

AIRCRAFT MAINTENANCE CONTRACTS

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SELECTING A MAINTENANCE FACILITY

The following considers some factors affecting the selection of a third party maintenance facility. Such selections are made by smaller operators who cannot justify the cost of doing heavy maintenance in-house, by lessors preparing aircraft for sale or lease and by larger operators seeking overflow capacity or specialist work. The maintenance requirements of these organisations arise from a variety of needs and its appropriate to take a quick look at some of them.

For many smaller operators there are two factors involved. Firstly they may have difficulty funding the investment needed to establish full in-house maintenance capability. Secondly, unless they plan to take in third party work, they need a certain size of fleet before such an investment is justified. A small fleet does not generate enough work to fully utilize the manpower needed if downtime is to be kept to a minimum. Therefore, smaller operators must turn to others to perform their heavy maintenance.

For aircraft lessors there is a need to pay much greater attention to the quality of maintenance their aircraft receive. That need arises because the quality of maintenance an aircraft has received can have a direct impact on its value. The substantial growth in the use of operating leases as a major form of aircraft financing has merely served to highlight the need for attention to maintenance as the financial community has seen the market accept higher resale values for aircraft with exemplary maintenance histories.

From this, the specification of the maintenance on the aircraft and the requirements for the aircraft condition at return from lease have become major components in leasing agreements. The exact maintenance standards and the degree of owner control that the lessor may specify within the lease remain open to discussion amongst the members of the air finance community. Too much control and business may be lost since operators will not accept an overbearing outside hand on their operations; too little and the asset value of the aircraft may be severely jeopardised. One way that the lessor may exercise control is by specifying the facilities that may be used for heavy maintenance; either through the issuance of a lessor approved list of facilities or through the issuance of standards for facilities used by their lessees.

In addition we may well see the larger leasing companies coming to adopt their own maintenance programmes. These programmes would be mandatory for their lessees, especially the smaller ones who often lack the engineering capability or review and revise maintenance programmes in-house. This situation would, of course, require that these programmes receive approval from each operator's regulatory authority. I suspect that, in the long term, the regulatory authorities would welcome such a move towards standardisation since it would ease cross border aircraft movements. In the short term though, any such move might be perceived as a curtailment of the agencies authority and therefore some resistance might be expected in the initial stages. Still the continued progress towards the Joint Airworthiness Regulations (JARs) and other initiatives may suggest that these universal programmes may arrive sooner rather than later.

Major airlines who maintain total in-house capability also may face a need to have work done outside. They can plan to expand their capability to match rapid fleet expansions and even to maintain excess capacity that they can sell to third parties. However a major unforeseen

one-time programme, such as the Section 41 modification to 747s, can overload them and force them to seek capacity elsewhere. This in turn restricts the traditional use, by small operators, of the excess capacity available from the world's major airlines for heavy maintenance.

Therefore there is a need for more independent third party facilities to meet the growing demand of the world market. Such independent facilities well established in North America, are fewer in Europe and Asia. This reflects the more rigidly regulated history of the industry in those areas and the domination of flag carriers. Despite this, the need in North America for more facilities will grow more rapidly than in Europe, which possesses a much lower ratio of aircraft to hangar bays than in the US. That growth will be heavily weighed in favour of facilities that can accommodate wide bodied aircraft.

So as market demand grows, the establishment of these independent facilities becomes a more attractive investment opportunity.

The current failures, which will include both well established and recent entrants, are occurring because of insufficient work caused by:

The depressed state of the airline industry worldwide that has led to reduced amounts of flying with a corresponding drop in required maintenance. Older aircraft are being parked rather than flown.

Current industry capacity has increased rapidly as facilities have expanded to meet the ageing aircraft and the "Peace Dividend" has seen new entrants from former military programmes. With demand down and supply up, some fall out is inevitable.

In addition there will be failures of some existing narrow body facilities that do not keep up with the market. With profit margins being reduced as they follow the airlines' policy of cutting prices to maintain market share, they will lack the capital to expand to handle widebodies and to buy the tooling, equipment and training needed to repair the newer structures and systems.

SELECTION CRITERIA

In looking for a facility the operator or owner must consider the type of maintenance being undertaken.

Does the workscope involve Light Overhaul (C Checks) where turntime is often the critical criterium, Heavy Overhaul (D/E Checks) that demand good work control and shop support or Major Modifications that demand not only a strong shop floor but equally talented engineering support?

Does it involve a wide or narrowbody? If the former, then the choice is limited. For example, worldwide there are only a dozen independent facilities capable of handling all aspects of 747 maintenance. Even some of those have so far stayed away from the major programme, of Section 41 Modification. Many estimate that a run of at least 10 aircraft is required to make the tremendous investment in tooling and equipment viable. Many estimate

that a run of at least 10 aircraft is needed to make such an investment viable. However as more of the 747 fleet approaches the 20,000 cycle incorporation date, we may yet see a scramble to increase such capacity to meet demand.

No matter what their programme, we can probably summarise every customer's requirements as:

Very High Quality Work
Very Low Price
Very Rapid Turnaround

Although these criteria are probably mutually exclusive, they can at least be goals of the selection process since, regardless of the type of aircraft or maintenance needed, the customer will be seeking quality work at a fair price with guaranteed downtime.

The selection criteria may therefore be divided into those relating to the financial/commercial side of the decision process and those relating to the technical. Of these the main ones are:

FINANCIAL / COMMERCIAL

Financial Health - Growth Plans
Pricing
Reputation

TECHNICAL

Capabilities
Experience
Quality of manpower
Engineering Support
Shop Support
Approvals
Training
Flexibility

Looking at these in turn.

Financial Health

Is the customer looking at a fleet (long term) programme or merely for short term spare capacity? There is no argument that establishing along term relationship with a maintenance facility should benefit both the customer and the facility.

1. The facility gets to know the operator's aircraft and maintenance programme.
2. The aircraft should receive consistent maintenance.
3. The customer can obtain more favourable labour rates and other charges.

Therefore the selection criteria must include an analysis of the long term viability of the facility in order for the customer to have confidence in its financial strength and in its ability to adjust

to changes in the industry and market.

How much capital investment does the facility plan to meet the needs of newer generation aircraft? As mentioned, many facilities, particularly in North America, are limited through size and experience to performing work on older narrow body aircraft. Such facilities must look towards the day when those older first generation aircraft will have become but a small part of the world's fleet. Slot restrictions, noise restrictions and fuel price increases are spurring the introduction of the latest technology aircraft. It should also be driving the facility's long term planning to handle those new aircraft.

Pricing

The old adage of "You get what you pay for" holds true within aviation. With current supply outstripping demand, there is tremendous competitive pressure on prices. Facilities will offer reductions if there is a substantial programme involved ie large fleet programmes and overhauls not just "C" checks. This situation really benefits customers who can negotiate multi-year contracts. Such contracts will normally include pricing escalation, but with current lower base rates, substantial long term savings can be achieved.

Price difference due to a facilities location and its impact on costs must also be considered. Ferry costs can be a considerable part of the cost of maintenance especially for lower level inspections such as "C" checks. Reduced labour costs though, can quickly overcome the financial penalty of ferrying to a more distant facility when major work is needed.

Reputation

This perhaps the most important item to consider. It requires doing your homework as you would in selecting a new employee, in other words perform a thorough reference check. Obtain a list of the facility's customers from over the past five years or so. Look at the long standing customers and talk to them. Ask:

Has the performance of the facility been satisfactory?

Have the aircraft come out on-time and on-budget?

Did management work hard to ensure the job was done on time? By this I mean did the operator see the facilities management hustling to keep things on-track? Were possible delays immediately identified, drawn to the operator's attention and a solution determined.

Has there been consistency in the quality of the maintenance performed?

Has engineering and component repair support been satisfactory?

Were Warranty claims, if any, handled quickly?

For one-off or irregular customers the following can be asked.

Why was the aircraft taken to the facility? A try-out or overflow?

What was their experience with the facility?

Why was the facility not used regularly?

TECHNICAL

Capability and Experience

Capability and experience on your aircraft type should be at the head of the technical selection criteria. Note that the first does not necessarily imply the second. Capability means having the hangar space, tooling equipment and documentation to support your aircraft. Experience means current familiarity with your type and not just one aircraft several years ago. Bear in mind that capability without experience does not automatically exclude a facility. It should not be a major problem for a well established facility to add another type. Still in such instances the customer should be very aggressive in negotiating any contract. Price caps and penalty clauses, although difficult to negotiate and enforce, can help to insure against paying for any learning curve.

One small point often overlooked is whether the workforce includes people with good line engineering knowledge to troubleshoot and rectify system snags. This can be critical to ensuring an on-time delivery. Instances have occurred where the inspections of older aircraft have progressed well with the facility well able to perform the large amount of sheetmetal work needed. But when the time comes to close out the aircraft and perform system checks everything falls apart due to a lack of intimate knowledge of the aircraft from an operating perspective. Major system malfunctions due to incorrectly installed components coupled with poor trouble shooting does not inspire confidence, save money or speed delivery.

Quality of Manpower

Strictly speaking this includes both the technical quality of the workforce and quality of management.

For the shop floor there should be solid experience on your type of aircraft plus experience in the sheetmetal and avionics trades. Unfortunately the quality of this contract labour sometimes leaves a lot to be desired. As a result, you may have lots of manhours generated on your aircraft, but this means little if it is not productive or of high quality. Despite this, contract labour can be used but its success will be due to the good management that it receives.

For management, good supervision, particularly at the shop floor level, is also important to complement technical knowledge. Shop floor supervisors should have the experience and authority to solve routine problems without having to refer everything further up the chain of command with the resultant cost in time and money? This down shifting of decision responsibility can have a strong effect upon the speed, quality and cost of the maintenance check.

For senior management one should expect to see two main things. Firstly an awareness of what is happening on the shop floor - no "ivory tower syndrome." Secondly a genuine concern for meeting many operator's basic need of turntime. There are many tales of aircraft

held hostage in a facility that then milks it for every possible dollar. Normally such facilities quickly lose regular customers; a fact that should show up on your reference checks. Of course the normal traits of good management such as attitude and professionalism should also be considered.

Engineering Support

Engineering support can be critical to ensuring an aircraft is returned to service on time. Even routine C checks can unearth major problems that cannot be fixed just by reference to the maintenance manuals.

Shop Support

Does the facility possess its own support shops, hydraulic, avionics, etc? If it does, are they qualified and equipped to handle your aircraft? Are they large enough to keep up with the possible work load or will operators face having to obtain an exchange unit (at greater cost) in order to keep their aircraft on schedule? As with engineering support, it is possible for a facility to provide good component support by using local outside repair and overhaul shops; again subject to the checking on those shops' reputations and turn times etc.

Approvals

Call the facility's local regulatory office. What is their reputation? When were they last audited? What were the results? Does the facility have approval from your own Regulatory Authority? Are their in-house design approvals accepted for repairs etc or do these need the blessing of that authority or the manufacturer.

Training

The key question for the facility to answer is, How is it planning to tackle the predicted shortage of manpower? As part of the facility's long term plans, does it have a comprehensive training and skills enhancement programme? With people being the most vital asset in this industry, having such a programme is essential to the long term well being of a facility. This training programme should be formalised, in place and active. It should address skill training for else experienced personnel and continuing training and skill updating for all. This must aim to keep them abreast of current technology, aircraft construction techniques and new repair procedures.

Flexibility

A criticism sometimes levelled at the large airlines when undertaking third party work is that "They do it their way to their programme." This might ensure that all work is to their exemplary standards, but this might not be appropriate to the customer operating in an entirely different environment. The facility should be "adaptable" to using a wide variety of maintenance work packages.

It is also useful to get a feel for the capacity of the facility with respect to the amount of work that it can handle. Compare this with the amount of work that it has planned for when your aircraft is scheduled. too much work can lead to problems of misplaced priorities, missed

deliveries and acrimonious relations. A good facility will resist the temptation to overbook in order to attract a customer. Long term contracts should prevent such an occurrence.

In summary then, a maintenance facility should be able to show: Long Term Viability, Competitive Pricing and Turntime, Competency and Experience for the work involved and Customer Driven Management.