Data from a soldering experiment

Description

In 1988 an experiment was designed and implemented at one of AT&T's factories to investigate alternatives in the "wave soldering" procedure for mounting electronic componentes to printed circuit boards. The experiment varied a number of factors relevant to the process. The response, measured by eye, is the number of visible solder skips.

Usage

```
data("solder")
```

Format

A data frame with 900 observations on the following 6 variables.

Opening

    the amount of clearance around the mounting pad (3 levels)

Solder

    the amount of solder (Thick or Thin)

Mask

    type and thickness of the material used for the solder mask (A1.5, A3, A6, B3, B6)

PadType

    the geometry and size of the mounting pad (10 levels)

Panel

    each board was divided into 3 panels

skips

    the number of skips

Details

This data set is used as a detailed example in chapter 1 of Chambers and Hastie. Observations 1-360 and 541-900 form a balanced design of 3*2*10*3= 180 observations for four of the pad types (A1.5, A3, B3, B6), while rows 361-540 match 3 of the 6 Solder*Opening combinations with pad type A6 and the other 3 with pad type A3.

References

J Chambers and T Hastie, Statistical models in S. Chapman and Hall, 1993.

Examples

```
data(solder)
# The balanced subset used by Chambers and Hastie
#   contains the first 180 of each mask and deletes mask A6.
index <- 1 + (1:nrow(solder)) - match(solder$Mask, solder$Mask)
solder.balance <- droplevels(subset(solder, Mask != "A6" & index <= 180))
```