

Critical appliance - Extending product lifespan through critical design

YOUNG, Gordon

Available from Sheffield Hallam University Research Archive (SHURA) at:

<https://shura.shu.ac.uk/18866/>

This document is the Presentation

Citation:

YOUNG, Gordon (2018). Critical appliance - Extending product lifespan through critical design. In: Design Principles and Practices Conference, Elisava School of Design and Engineering, Barcelona, Spain, 5th March - 7th March 2018. (Unpublished) [Conference or Workshop Item]

Copyright and re-use policy

See <http://shura.shu.ac.uk/information.html>

Gordon Young

g.j.young@shu.ac.uk

Critical Appliance :

extending product lifespan through critical design

Gordon Young
g.j.young@shu.ac.uk



Gordon Young

g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design

**Sheffield
Hallam
University** | Art and Design
Research
Centre



**There are professions more harmful than
industrial design, but only a few of them.'**

(Papaneck, 1971)



Gordon Young
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design



1.4 million tonnes = 160 million tonnes CO² (wrap 2014)



Gordon Young
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design

OUTLINE OF A CIRCULAR ECONOMY

PRINCIPLE

1

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows
ReSOLVE levers: regenerate, virtualise, exchange



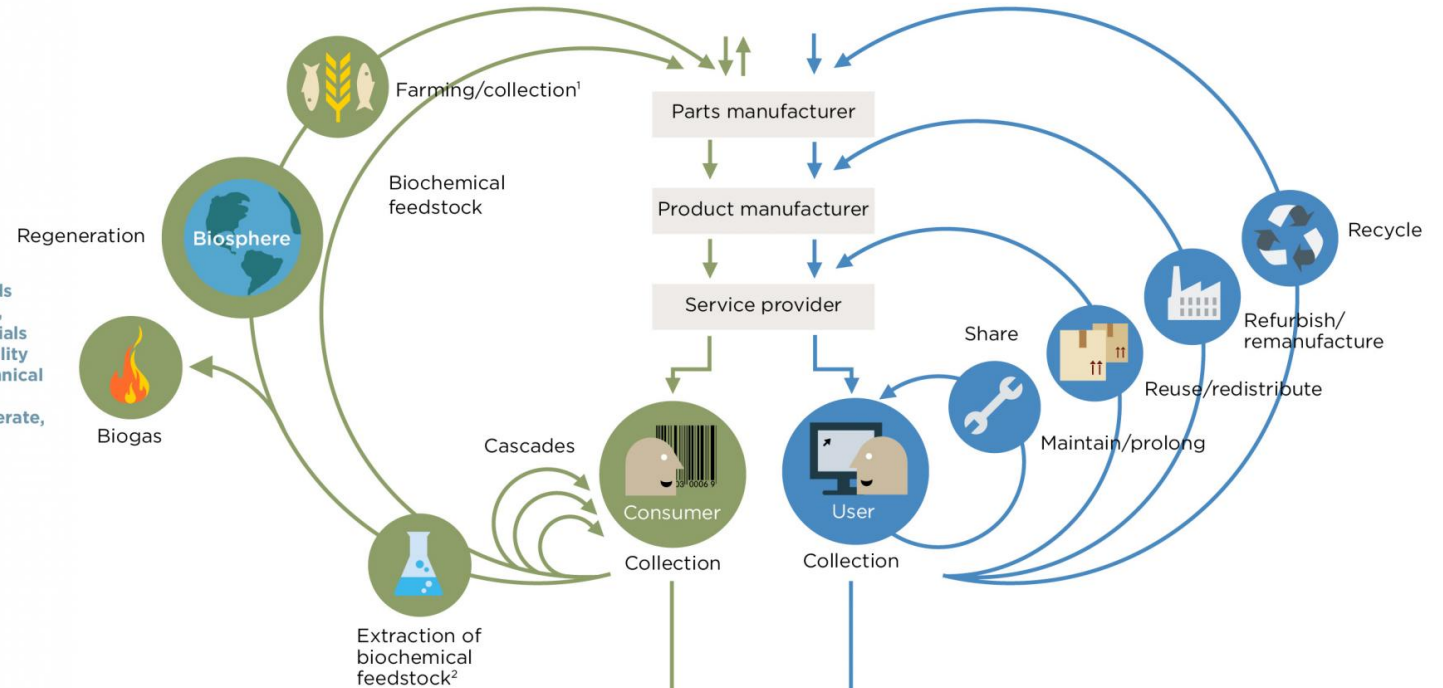
Renewables flow management

Stock management

PRINCIPLE

2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles
ReSOLVE levers: regenerate, share, optimise, loop



PRINCIPLE

3

Foster system effectiveness by revealing and designing out negative externalities
All ReSOLVE levers

Minimise systematic leakage and negative externalities

1. Hunting and fishing
2. Can take both post-harvest and post-consumer waste as an input
Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

Gordon Young
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design

OUTLINE OF A CIRCULAR ECONOMY

PRINCIPLE

1

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows
ReSOLVE levers: regenerate, virtualise, exchange



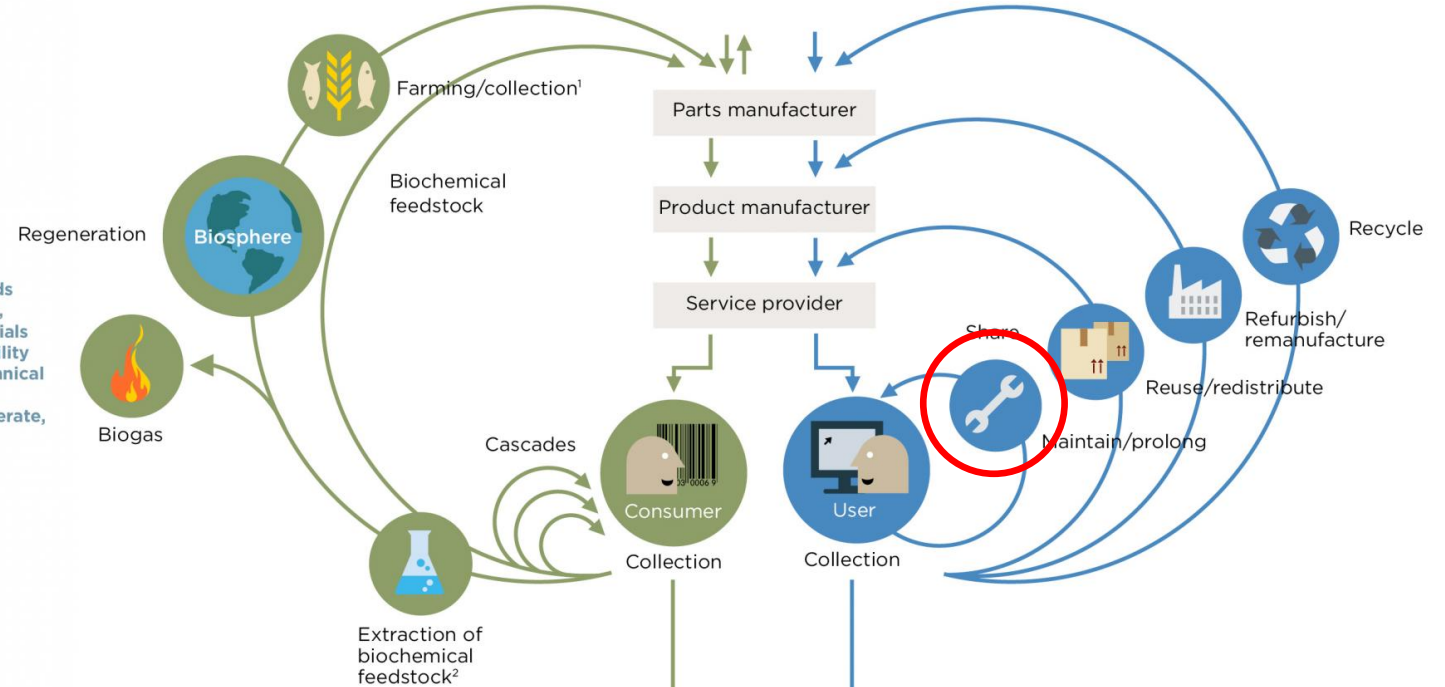
Renewables flow management

Stock management

PRINCIPLE

2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles
ReSOLVE levers: regenerate, share, optimise, loop



PRINCIPLE

3

Foster system effectiveness by revealing and designing out negative externalities
All ReSOLVE levers

Minimise systematic leakage and negative externalities

1. Hunting and fishing
2. Can take both post-harvest and post-consumer waste as an input

Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

Gordon Young
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design

‘Increasing the lifetime of lower-end products to match the current market average would save 150,000 tonnes of resources and almost 750,000 tonnes of CO2 per year.’ (WRAP, 2012)

Gordon Young

g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design

Design for Product Attachment and Trust

Creating products that will be loved, liked or trusted longer

Design for Product Durability

Developing products that can take wear and tear without breaking down

Design for Standardization & Compatibility

Creating products with parts or interfaces that fit other products as well

Design for Ease of Maintenance and Repair

Enabling products to be maintained in tip-top condition

Design for Upgradability & Adaptability

Allowing for future expansion and modification

Design for Dis- and Re-assembly

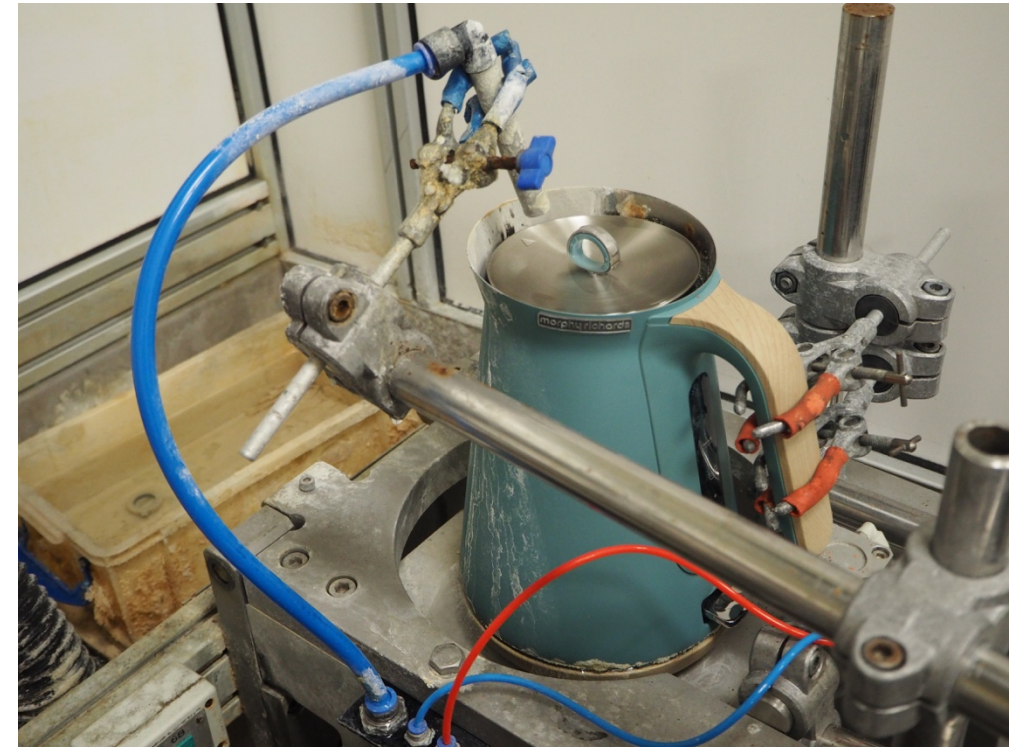
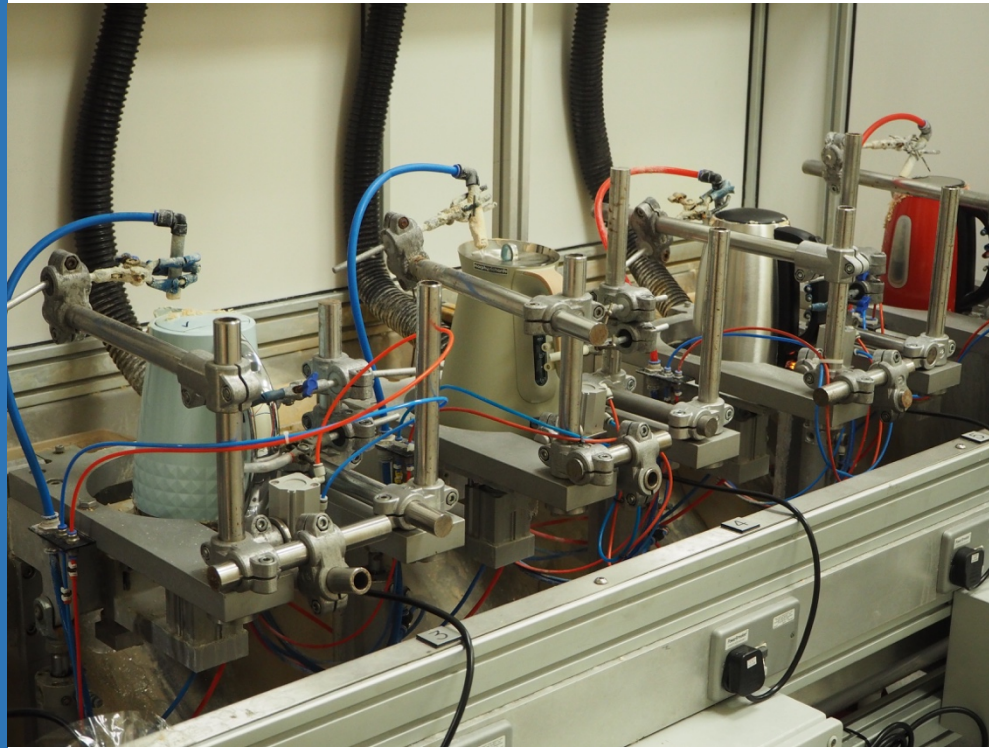
Ensuring products and parts can be separated and reassembled easily

(Bakker, C. de Hollander, M. Hinte, Ed van, Zijlstra, Y. 2014)

Gordon Young

g.j.young@shu.ac.uk

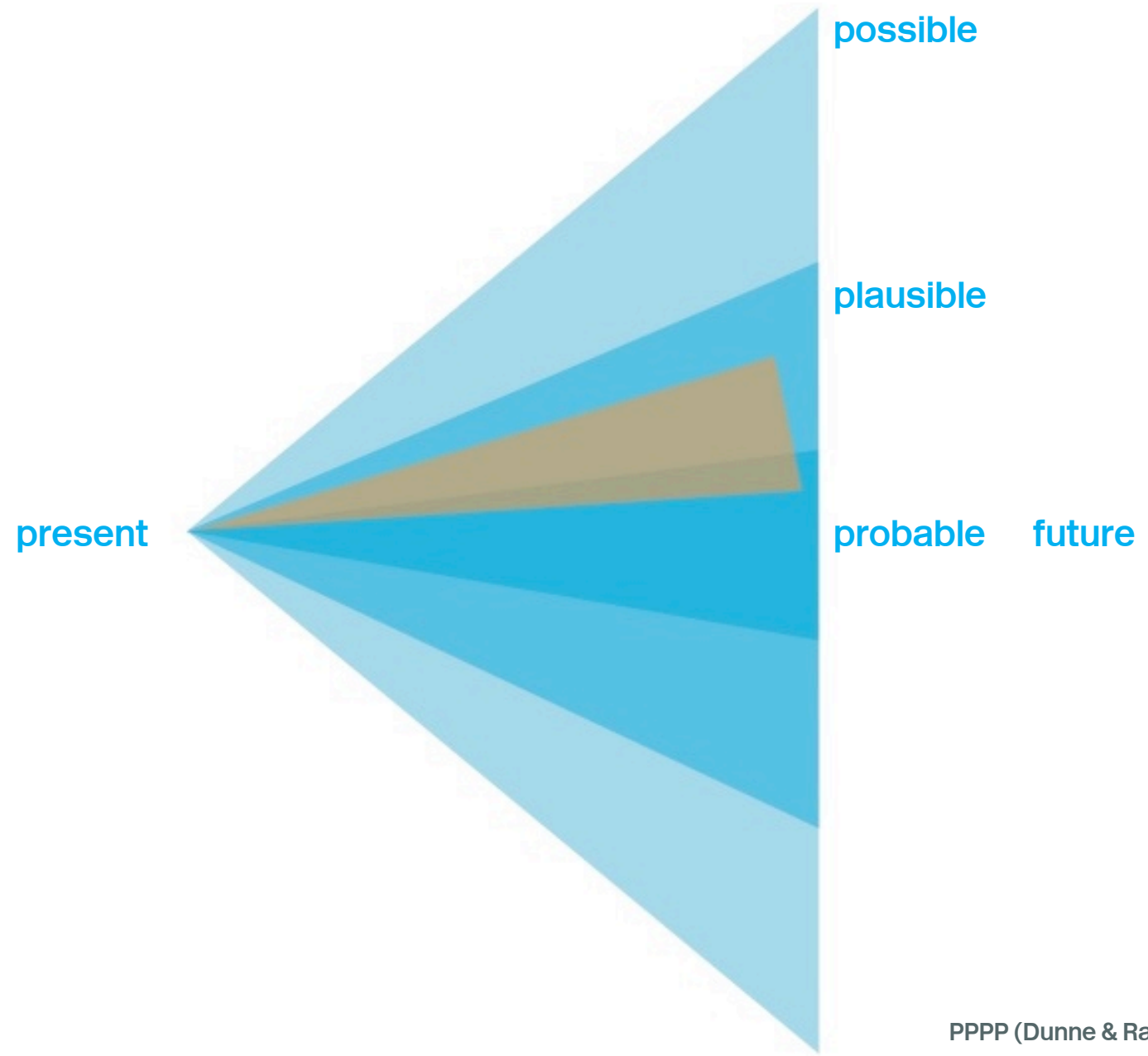
Critical Appliance :
extending product
lifespan through
critical design



Gordon Young

g.j.young@shu.ac.uk

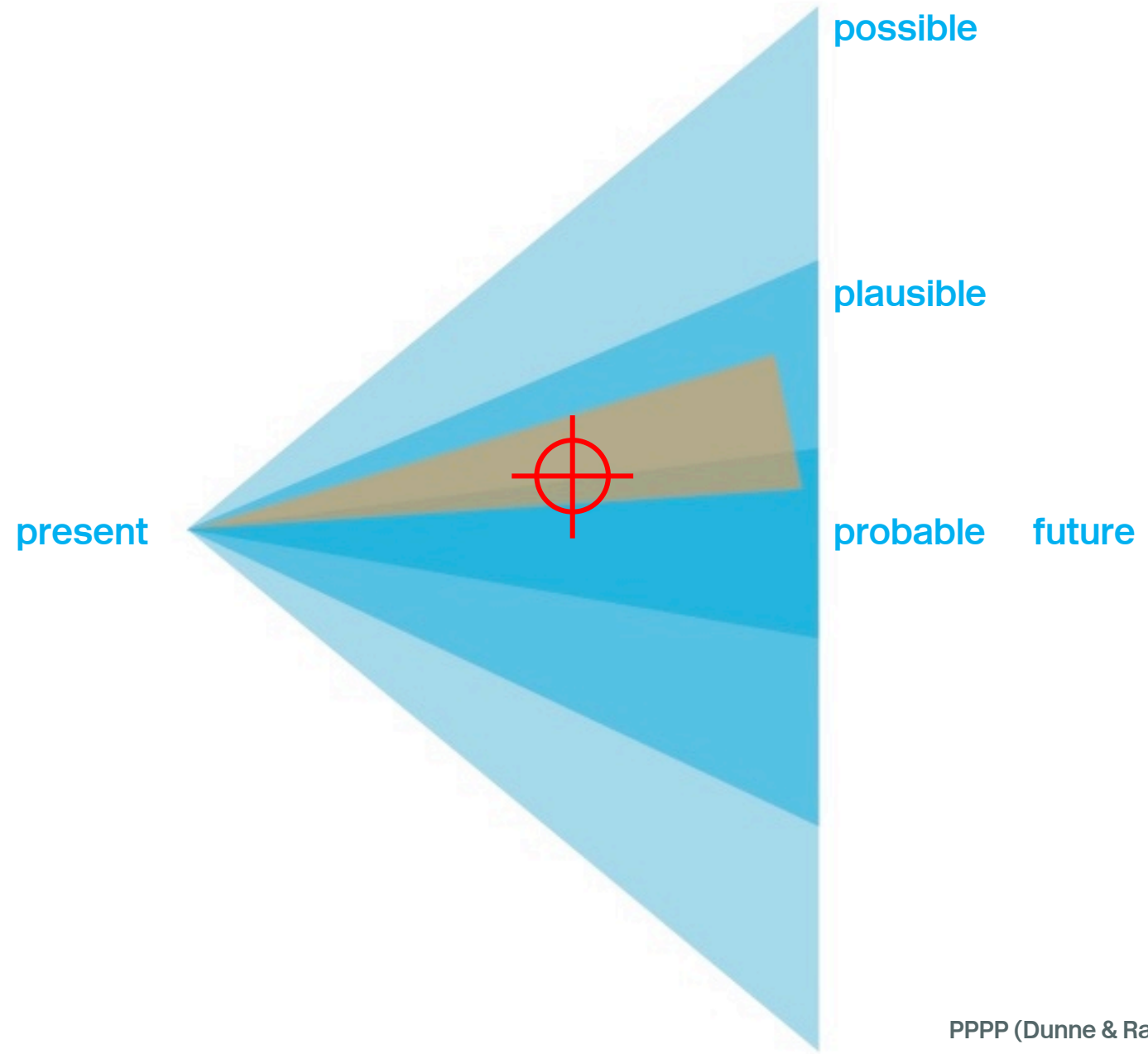
Critical Appliance :
extending product
lifespan through
critical design



Gordon Young

g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design



Gordon Young
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design

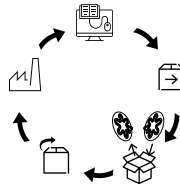
Sheffield
Hallam
University | Art and Design
Research
Centre



Gordon Young
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design

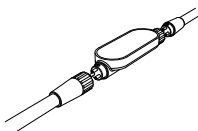
KETTLE supporting a circular economy




Replacement parts can be ordered online and will be delivered with return packaging to allow faulty parts to be refurbished and reused, or processed and the materials/components reclaimed.

This product and service model represents a shift in the relationship between the consumer and manufacturer.

CON001 safe to access




Cable connectors are waterproof power couplings allowing safe, simple and fast disconnection of key components for maintenance, repair or upgrade.



Designed to never allow contact with live power cables, the 'live' end always terminates in a female connector ensuring user safety when disconnecting components.

SEN004
ELE003 maintenance encouraged

SEN004 - thermistor represents a significant upgrade on steam sensors facilitating variable temperature heating and rapid switch-off helps save energy.



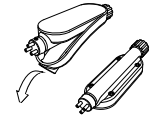
ELE003 - flat plate element featuring a large surface area for rapid and efficient transfer of heat, easily removed for de-scaling solution when prompted by the service indicator.

**USER SERVICEABLE
PARTS INSIDE**

safe to open, no risk of shock




SERV002 easy access repairable parts




Access to the internal components for the purposes of repair and upgrade quick and easy

Outer casings peel away to give access to the electronic components.

Screen, switch and circuit components can be replaced or upgraded.




SERV002 Maintenance prompts



Icons are displayed to prompt maintenance or repair when necessary triggered by sensors or the use counter at set service intervals.




- thermistor
- element
- control
- power supply

SW003 energy saving upgrades



The part number, SW003, signifies that this is the third generation switch incorporating new features and technology to enhance the durability and efficiency of the component.

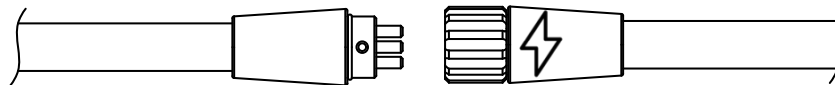
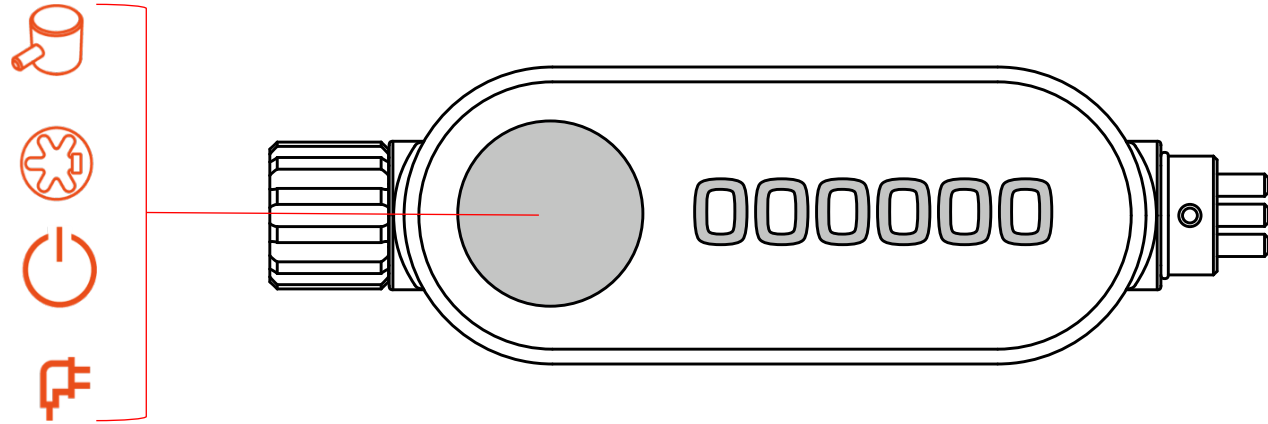
Variable temperature setting, allows desired water temperature selection, saving energy during use and extending the life span of the element.



The display remains illuminated to indicate water temperature as it cools, this may prevent unnecessary re-heating

Gordon Young
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design



**USER SERVICEABLE
PARTS INSIDE**

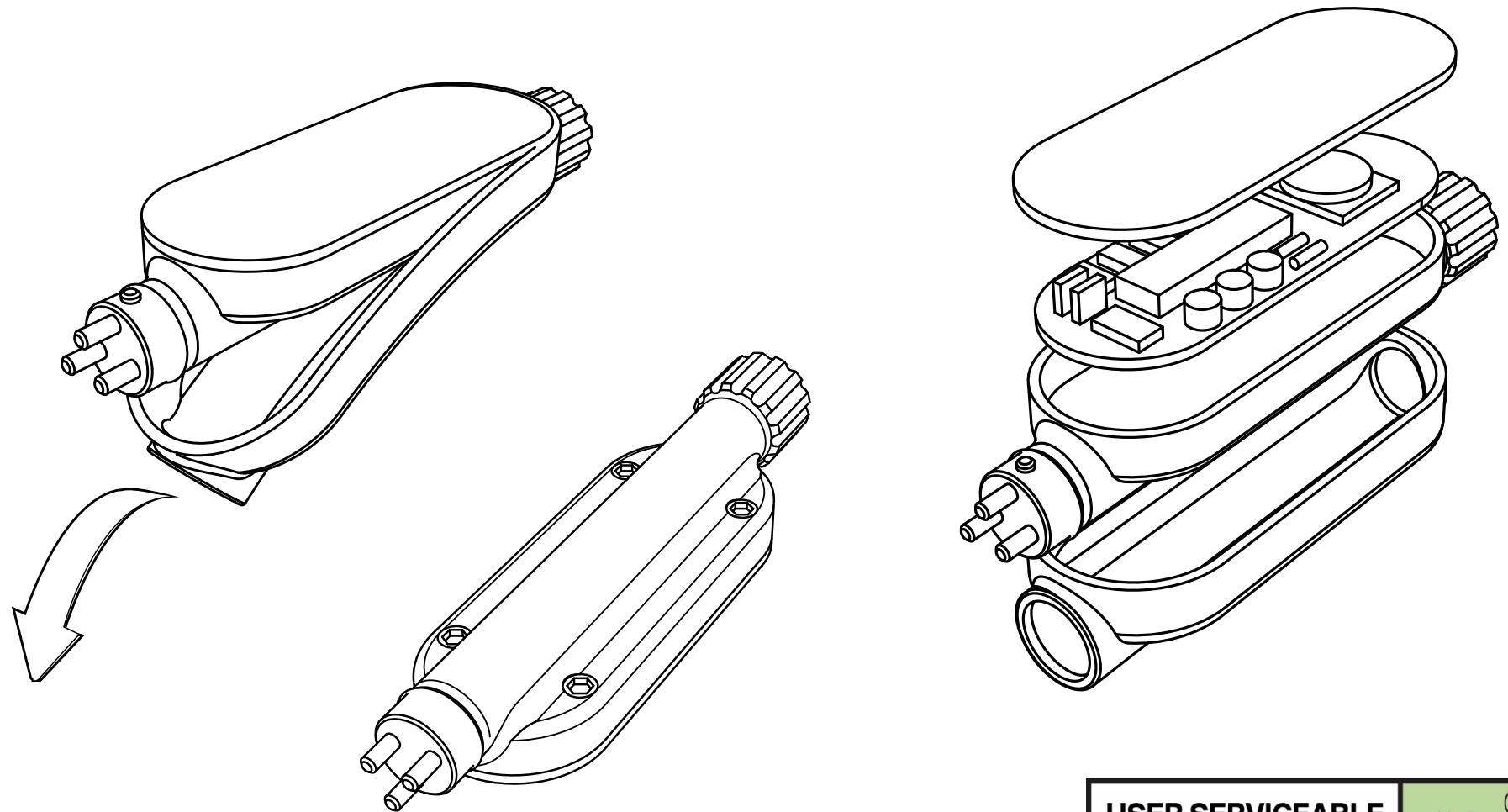
safe to open, no risk of shock



Gordon Young

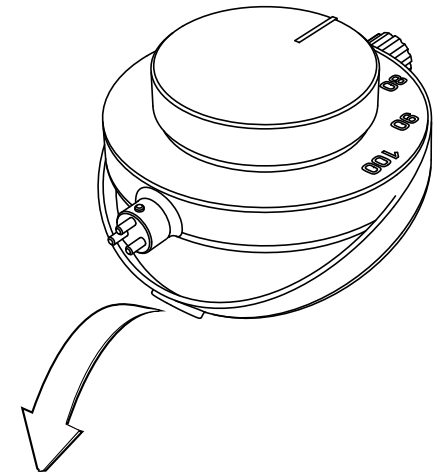
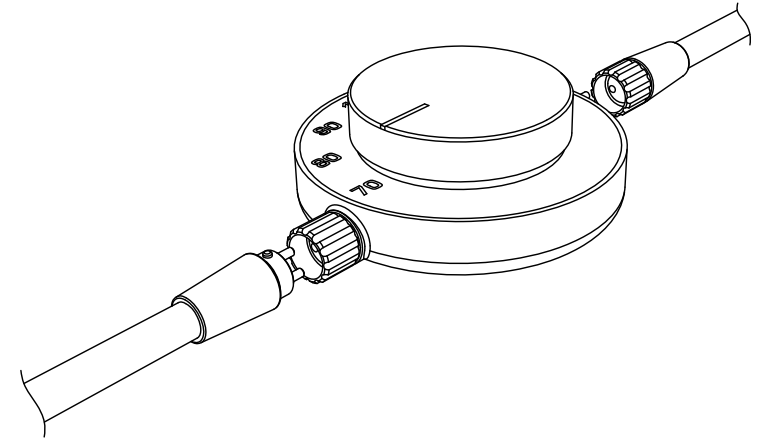
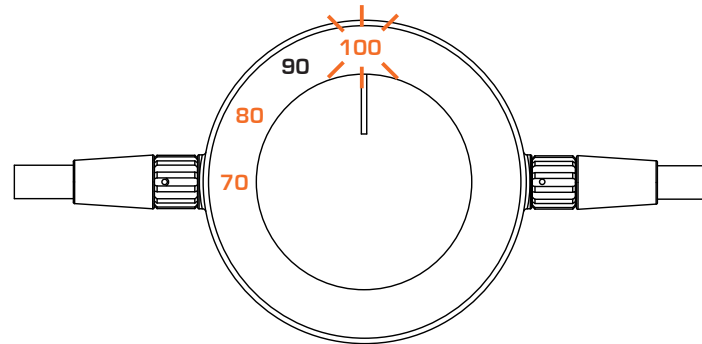
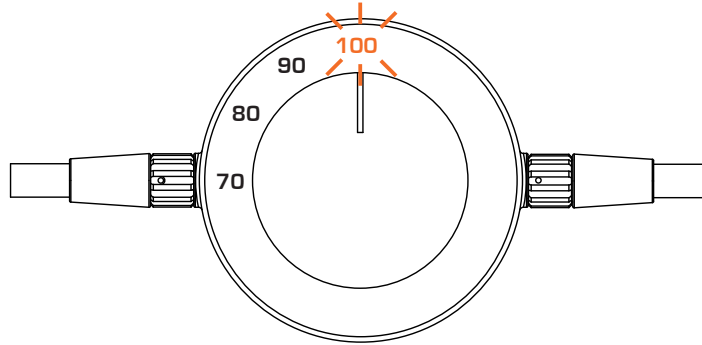
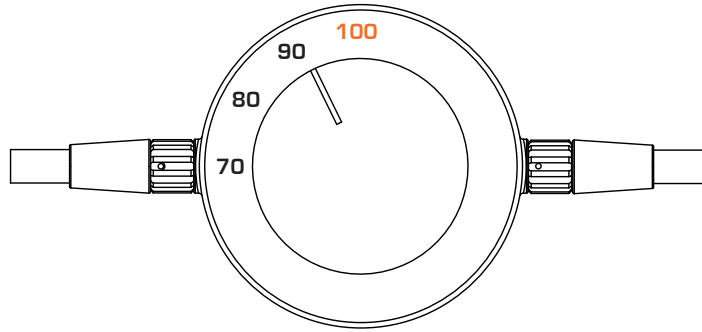
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design



Gordon Young
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design



**USER SERVICEABLE
PARTS INSIDE**

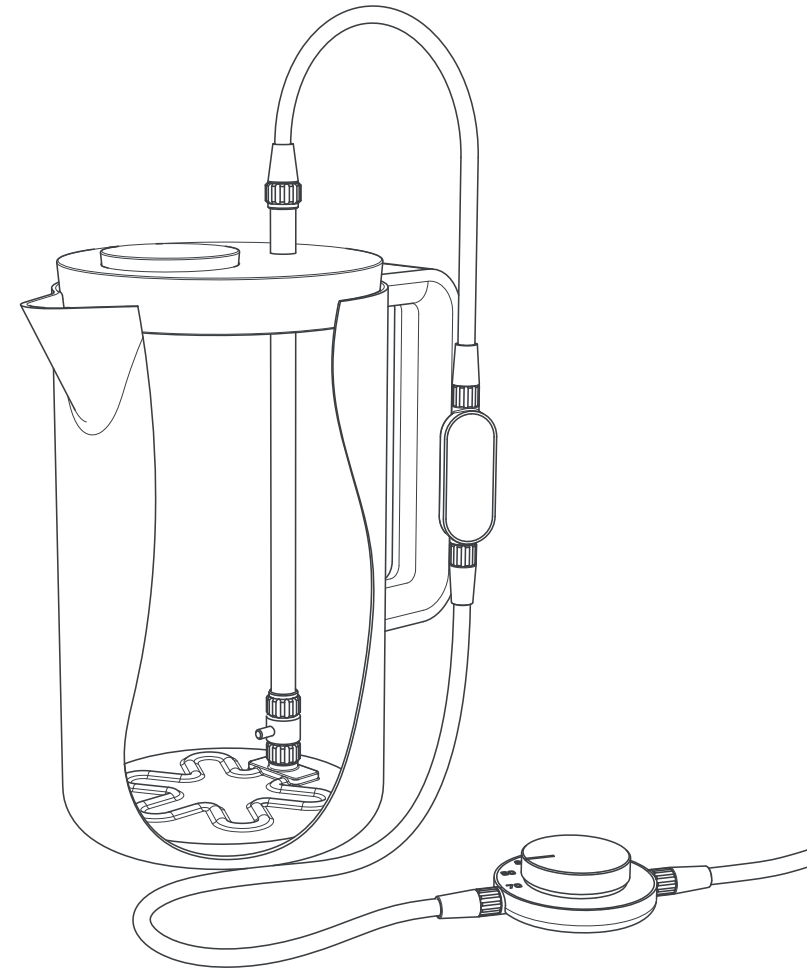
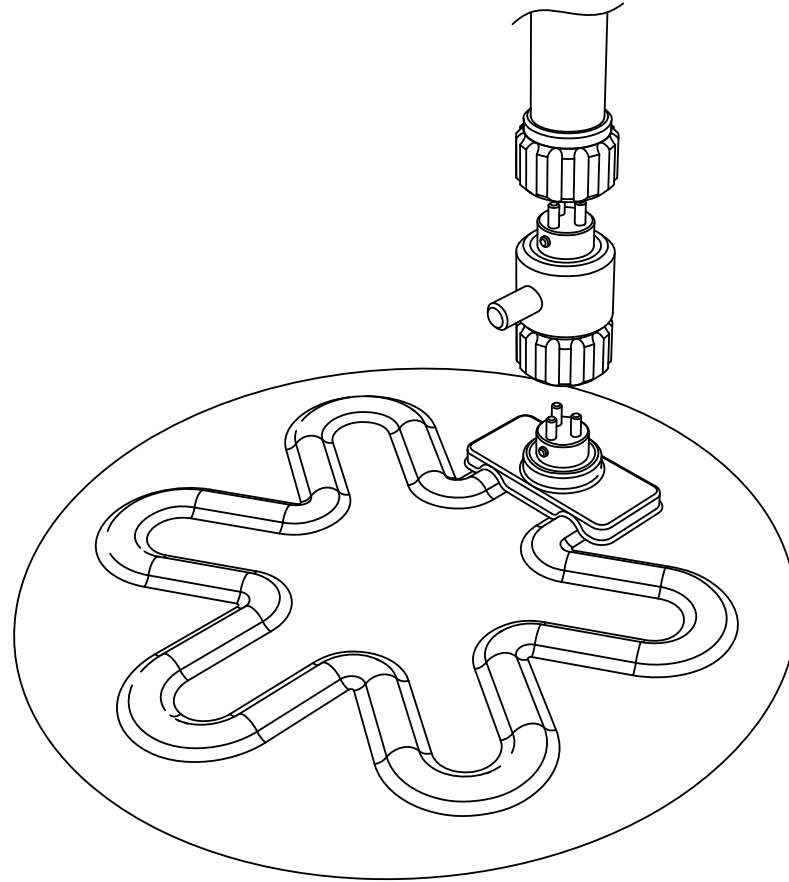
safe to open, no risk of shock



Gordon Young

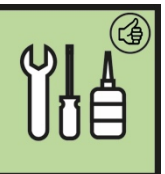
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design



**USER SERVICEABLE
PARTS INSIDE**

safe to open, no risk of shock



Gordon Young

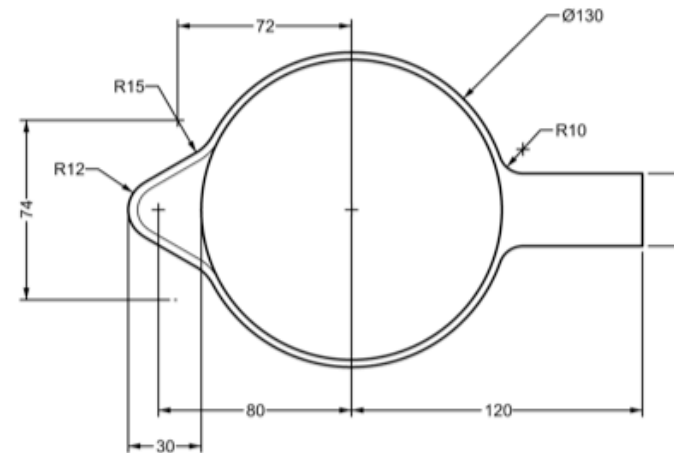
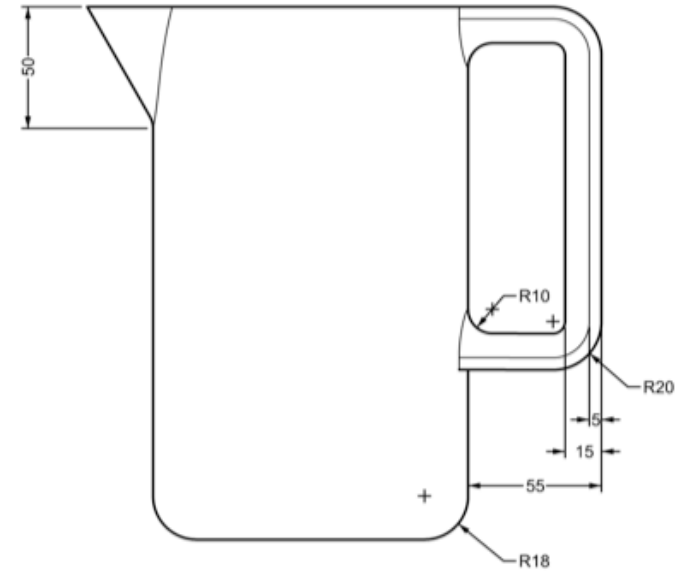
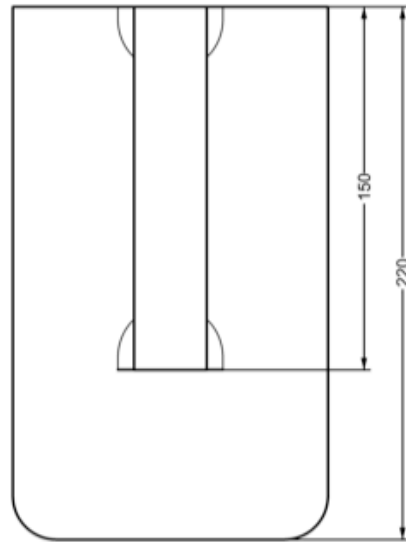
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design



Gordon Young
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design



Standard Kettle Jug

Version 2_1 (non-tapered)

Scale 2:1 All dimensions in mm

Gordon Young
g.j.young@shu.ac.uk
07903 171 510

Gordon Young
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design

Sheffield
Hallam
University | Art and Design
Research
Centre



Gordon Young

g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design

extend product lifespan

facilitating maintenance & repair

democratise repair

safety for the consumer

modularised system

facilitates upgrade

clear semantics

helps to understand

integrated prompts

ensures timely care & diagnosis

materials and forms

promoting long life



Gordon Young
g.j.young@shu.ac.uk

Critical Appliance :
extending product
lifespan through
critical design

Sheffield
Hallam
University | Art and Design
Research
Centre

