

BICYCLE COMPONENTS

□ Bicycle Technology 11

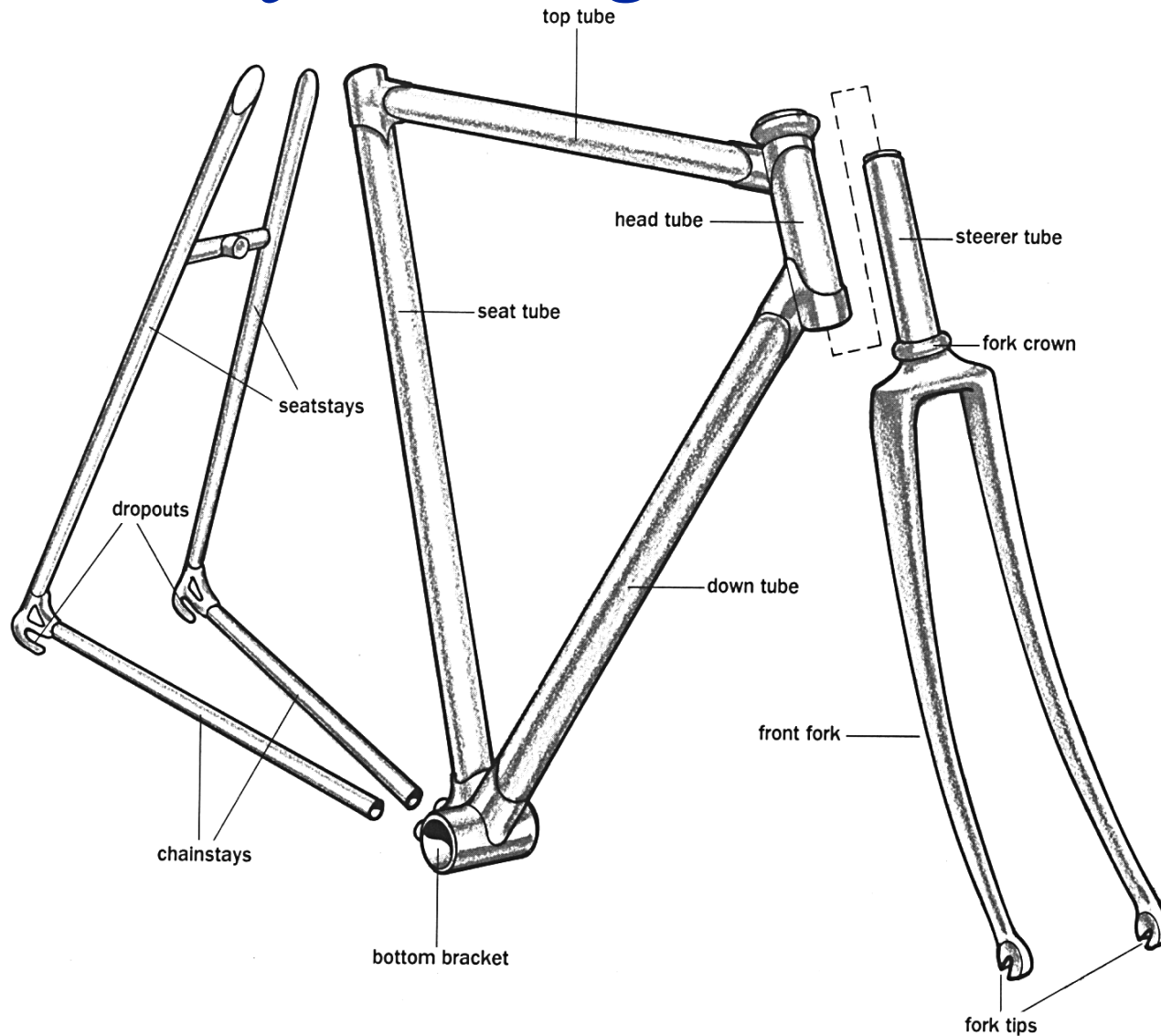








Bicycle Design and Construction



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Joining Processes for Frame Tubing



TIG-WELDED ALUMINUM: Plain, completely visible TIG-weld feathering harmonizes well with a bare metal, functional frame, that does not damage easily and hence requires minimal maintenance.



CARBON-FIBER: The tubes are glued with epoxy resins into aluminium lugs. The tube ends have fiber-glass sleeves to help prevent any galvanic corrosion.



LUGLESS FILLET BRAZING: The braze is built up quite heavily and is often required when frame tubes are joined at odd angles (as on a custom machine) when lugs can't be used.



TIG-WELDED STEEL: Techniques for TIG-welding are now very precise, and can be safely used on lightweight, heat-treated, butted chrome molybdenum steels.

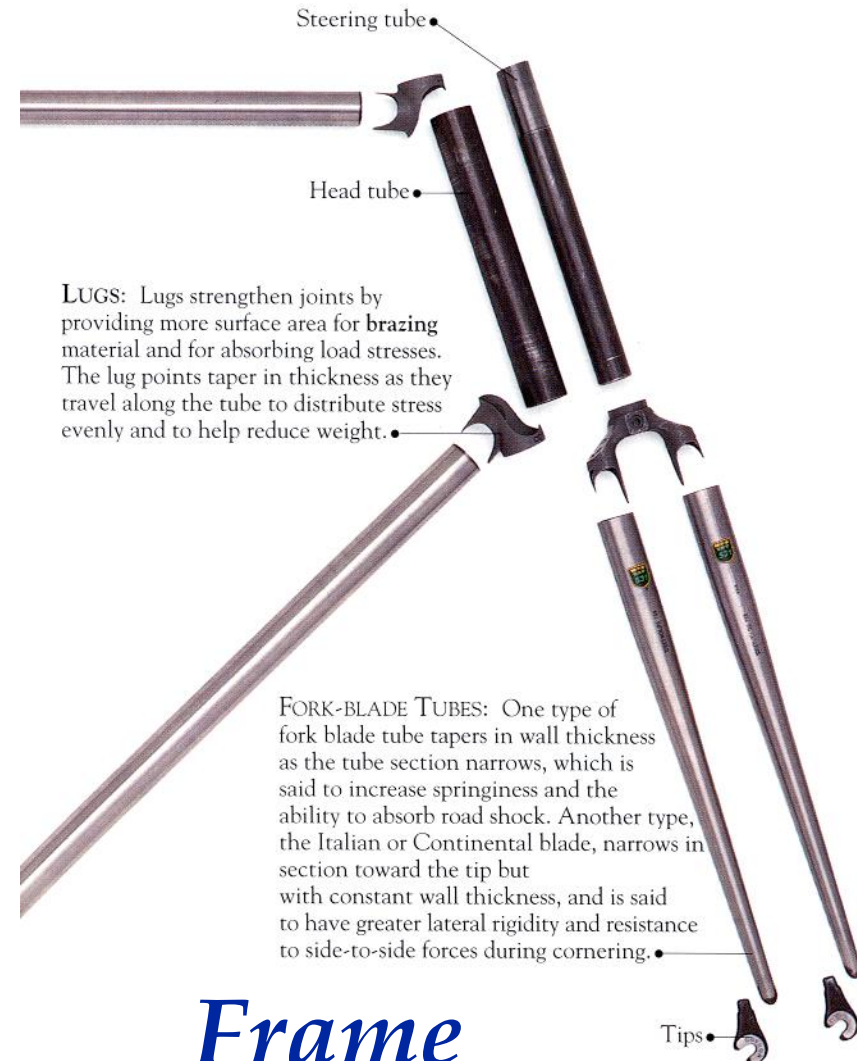
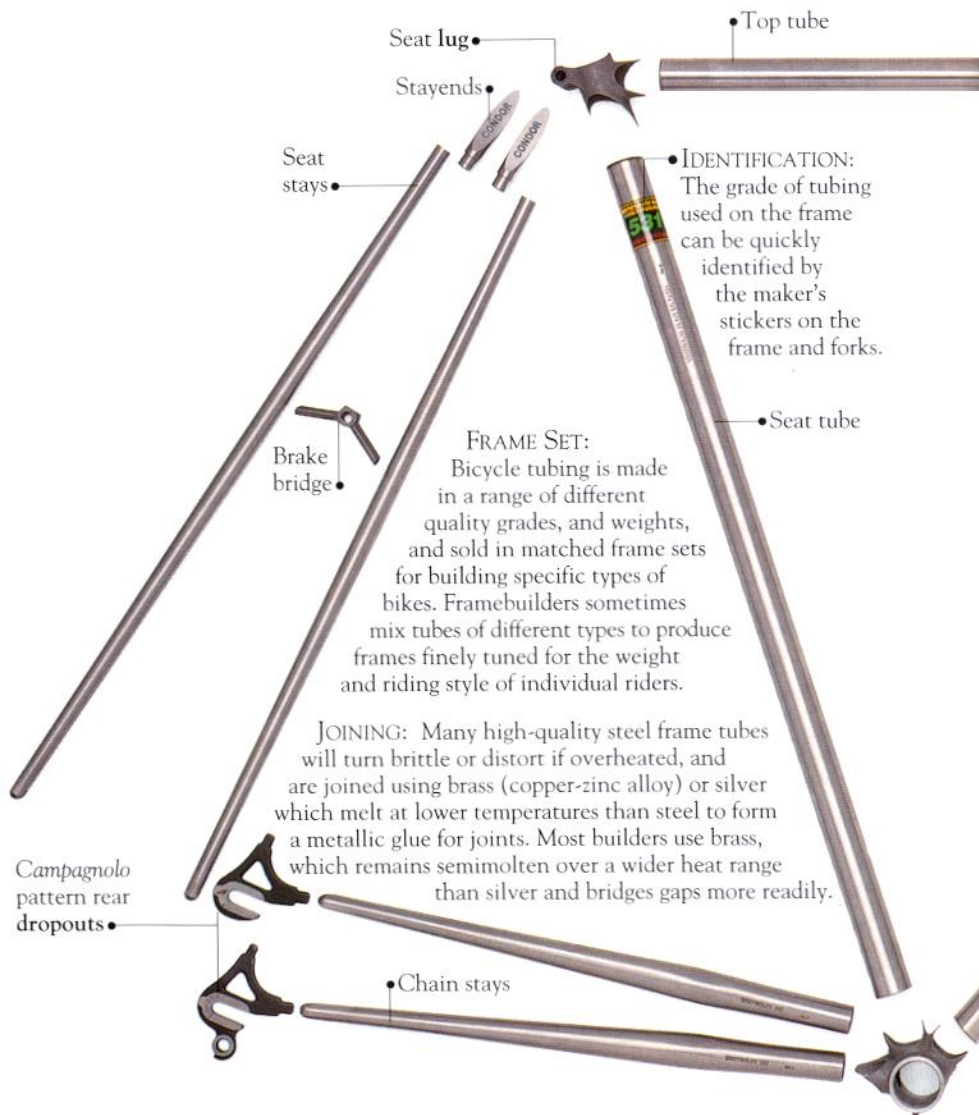


BONDED ALUMINUM: Gluing frame joints eliminates the problem of heat damage, and the glues are usually stronger than the materials being joined.



SMOOTH TIG-WELDED ALUMINIUM: On lugless frames, the tubes can be cut perfectly to the precise lengths and angles required, so that each frame size is proportionally correct. Deep penetration marks (above) indicate how far the metal has been fused. After being ground smooth with abrasives, the curved welds help to distribute stress away from the joint, somewhat in the same manner as traditional lugs.





Frame Components



Different Frame Construction Philosophies

Bicycle companies tend to have different design philosophies, to give them a unique market “niche”:

- Cannondale - welded aluminum frames, hand crafted
- Specialized - welded steel or chrome-moly (a steel alloy)
- Trek - glued aluminum frames, or welded steel



