

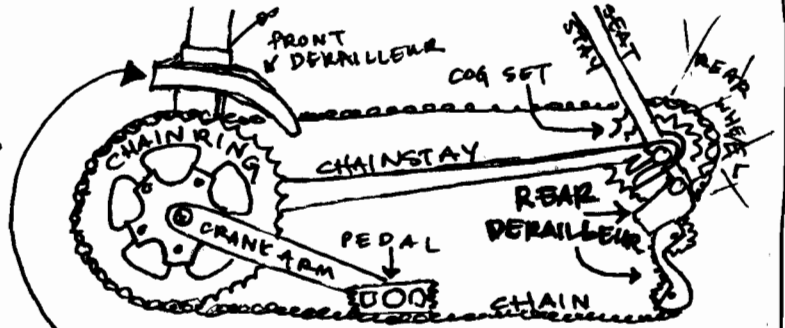
WTF Workshop 4

HOLY SHIFT, BATMAN!

derailleurs, chains & shifters

get on the

DRIVE TRAIN:



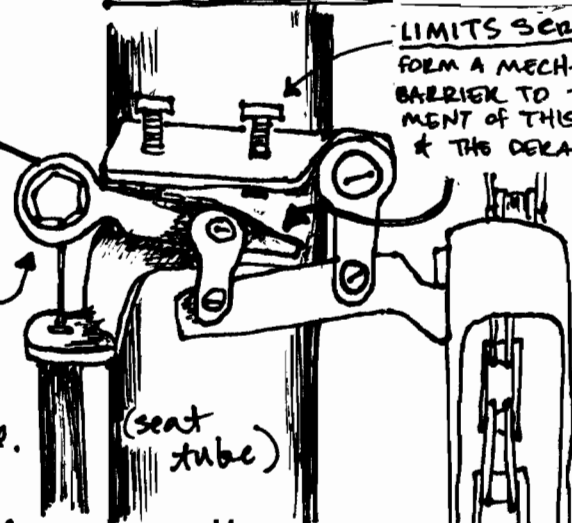
*** A NOTE ABOUT CABLE ***
 SHIFTER CABLE IS SKINNER THAN BRAKE CABLE & HAS A CYLINDRICAL HEAD.
 SHIFTER HOUSING HAS WIRE REINFORCEMENT RUNNING LENGTHWISE, LIKE SO:

the FRONT DERAILLEUR*

LIMITS SCREWS FORM A MECHANICAL BARRIER TO THE MOVEMENT OF THIS LEVER & THE DERAILLEUR.

The up/down motion of this lever translates to the sideways movement of the derailleur & chain. a spring pulls the derailleur naturally toward the frame.

tightening the cable moves this lever



front derailleur...
 REAR VIEW

* it's french. pronounce it "day-rye-ye" if you want to sound pretentious, or "dee-RAIL-ev" if you want to be understood.

CALIBRATION

1. set limits (see next page)
2. put barrel adjust in middle position (if applicable)
3. hold derailleur in outermost position, set shifter to 3rd gear (a little short in friction shifters) & get a friend to pull cable taut & clamp it down tight.
4. fine-tune with barrel-adjust to get shifting smooth.

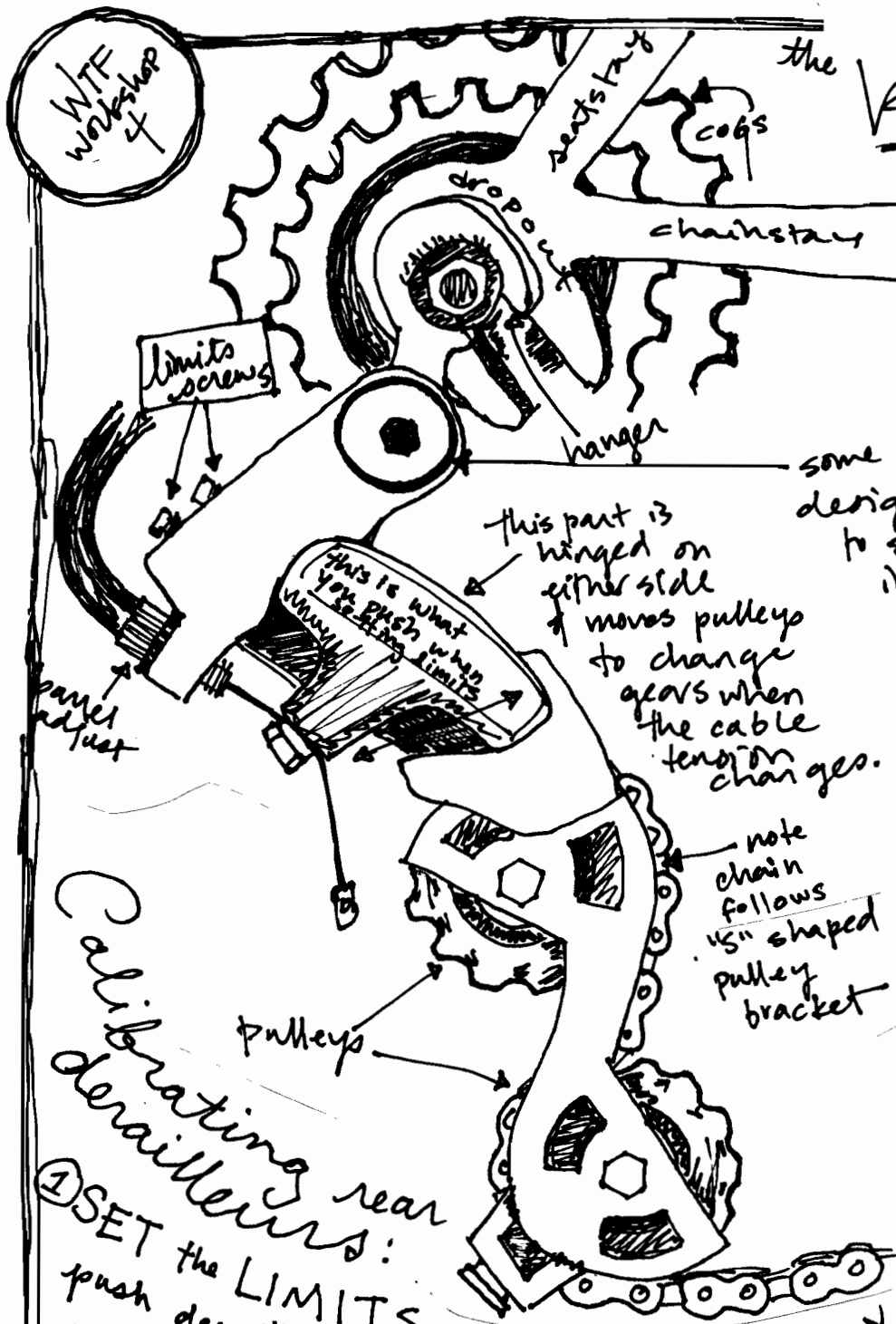
WTF Workshop 4

the REAR

DERAILLEUR

FRENCH for "gear switching thingy".

some dropouts are designed for this to screw directly in: they'll have a special threaded hole below where the wheel axle goes in.



CABLE
 STRETCH
 if you install new cables they'll slacken over time. keep messing with the barrel-adjust.

Derailleur rear
 Derailleurs:

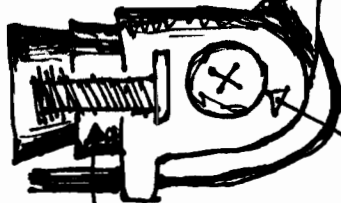
① SET the LIMITS:
 push derailleur all the way in & all the way out while turning the cranks. Does it go to all gears? Does it go too far & push the chain off the cog? Use the limits screws to resolve this issue: one limits the high gear, the other the low gear. Make it perfect.

FIGURE out TENSION:
 ② CABLE TENSION:
 - A B L E
 - to maintain
 - position
 - set
 - hole
 - of
 - shift
 - for
 - open
 - up
 - as
 - much
 - as
 - possible
 - to
 - check
 - the
 - cable
 - is
 - tight
 - enough
 - to
 - shift
 - smoothly
 - to
 - all
 - gears
 - if
 - it
 - doesn't
 - shift
 - smoothly
 - adjust
 - the
 - barrel
 - adjuster
 - you
 - want
 - to
 - see
 - if
 - the
 - barrel
 - adjuster
 - is
 - working
 - properly
 - if
 - it
 - is
 - not
 - working
 - properly
 - it
 - is
 - a
 - sign
 - of
 - a
 - problem
 - with
 - the
 - cable
 - or
 - the
 - barrel
 - adjuster

try to
 have
 a
 bit
 of
 empty
 space
 in
 the
 cable
 housing
 to
 allow
 for
 expansion
 and
 contraction
 of
 the
 cable
 over
 time

SHIFTERS...

FRICITION SHIFTERS



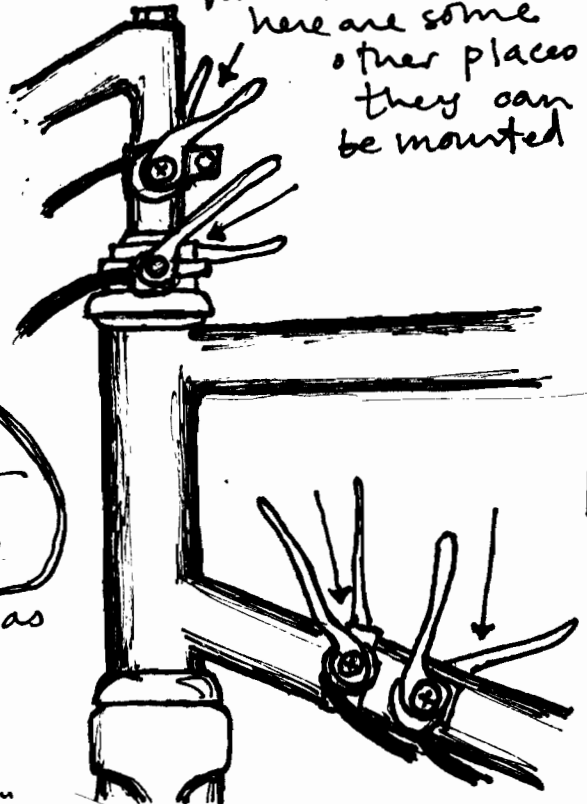
Bolt tightens to expand the "stem" of the shifter—held on by friction

BAR-END SHIFTERS

tighten to keep lever stuck in 1 gear (but don't over-tighten—you won't be able to switch...)

these are more common on older bikes. the idea is that the resistance of the levers to rotate (due to friction from the pivot point) exceeds the tensile force of the cable. These require less precise adjustment than index but you'll fidget with 'em more while riding.

← this is only one kind of friction shifter. here are some other places they can be mounted



click into place for each gear, with a ratcheting mechanism. You need to be quite precise when you set them up, but they are much simpler to use as you ride.

INDEX SHIFTERS



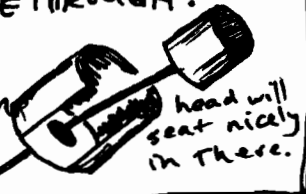
grip shift: cable coils up in it: sometimes you can access the cable head slot easily—sometimes you have to open it up with the tiny hex-head bolt on the front or side.

I call this a "pod" shifter: cable held by shift lever (see diagram—cable head shown poking out.)

ON SETTING UP SHIFTERS:

THE KEY IS TO LOOK FOR THE CYLINDRICAL SLOT WHERE THE CABLE-HEAD GOES. IT WILL BE CLEAR WHICH DIRECTION TO THREAD THE CABLE THROUGH:

WHEN ROUTING CABLE, REFER TO RULES OUTLINED IN THE BRAKE WORKSHOP: FOLLOW CABLE-GUIDES, GIVE 'EM SEXY-MUMMU CURVES, USE FERRULES WHEN NECESSARY... ETC.

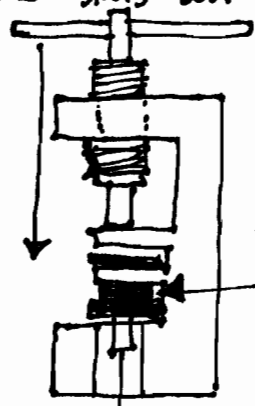


WTF
Workshop
4

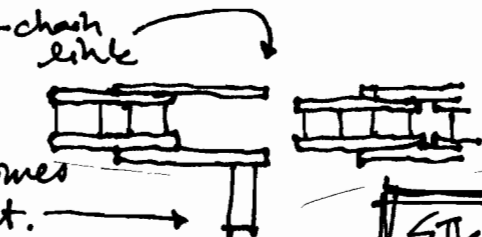
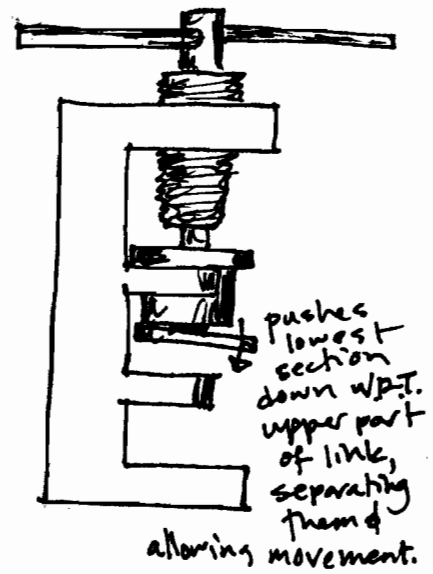
finally... CHAIN of fools...

BREAKING the CHAIN

screw this in



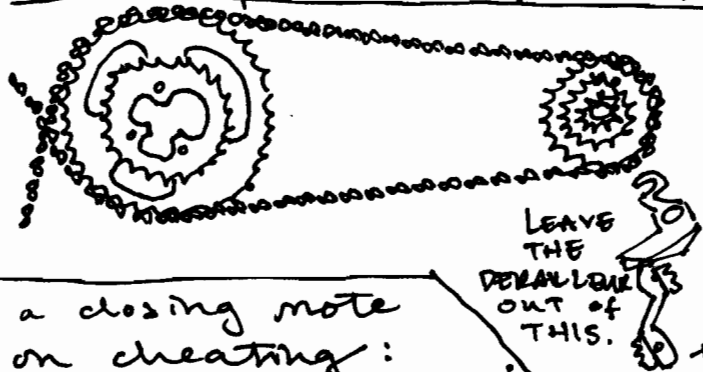
THE CHAIN TOOL
WORKS ON PRESSURE,
JUST LIKE THE CRANK
PULLER. IT FORCES
OUT THE PIN THAT
HOLDS LINKS TOGETHER.



FYI: WHEN BREAKING YOUR CHAIN, PUT CHAIN ON LOWEST RUNG OF TOOL OR YOU CAN BREAK THE TOOL. ALSO, WATCH NOT TO PUSH PIN ALL THE WAY OUT - LEAVE IT STUCK IN LAST PIECE OF LINK.

STICKY LINKS: if you put your chain back together & the links stick, put the chain on the higher rung & apply a little pressure with the tool - you'll space it out & destick it.

HOW LONG SHOULD YOU MAKE YOUR CHAIN?



stretch chain as tight as you can across your biggest chain ring & biggest cog. where the last inside link meets the last outside link, add one more inside & one outside link (all hold: the tight length plus ~1 inch).

a closing note on cheating: CHEATING IS OKAY!
when you're fixing bikes. LOOK AT OTHER BIKES when you're not totally sure what to do. Believe me, these aren't written purely from memory... life is an open-note exam.

→ SISTER CAT 19 May 09

* not applicable to questions of romance or academia.