Breakdown Maintenance Process

Breakdown event

Date & Time Recorded on production sheet

Production Operator/supervisor Investigate fault

Quick Fix — Yes → Fix it

No →

Date & Time Recorded On Job Card

Raise Immediate Action job card Record fault description

Maintenance Team Repair fault

Record repair details Include switch, valve, component numbers Etc.

Start and end date & time Recorded On Job Card

Production sign Off on job Card and record date and time

Capture Job card info on Database

Immediate Action Request for maintenance — mainttobe — Job Card Nr:

Equipment Name:	Requested by:
Equipment Number:	Equipment Location:
Date and Time requested:	Cost Centre:

Fault Description:

Machine stopped in cycle during clamping

Containment Action:

Proximity switch 6b2 not made – Adjusted actuator And tested

Work Completed Date and Time:	Name: Sign:	Maintenance Start Date & Time:	Maintenance End Date & Time:

Notes:
I built an MS Access database which uses the "DateDiff" function in a query, to calculate the time lapsed between the production "Date and Time requested" and the "Work completed date and time" This function is also used for the maintenance start - end times. I have found that this gives a more accurate Downtime Vs. Repair time comparison. It's more reliable than getting people to record when events or actions start and end.

Modify TPM Checks or Actions ← Analyse data → Corrective actions Modifications

The job card field design and field names are flexible. Use whatever works in with currently used processes. The only fields I recommend sticking to, are the 'date, time' fields and only because MS Access can calculate time lapsed based on date and time, in the same field.
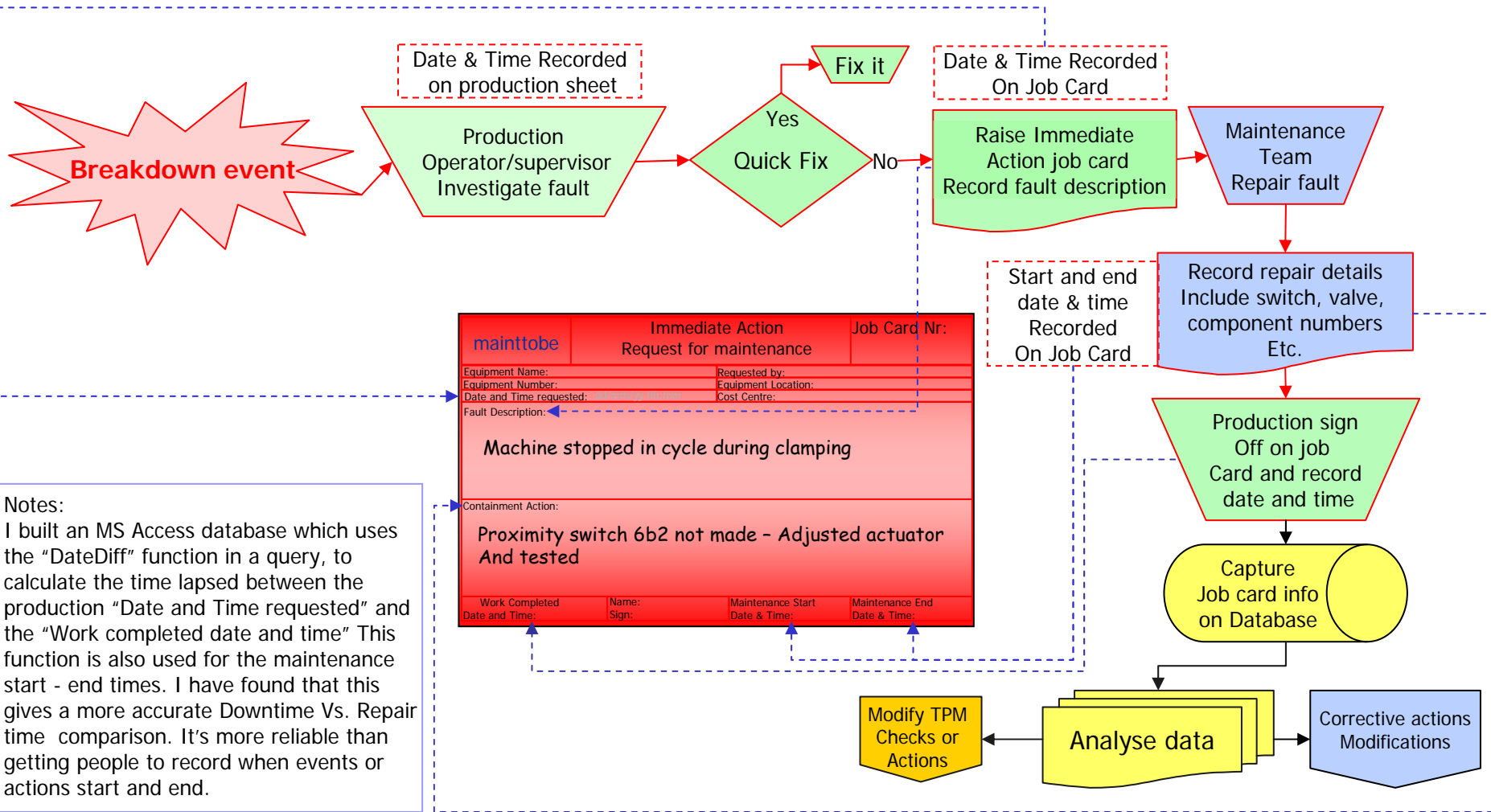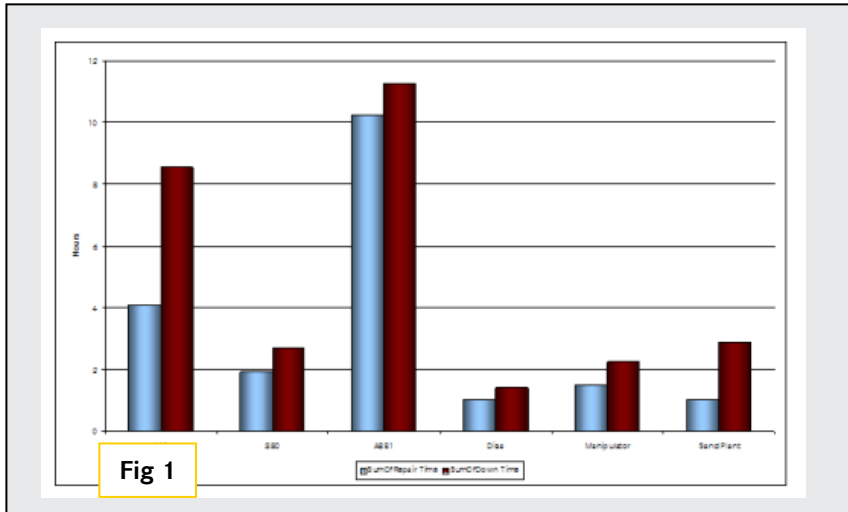
Breakdown Analysis

Using MS Access Queries in Pivot chart view to analyse breakdowns

Fig 1

Fig 2

With production and maintenance completing the date and time fields on the job card and capturing this information in the database, it becomes possible to get a more accurate reflection of "Repair time" Vs "Downtime" (Fig 1)

This chart enables maintenance personnel to see which machine had the most breakdowns for a given period.
the next step would be to view the "Detail Report" which I have also built into the database to look at data for the same period. This way one can see exactly what the reasons were for the downtime. With this kind of information available the maintenance team will be able to determine whether corrective work or a modification can be done to reduce downtime.
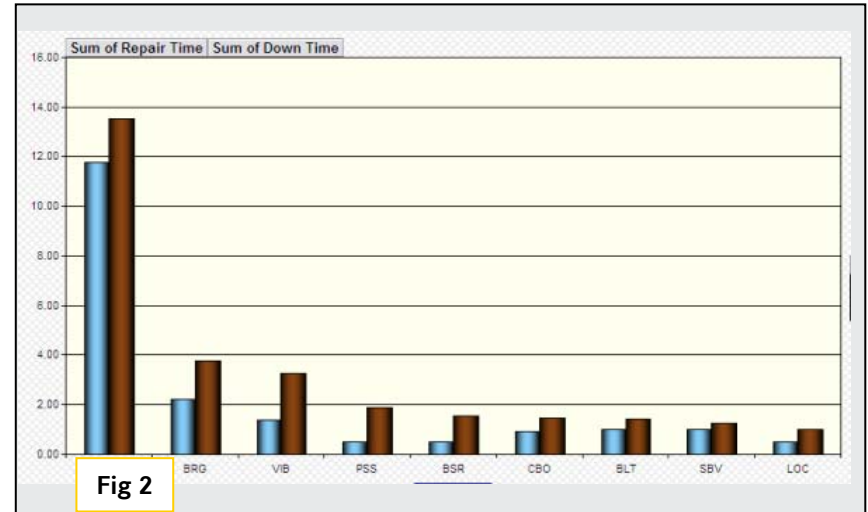
The "Fault Code chart" (Fig 2) offers the opportunity to analyse "Repair Time" and "Downtime" by fault code (causes).
A line or even an specific machine can be selected within the chart to help narrow down route causes. This also helps when formulating "fixes" and modifications.

An important benefit of cause analysis is that you can fine tune TPM inspections and actions. In the breakdown flow chart, we used a proximity switch example. In the chart above the code PRX (Proximity switch) is the highest cause of downtime. We can now decide to inspect the switch on a time based interval to ensure that the actuator is in the right place or even better redesign the actuator to ensure that it does not work loose. The point is, to reduce downtime for any given cause.