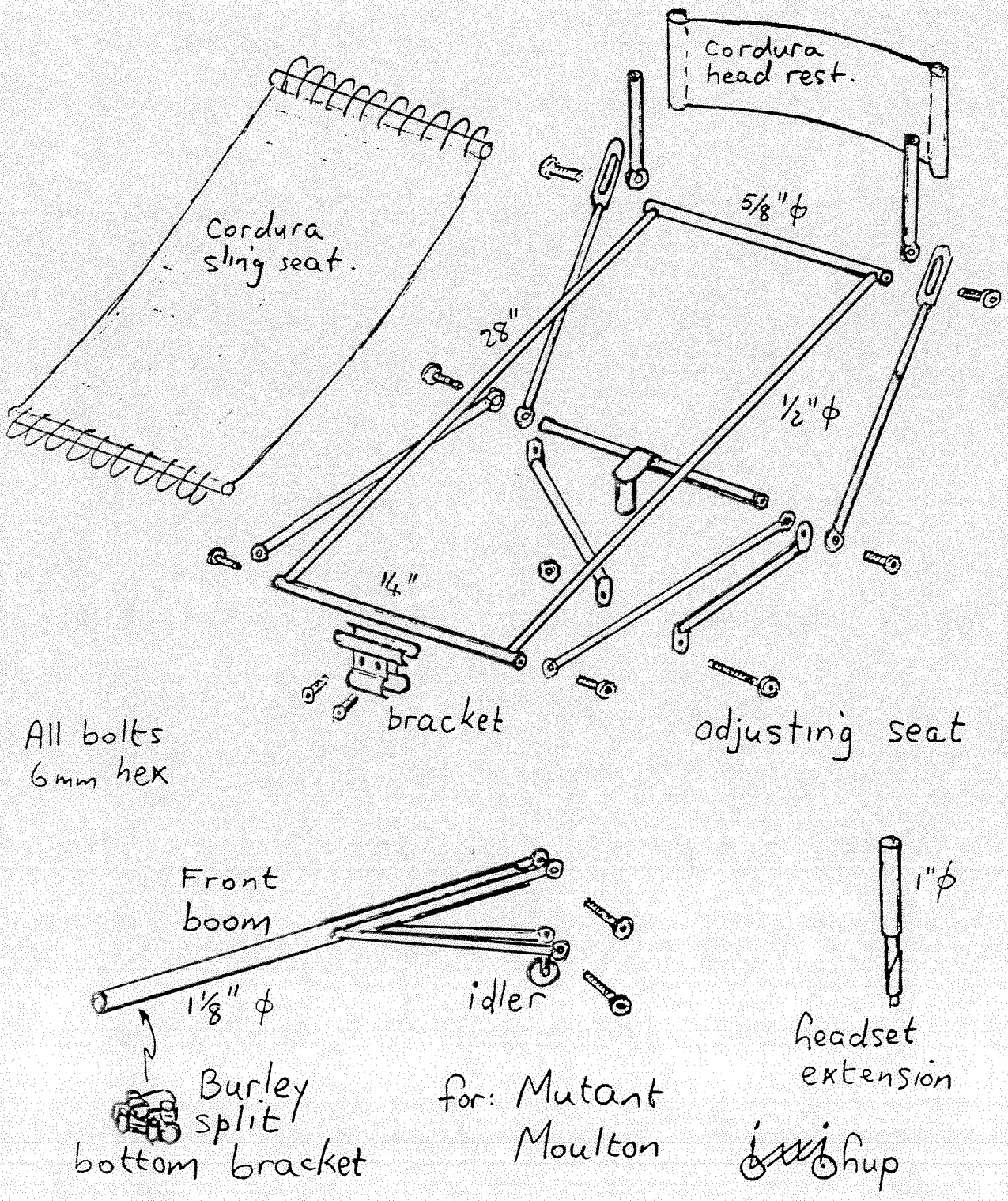


photo courtesy of Israel Urieli

Front boom and adjustable Burley bottom bracket.



An exploded view of the Mutant Moulton.

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lost count of the number of times that the bike rolled over and fell down.

- The Regina sprockets are sized 9-11-13-16-20-25-31 teeth. With a 42 tooth chainwheel the gear range becomes 80", 65", 55", 45", 36", 29", 23"—Athens, Ohio is VERY hilly! Notice that the original drive is retained, with the conversion using a second chainwheel.
- Pedals use Power Grip straps—this allows my standard biking shoes to be the shoes I happen to be wearing (usually Tretorn canvas shoes).
- Suntour a-3040 accushift derailer—it is extremely difficult to ride a recumbent without handlebar indexed shifting.
- Phil Wood hubs on both wheels—why not have a superb hand made hub to match a superb hand made bike?

It is not all perfect. The disadvantages of the conversion are as follows:

- It takes a significant strip-down to pack it in an oversize suitcase. I find myself spending upward of two hours stripping and packing the bike for airline travel.
- It is heavy—about 40 pounds without extra gear (but including a U-lock conveniently velcroed in the space frame).
- The seat post remains—and is somewhat restricting in that I cannot sink into the hammock seat as much as I would like. I tend to find myself periodically adjusting my seating position by pushing against the pedals. Over a long tour (TOSRV) this can be tiring.
- The weight distribution has been pushed further forward. Thus the front shock spring sometimes bottoms out (with a rather loud "clunk"). This could be solved with a stiffer spring, however I never got around to replacing it.

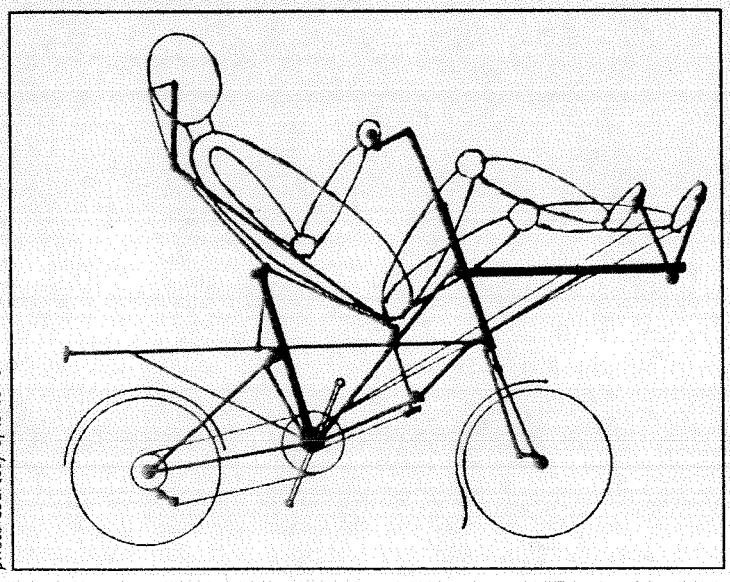

photo courtesy of Israel Ureli

Izzy had contemplated a reciprocal drive system for the Moulton.

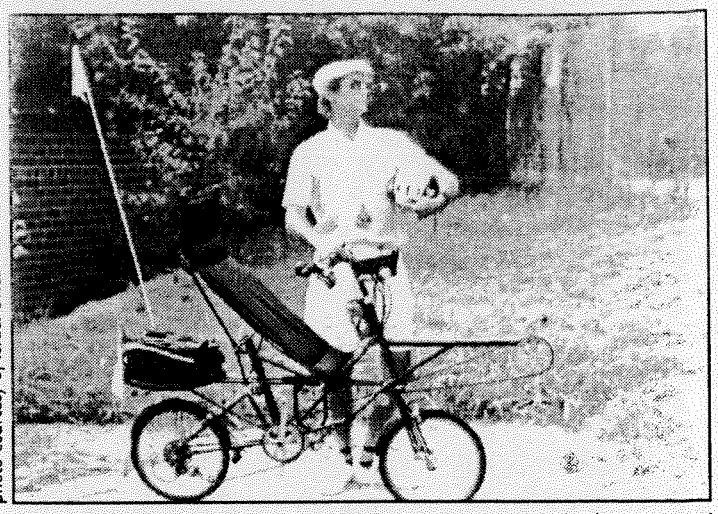

photo courtesy of Israel Ureli

Izzy Ureili stands ready to boldly challenge the highways and byways on his Mutant Moulton AM7.

Conclusion: No more pain! I still commute daily (however now on the Grasshopper)—It has been an enriching, rewarding experience, and got me hooked to a wonderful hobby—I highly recommend it!

Izzi Urieli, hup (excuse me!)

Resources:

Chro-moly tubing: The Dillsburg Aeroplane Works. Charles Vogelsong, 114 Sawmill Road, Dillsburg, PA 17019. Tel. (717)-432-4589.

HPV Parts, Components (and expert advice): Cyclo-pedia Inc., Gaylord Hill, P.O. Box 884, Adrian, MI 49221-0884. Tel. (517)-263-5803.

Other Moulton recumbent conversions: Hugh Roberts, "The Moultoneer", Nov/Dec 1990, Jan/Feb 1992, Mar/April 1992, Sep/Oct 1992. Since I am probably the only person in the US who has a full set of these Moulton Bicycle Club publications, copies can be requested from the Author.

Classifieds

Wheel Covers for Alex Moulton 17-Inch Wheels
Vacuum formed recycled plastic, different types for front and rear wheels. $US 28.00/wheel (two disks). Also, AM & APB bikes and parts. SASE (or 2 int'l reply coupons) to: Doug Milliken, 245 Brompton Rd., Buffalo, NY 14221 USA.

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