Fibre optic jointing and repair.

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Field of Application

The jointing of fibre optics is a specialist technique. Airport communications- a fibre optic loop stretches across the airport site and is critical to communications and information transfer.

Material

Fibre optic cables

Time

10 years in use.

Scope

Used in communications.

Maintenance Type

The general approach is to repair when problems occur – recently the loop was severed during construction activities. There will be a certain level of testing and development of the existing network.

Maintenance Activity

All the repair and inspection activities are subcontracted to Croft. Basic fault finding and repairs at a basic level will be carried out by airport maintenance operatives.

Sources

http://www.croftplc.com/home/home.aspx

Joint Sealing

Field of Application
Many applications but specifically runways and taxiways – repairs to flexible surfaces.

Material
The purpose of the seal is to fill joints on tarmac surfaces and other surfaces with a durable epoxy sealant.

Current jointing compounds have a life of about 6 months before the go brittle and require replacement.

CERTITE or traditionally hot tarmac.

Time
Used for some time 15 – 20 years.

Scope
Specialist application for runways and taxiways

Requires specialist approved sealant

Maintenance Type
Corrective maintenance to ensure the surface retains the standard required for operations.

Preventative corrective, currently this is an ongoing process of replacement and repair.

Maintenance Activity
Service, inspection, repair
More specific – condition monitoring, non destructive testing etc

Sources

http://www.netweber.co.uk/construction-mortar-products/weber-products/products/precision-grouting/webertec-grout-fg.html

Programmable Logic Controllers Systems operations and maintenance

Field of Application
PLC Systems are used in many technologies across the airport site to control facilities such as baggage handling equipment, doors, security systems etc.

Material
Software and some hardware

Time
Regularly used over a number of years

Scope
In addition to the traditional uses of PLC systems they are currently being expanded into new areas within the site. This includes face recognition systems which are linked to the security measures installed at the airport.

Maintenance Type
Preventative, corrective, on line maintenance, operator maintenance etc

Because of the specialist nature of the systems in use at the airport fault finding and repair is subcontracted out to the companies responsible for the installation and design. In the first instance when problems are encountered Logan are the contracted company. Larger problems are passed on to the parent company Elyo Suez.

Maintenance Activity
Service, inspection, repair
More specific – condition monitoring, non destructive testing etc

Predominately repair when problems occur, although there will be some service operations carried out.

Sources
http://www.loganteleflex.co.uk/index.php
http://www.cofely-gdfsuez.com/

Thermal Imaging

Field of Application
Airport Operations – across a range of maintenance activities across the site.

Use of thermal imaging to survey and inspect hidden utilities, pipework. Can view operational equipment such baggage conveyors doors etc. Can also be used to view heat loss and energy sources from buildings etc. The scope for use of this technology will expand with experience.

Material
Can be used across a range of materials depending on the particular maintenance situation it is utilised in.

Time

Recently introduced as a new technique to be used in maintenance operations

Scope
It is used to carry out survey and inspections of operations to identify and locate faults. This can be a fault finding operation in response to identified problems or preventative or operational maintenance activities. The use of this technique can reduce the need to dismantle equipment and facilities in order to carry out inspections. In addition it can be used to pinpoint problems during fault finding maintenance operations.

Maintenance Type
Currently used as a preventative tool for routine maintenance, corrective maintenance. It can also be used to monitor operations to record performance ad operations.

Maintenance Activity
Repair inspection and monitoring, main use is preventative to reduce down time due to unpredicted breakdowns.

Sources
FLUKE Meters http://www.fluke.co.uk/fluke/uken/home/default

X – ray machines repair and maintenance

Field of Application
Airport security and baggage handling

Material
Multiple materials involved

Time
A number of years

Scope
X – ray machine have been used for a number of years to monitor personnel and baggage being taken onto flights. More recently the use of newer more sophisticated machines are being employed and are critical to the successful operation of airport security.

Maintenance Type
Routine preventative maintenance is carried out by airport operatives but this only covers the basic operations including changing filters, repairing catches etc. Because of the complexity of the equipment in use all other repair and maintenance techniques are carried out by the contracted company which in this case is L3. They are specialist in this equipment and are on 24hr call out.

Local diagnosis is sometimes achieved by airport maintenance staff in order to speed the repair process.

The airport does not carry any spares or specialist repair equipment for the x-ray machines. These are all held by the contracted maintenance company.

Maintenance Activity
Basic fault finding when problems occur and basic routine maintenance tasks.

Sources
http://www.trltech.co.uk/Support/Training/