



B U S I N E S S P L A N · I N D I A

Aircraft MRO Services

The invoice is a rounding error in the cost the work causes, so sell the ground time and not the man-hour

AVIATION AND AEROSPACE SERVICES

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This document is confidential and prepared for planning purposes. All financial figures are illustrative model assumptions for an Indian MSME context and must be validated against live quotes, local rates and professional advice before any investment or borrowing decision.

1. Executive Summary

This plan sets out a **CAR-145 approved Aircraft MRO** — a two-bay base maintenance hangar doing narrowbody C-checks, line maintenance at three stations, component workshops, AOG response, parts logistics, and NDT and training support to other organisations. By Year 3 it performs **34 C-checks and 11,600 line events on 175,600 man-hours** with **38 licensed engineers**, and sells **₹58.00 crore** — with base maintenance sold on a **fixed price and a fixed turnaround time**.

This plan is the fourth in vertical 57 and **inherits the ten aviation anchor rules (a)-(j)** set out in §17 of the drone services plan.

Item	Detail	Year 3
What is sold	Fixed-TAT C-checks and heavy maintenance, contracted line maintenance, wheel, brake, battery and oxygen overhaul, AOG response, parts supply and pooling, and NDT, training and CAR-145 support to other organisations	₹58.00cr
Checks / man-hours / engineers	34 C-checks, 11,600 line events, 1,600 components, 240 AOG	175,600 hrs; 38 AME
PAT / net margin	Hangar-heavy, forex-exposed, and carrying its own turnaround risk	₹3.04cr / 5.2%
ROCE on ₹34.00cr	Two-bay hangar, workshops, tooling, rotatable pool, NDT laboratory	17.9%
Median C-check turnaround against a contracted 16 days	The industry median for the same check is about 23	15.2 days
Discretionary findings logged per check, outside the work scope	What an engineer mentions when mentioning it costs him nothing	7.4

❏ **THE INVOICE IS A ROUNDING ERROR IN THE COST THE WORK CAUSES. A defect rectification might be ₹4 lakh. The six days on the ground it causes are worth about ₹1.92 crore to a narrowbody operator in lost revenue, crew repositioning, disruption and lease payments that do not stop. AND THE CONTRACT, THE QUOTATION, THE PURCHASE ORDER, THE HAGGLING AND THE DISPUTE ARE ALL ABOUT THE ₹4 LAKH — BOTH PARTIES SPEND THEIR ENTIRE COMMERCIAL ATTENTION ON TWO PER CENT OF THE MONEY.**

Which produces a competition that rewards the wrong thing. An MRO competes on hourly rate and parts markup because that is what a customer can compare, and NOTHING IN THAT COMPARISON REWARDS SPEED. A cheaper shop taking nine days instead of six has cost the airline ₹96 lakh to save it ₹40,000 — THE CHEAPER QUOTATION IS ALMOST ALWAYS THE MORE EXPENSIVE DECISION, AND THE COMPARISON THE CUSTOMER MAKES CANNOT SEE IT.

2. Business Description, Vision & Legal Structure

A private limited company holding a DGCA CAR-145 approval for base and line maintenance on narrowbody types, with component workshops, an NDT laboratory, a rotatable pool and its own planning and records organisation.

Element	Position
Legal form	Private limited company; DGCA CAR-145 approval with rated scope by type and by capability; CAR-147 training approval; customs bonded store; aerodrome and hangar lease; hull, third-party and product liability cover
Where the money is made	Base maintenance is 34% of revenue and the thinnest margin; components, AOG and the support line carry disproportionate profit
What is different	Base maintenance is sold on turnaround time with liquidated damages, and the engineer who signs the release is not in the turnaround line
Vision	An MRO that sells the customer's ground time back to him, rather than selling him man-hours

Why this shape	Reasoning
Fixed price AND fixed turnaround	The only structure in which the MRO's interest and the customer's interest point the same way. Under man-hour billing an extra day is revenue to us and ₹32 lakh to him
Parts pre-positioned on predicted findings	You cannot promise a turnaround unless you can predict what you will find. The largest single cause of overrun is a part that is not in the building when the panel comes off
Signatories outside the commercial line	A turnaround penalty creates exactly the pressure that makes engineers stop volunteering observations, so the control has to be built at the same time as the promise
Findings reported within eight hours	The airline, not the MRO, should decide whether to defer under MEL, ferry or fix now — but it can only decide if it is told while the decision still exists

3. Promoter & Ownership

Item	Position
Promoter	Licensed engineer turned maintenance director, twenty-three years across airline and third-party MRO; spent much of it negotiating hourly rates with customers whose real loss was running at a hundred times the rate being argued about
Promoter equity	₹12.24cr of the ₹34.00cr project cost (36%), unsecured and not withdrawable during the loan term
Ownership	Promoter and family 58%; ESOP and key staff 18%; aviation and infrastructure investor 24%
Governance	No person who signs a Certificate of Release to Service has any turnaround measure in his appraisal, his bonus or his reporting line. Quality reports to the Accountable Manager independently of production, which is what CAR-145 intends and what commercial pressure quietly erodes

That separation exists because **the hazard is created by this plan's own remedy. Promising a turnaround with liquidated damages attached puts real money on finishing on time — AND THE CHEAPEST WAY TO FINISH ON TIME IS FOR NOBODY TO FIND ANYTHING. A commitment that creates a new pressure has to arrive with the control for that pressure already in place, or it is not a commitment at all.**

4. Market Analysis — India

Segment	What drives it	Position taken
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Base maintenance, narrowbody C-checks	A very large and young Indian narrowbody fleet whose checks are still substantially flown abroad; capacity, not demand, is the constraint	34 checks at ₹58 lakh
Line maintenance under contract	Transit and daily checks at three stations; steady, contracted and staffing-driven	11,600 events at ₹11,000
Component workshops	Wheels, brakes, batteries and oxygen; high frequency, good margin, and the least glamorous part of the business	1,600 units at ₹58,000
AOG response	Unscheduled defects where the customer's cost per day is at its highest and price sensitivity at its lowest	240 events at ₹2.90 lakh
Parts, pooling, NDT and training	Rotable pooling, bonded stores, NDT and CAR-145 support sold to smaller organisations	₹9.28cr combined

What a day on the ground actually costs

Item	Amount
Lost revenue, crew, disruption and lease, per day	₹25-45 lakh
Assumed here	₹32 lakh a day
A six-day rectification	₹1.92 crore
The repair invoice	₹4 lakh
Share of total cost that is negotiated	2.0%

India has one of the world's largest and youngest narrowbody fleets and sends a great deal of its heavy maintenance abroad, so domestic MRO demand is structural rather than cyclical. IT IS ALSO A MARKET THAT PROCURES ON MAN-HOUR RATE AND PARTS MARKUP, WHICH ARE THE TWO SMALLEST NUMBERS IN THE TRANSACTION — because they are the only two the purchase order has a field for.

5. Competition & Position

Competitor type	What they do well	Where the gap is
Established Indian MROs	Real capability, DGCA standing, type coverage, hangar capacity and genuine engineering depth	Man-hour billing throughout; turnaround is an aspiration in a covering letter rather than a term with money attached
Airline in-house engineering	Perfect alignment — the airline bearing its own ground time makes the trade-off correctly by construction	Only economic on its own fleet and at base; third-party work is a distraction from it
Overseas MROs	Scale, slot availability, mature planning, and often a genuinely lower man-hour rate	Ferry time each way, forex exposure on the whole bill under rule (h), and a turnaround the customer cannot influence from Delhi
OEM-affiliated shops	Parts access, technical authority and warranty integration	Priced accordingly; scope tends to expand toward the OEM's preference rather than the operator's
This MRO	Fixed TAT with liquidated damages, predictive parts pre-positioning and independent signatories	Positioned on the number that dominates the customer's cost and appears nowhere in the tender

The competitive difficulty is that our proposition requires the customer to compute something his own procurement process does not compute. Our man-hour rate is higher and our fixed price is higher, and the answer — that seven fewer days is ₹2.24 crore against a ₹58 lakh check — lives in the airline's commercial department rather than in its purchasing department. WE ARE SELLING TO WHICHEVER OF THOSE TWO DEPARTMENTS HAPPENS TO BE IN THE ROOM.

6. The Invoice Is a Rounding Error in the Cost

This is the finding, and it concerns which of two numbers the parties happen to negotiate.

On one six-day rectification	Amount	Negotiated?
Labour and parts invoiced	₹4 lakh	Line by line
Ground time caused, six days	₹1.92 crore	Not at all
Total cost to the customer	₹1.96 crore	—
Proportion under negotiation	2.0%	—

An aircraft out of service costs a narrowbody operator somewhere between twenty-five and forty-five lakh rupees a day — lost revenue, crew positioning, passenger disruption, and lease rentals that continue whether it flies or not. A defect rectification taking six days therefore costs the customer about ₹1.92 crore in ground time and about ₹4 lakh in invoice. AND EVERY COMMERCIAL INSTRUMENT BETWEEN THE TWO COMPANIES — THE RATE CARD, THE QUOTATION, THE PURCHASE ORDER, THE VARIATION, THE DISPUTE — ADDRESSES THE ₹4 LAKH. BOTH SIDES SPEND THEIR ENTIRE COMMERCIAL ATTENTION ON TWO PER CENT OF THE MONEY.

The consequence is a competition that rewards the wrong variable. MROs compete on man-hour rate and parts markup because those are the fields the procurement system has, and NOTHING IN THAT COMPETITION REWARDS TURNAROUND — which is where essentially all of the customer's money is. A shop quoting ten per cent lower and taking three days longer has saved the airline ₹40,000 and cost it ₹96 lakh. THE CHEAPER QUOTATION IS ALMOST ALWAYS THE MORE EXPENSIVE DECISION, AND THE COMPARISON BEING MADE CANNOT SEE IT.

Nobody is behaving badly here either, and that is worth being precise about. The purchasing department is doing its job correctly: it is minimising the number it has been given responsibility for. The MRO is quoting honestly against a specification. THE ₹1.92 CRORE IS NOT HIDDEN, DISPUTED OR DENIED — IT SIMPLY BELONGS TO A DIFFERENT DEPARTMENT OF THE CUSTOMER AND APPEARS IN NO DOCUMENT THAT EITHER PARTY SIGNS.

So the unit of sale is changed to the one that matters. BASE MAINTENANCE IS SOLD AT A FIXED PRICE AND A FIXED TURNAROUND — 16 days for a narrowbody C-check against an industry median near 23 — WITH LIQUIDATED DAMAGES PAYABLE BY US FOR EVERY DAY OVER. 34 of 34 checks in Year 3; median achieved 15.2 days; ₹0.42 crore of liquidated damages paid on the four we ran over. It is only possible because findings are predicted rather than discovered: parts pre-positioned before induction rose 31% to 74% of what was eventually used, built on our own findings history by type, age and operator. SEVEN DAYS SAVED IS ₹2.24 CRORE TO THE CUSTOMER AGAINST A ₹58 LAKH CHECK — NEARLY FOUR TIMES THE ENTIRE INVOICE. GENERAL RULE: WHERE THE INVOICE IS A SMALL FRACTION OF THE COST THE WORK CAUSES, THE PRICE IS THE WRONG

7. The Signature Is Personal and the Pressure Is Institutional

The second thread is the control on the first, because the remedy above creates the hazard below.

Who carries what	Consequence
The engineer signing the release	His own licence, personally
The company	A fine, a finding, a penalty
The turnaround pressure	Institutional, transmitted to him
Who transmits it	People with no personal exposure
Who can actually sign	Only him

A Certificate of Release to Service is signed by a named licensed engineer holding the category and the type. That signature is personal in a way nothing else in the organisation is: the regulator can suspend or cancel HIS licence, and in a serious event HE is the individual named. The commercial pressure — the customer waiting, the liquidated damages accruing, the next induction slot, the aircraft blocking a bay — sits with the company and is transmitted to him by people who carry none of the personal consequence whatever. THE COMPANY CAN BE FINED; THE ENGINEER CAN BE FINISHED. AND THE INSTITUTION CANNOT SIGN.

What actually happens under that pressure is subtler and far more damaging than anybody expects, and it is the reason this section exists. A licensed engineer under commercial pressure does not sign something unsafe — that is not the failure mode. HE STOPS VOLUNTEERING. He signs precisely what he was asked to sign and mentions nothing else. He does not raise the corrosion he noticed on the adjacent panel, because raising it opens a scope nobody can estimate, extends the turnaround, and makes HIM the person who caused the delay. THE ORGANISATION LOSES THE ENGINEER'S JUDGEMENT LONG BEFORE IT COMES ANYWHERE NEAR LOSING HIS INTEGRITY — AND NOBODY CAN AUDIT WHAT AN ENGINEER DID NOT MENTION.

So the control is structural and it is expensive. NO CRS SIGNATORY HAS ANY TURNAROUND MEASURE IN HIS APPRAISAL, HIS BONUS OR HIS REPORTING LINE — 38 of 38 — and quality reports to the Accountable Manager independently of production, which is what CAR-145 intends and what commercial pressure quietly erodes everywhere. Observations outside the work scope go into a discretionary-findings channel that carries no turnaround consequence for the person raising it: 2.1 per check rose to 7.4. And the number that says whether it worked is an anonymous one: engineers reporting that they had withheld an observation in the previous ninety days fell from 41% to 9%. THE FIRST FIGURE IS THE HONEST STARTING POINT OF ALMOST EVERY MAINTENANCE ORGANISATION AND ALMOST NONE OF THEM ASKS.

8. Operations Plan (predict, induct, find, report, release)

- **Predict.** Findings modelled from our own history by type, age, operator and utilisation; parts and rotables pre-positioned before the aircraft arrives rather than ordered when the panel comes off.
- **Induct.** Pre-induction records review and a jointly agreed work scope; the turnaround clock and the liquidated-damages term start on induction, not on agreement of scope.

- **Find.** Work-scope findings and discretionary observations both logged; the discretionary channel carries no turnaround consequence for whoever raises it.
- **Report.** Every finding to the customer within eight hours with a cost-of-delay estimate attached, so the airline can choose to defer under MEL, ferry, fix now or fix at the next opportunity.
- **Release.** The CRS is signed by a named engineer whose appraisal, bonus and reporting line contain no turnaround measure of any kind.

Step	What is recorded	Why
Prediction	Parts pre-positioned vs eventually used	31% → 74%; the TAT depends on it
Turnaround	Days against the contracted 16	Median 15.2; ₹0.42cr paid on 4
Discretionary findings	Observations outside the work scope	2.1 → 7.4 per check
Reporting	Finding plus cost-of-delay, within 8 hours	The airline decides, not us
Release	Named signatory, no TAT metric	38 of 38; withholding 41% → 9%

The operational hinge is day nine of a sixteen-day check. An engineer lifting a floor panel to reach a wire bundle sees corrosion on a stringer that is not in the work scope and is not due for inspection for two more checks. Reporting it opens a scope nobody can estimate — it might be four hours and it might be nine days. Under the ordinary arrangement he becomes the man who caused the delay: his supervisor's turnaround number moves, the customer's aircraft moves, the next induction slot moves, **AND NOBODY WILL EVER KNOW IF HE SAYS NOTHING.** Under ours he is not in the turnaround line at all; the finding goes to the discretionary channel, is costed within eight hours, and the airline decides. Left alone, that corrosion becomes a ₹31 lakh structural repair at the next check and a plausible AOG. Found now it is ₹1.9 lakh and four hours. **AND THE ONLY THING THAT MADE HIM SAY IT WAS THAT SAYING IT COST HIM NOTHING.**

9. CAR-145 Approval, Records & Parts Compliance (India)

Area	Requirement
Maintenance organisation approval	DGCA CAR-145 approval with rated scope by aircraft type and by capability, an Accountable Manager, a Maintenance Organisation Exposition, and quality reporting independent of production. Under anchor rule (b) the approval is the asset and its rated scope — not demand — sets the revenue ceiling
Certifying staff	Licensed aircraft maintenance engineers under CAR-66 with category and type authorisations; the Certificate of Release to Service is signed personally and the licence is personal
Training	CAR-147 approved training for type courses and continuation training; currency and recency are recurring obligations under rule (c) and are opex, never capex
Parts and records	Approved parts with valid release documentation and traceability, bonded and customs-cleared stores, shelf-life and life-limited part control, and complete continuing-airworthiness records — a part without acceptable paperwork is not a cheap part, it is scrap
Safety	Safety management and occurrence reporting; under rule (g) it must be non-punitive or it produces nothing, which is exactly what the discretionary-findings channel is built on
Tooling and calibration	Calibrated tooling with traceable standards; NDT personnel qualification and periodic re-certification

Commercial and tax	Hangar and aerodrome lease, customs and GST treatment of imported parts and rotables under rule (h), product and hangar-keeper's liability cover under rule (d)
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What the regulation reaches	What it does not
Who may sign and against what scope	How long the aircraft is on the ground
That quality reports independently of production	Whether commercial pressure reaches the signatory anyway
Records, parts and traceability	Anything an engineer chose not to mention
Occurrence reporting	A finding that was never raised

CAR-145 already requires the thing this plan spends money on: quality independent of production, and certifying staff free to exercise judgement. THE REGULATION IS NOT DEFICIENT — IT IS SIMPLY SILENT ON THE MECHANISM BY WHICH INDEPENDENCE ERODES, WHICH IS NOT INSTRUCTION BUT APPRAISAL. An organisation can satisfy every clause of the requirement and still have a signatory whose bonus depends on the aircraft leaving on Thursday.

10. Organisation & Manpower Plan

Function	Yr 1	Yr 3	Note
Accountable manager and MD	1	1	Cannot direct a signatory
Technicians and mechanics	42	67	With the AMEs below: 175,600 man-hours ÷ 1,680 productive hours per person-year = 104.5
Licensed engineers, CRS signatories	24	38	No turnaround measure in any appraisal
Planning, records and technical services	16	24	Findings prediction and pre-positioning
Stores, parts and logistics	14	22	Bonded store and rotatable pool
Quality, safety and CAR-145 compliance	10	14	Reports to the Accountable Manager
Sales, contracting and administration	9	12	—
Finance, HR and payroll	7	10	—
Tooling, calibration and NDT	7	11	Traceable standards
Findings reporting and customer decision support	5	9	Eight-hour reporting with cost-of-delay
Total	135	208	34 checks; 175,600 man-hours; 2 bays

The 9 people in findings reporting and customer decision support exist to hand the customer a decision the industry normally makes for him. Their salaries are ₹0.29 crore — ₹3.22 lakh average CTC across 9 — with ₹0.23 crore for the reporting system and the cost-of-delay modelling. Planning and pre-positioning costs ₹4.00 lakh per check, 6.9% of a ₹58 lakh check; signatory independence costs ₹2.37 lakh per licensed engineer per year.

11. Implementation Timeline & Milestones

Phase	Months	Milestone
Approval and finance	0-16	CAR-145 application and rated scope, hangar lease, term loan and equipment finance
Hangar and workshops	8-24	Two-bay hangar, docking, component workshops, NDT laboratory and bonded store
Signatory independence before the first fixed-TAT contract	10-18	Appraisal, bonus and reporting structures separated BEFORE any liquidated-damages term is signed
Findings history and prediction	14-30	Two seasons of findings data before turnaround is promised with money attached
Rotable pool	18-30	₹4.42cr of parts and rotables positioned against the predicted findings profile
Full base maintenance	28-36	34 checks a year at a contracted 16-day turnaround

Milestone that must not slip	Why
Independence before the first TAT contract	Liquidated damages signed before the signatories are insulated creates the exact pressure this plan exists to prevent, and the resulting silence is invisible and permanent
Findings history before promising turnaround	A fixed TAT without a prediction model is a wager on somebody else's aircraft. The pre-positioning rate is what converts a promise into an operation
Rotable pool before volume	The largest single cause of overrun is a part not in the building; a pool bought after the first penalty year is a pool bought with the penalty money
Quality reporting line from approval	CAR-145 requires it and an organisation that has once let quality report to production cannot credibly claim the separation afterwards

12. Financial Plan (Illustrative)

All figures are illustrative model assumptions in Indian rupees, not forecasts or guarantees. Drivers are shown so every number can be changed.

12.1 Revenue build (₹ lakh)

Stream	Yr 1	Yr 2	Yr 3	Share	GM
Base maintenance: fixed price and fixed TAT	1,088	1,530	1,972	34.0%	24.0%
Line maintenance under contract, three stations	704	990	1,276	22.0%	30.0%
Component workshops: wheels, brakes, batteries, oxygen	512	720	928	16.0%	38.0%
AOG response and unscheduled rectification	384	540	696	12.0%	34.0%
Parts supply, logistics and pooling	352	495	638	11.0%	18.0%
NDT, training and CAR-145 support to others	160	225	290	5.0%	52.0%

Total	3,200	4,500	5,800	100%	29.5%
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Base maintenance is 34% of revenue and 28% of gross profit, and it is deliberately the thinnest line here. IT IS ALSO THE ONLY ONE ON WHICH THE TURNAROUND PROMISE IS MADE — which means this plan puts its hardest commitment on its least profitable product, and funds it out of components, AOG and support.

12.2 What is committed, and what it is measured on

Commitment	Yr 1	Yr 3
Base maintenance on fixed price AND fixed TAT with liquidated damages	29%	100%, 34 of 34
Median C-check turnaround against a contracted 16 days (industry about 23)	21.4 days	15.2 days
Liquidated damages paid by us for turnaround overrun	nil	₹0.42cr on 4 checks
Parts pre-positioned before induction as a share of parts eventually used	31%	74%
Discretionary findings logged per check, outside the work scope	2.1	7.4
Engineers reporting they withheld an observation in 90 days (anonymous)	41%	9%

The last row is the only honest measure of the second thread and almost nobody in this industry collects it. 41% is not an indictment of the engineers who answered it — it is the ordinary starting condition of a maintenance organisation in which the person who notices something is also the person who will be blamed for the delay it causes. THE FIGURE MOVED BECAUSE THE APPRAISAL CHANGED, NOT BECAUSE ANYBODY WAS EXHORTED.

12.3 Profit & loss (₹ lakh)

Line	Yr 1	Yr 2	Yr 3
Revenue	3,200	4,500	5,800
Cost of goods (parts, rotables, direct labour, subcontract, consumables)	(2,256)	(3,172)	(4,089)
Gross profit	944	1,328	1,711
Fixed-TAT planning, prediction and parts pre-positioning	(78)	(106)	(136)
Signatory independence and the discretionary-findings channel	(52)	(70)	(90)
Eight-hour findings reporting with cost-of-delay estimates	(30)	(40)	(52)
Hangar, stores and facility operations	(96)	(130)	(164)
Sales, contracting and administration	(72)	(96)	(122)
Quality, safety and CAR-145 compliance	(62)	(84)	(106)
Tooling, calibration and equipment	(54)	(72)	(92)
EBITDA	500	730	949
Depreciation and amortisation	(272)	(306)	(340)
Finance cost	(204)	(234)	(258)

Other income (hangarage, scrap, misc)	28	40	54
PBT	52	230	405
Tax (fully taxable business income, ~25%)	(13)	(58)	(101)
PAT	39	172	304
Net margin	1.2%	3.8%	5.2%
ROCE on ₹34.00cr	6.7%	12.5%	17.9%

12.4 Project cost & funding (₹ lakh)

Use of funds	₹L	%	Source of funds	₹L
Two-bay base maintenance hangar and docking	1,088	32%	Promoter equity	1,224
Component workshops: wheels, brakes, batteries, oxygen	578	17%	Term loan	1,360
Tooling, GSE, jacks and ground equipment	476	14%	Working capital limit	476
Parts and rotatable pool for pre-positioning	442	13%	Scheme and subsidy support	340
NDT, calibration laboratory and test equipment	340	10%	—	—
Planning, records and maintenance systems	272	8%	—	—
Working capital margin and pre-operative	204	6%	—	—
Total	3,400	100%	Total	3,400

12.5 Sensitivities (₹ crore PAT, Year 3)

Scenario	What changes	PAT
Base case as planned	As above	₹3.04cr
Trade-standard practice instead	Bill by the man-hour with open scope and let the median drift to 23 days (+₹4.34cr revenue, +₹1.48cr), stop paying liquidated damages (+₹0.42cr), take a wider parts markup with no pre-positioning discipline (+₹0.51cr), close the planning, independence and reporting programmes (+₹2.78cr), stop absorbing discretionary scoping (+₹0.55cr) — but lose half the NDT and support line (—₹1.45cr revenue) and 30% of AOG work, which goes to whoever is fastest (—₹2.09cr): revenue ₹58.80cr at 36.4% gross margin	₹8.28cr
DGCA action on the CAR-145 approval	Rated scope suspended pending resolution: ₹9.80cr and a ₹4.31cr loss. ANCHOR RULE (b) IN ITS STARKEST FORM — the approval is the asset, and a hangar without it is a shed	(₹4.31cr)
Loss of the anchor base-maintenance customer	MRO revenue is concentrated by construction: ₹5.42cr and a ₹1.03cr loss, with the hangar and establishment unchanged	(₹1.03cr)
Parts and rotatables +18% on the rupee	₹3.34cr. Under rule (h) almost every part in this building is dollar-priced and a rupee move is a cost event rather than a market one	₹0.53cr

A bad turnaround year, three checks well over	₹2.16cr of liquidated damages and disruption — the deliberate exposure this plan takes on	₹1.42cr
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The trade-standard row is ₹8.28 crore against ₹3.04 crore, and ₹1.90 crore of the gap is simply BILLING MORE HOURS BECAUSE THE AIRCRAFT IS ON THE GROUND LONGER. That is not a penalty for inefficiency; it is a reward for it. AN MRO BILLING BY THE MAN-HOUR IS PAID MORE FOR TAKING TWENTY-THREE DAYS THAN FOR TAKING SIXTEEN, WHILE THE CUSTOMER LOSES ₹2.24 CRORE FOR THE PRIVILEGE — AND NOTHING IN EITHER COMPANY'S PAPERWORK RECORDS THAT THIS HAS HAPPENED.

12.6 Volumes and unit economics (Year 3)

Physical driver	Volume	Realisation	Revenue
Narrowbody C-checks	34	₹58.00L	₹1,972L
Line maintenance events	11,600	₹11,000	₹1,276L
Components overhauled	1,600	₹58,000	₹928L
AOG events attended	240	₹2.90L	₹696L
Parts, pooling, NDT and training	—	—	₹928L
Total man-hours	175,600	2 bays	₹5,800L

Derived figure	Working	Result
Man-hours by segment	$34 \times 3,800 + 11,600 \times 2.4 + 1,600 \times 6.5 + 240 \times 34$	175,600
Hands-on staff	$175,600 \div 1,680$ productive hours per person-year	104.5, staffed at 105
Ground time saved per check	7 days against the industry median, at ₹32 lakh a day	₹2.24cr, or 3.9× the invoice
Planning and pre-positioning	₹1.36cr over 34 checks	₹4.00 lakh a check, 6.9%
Signatory independence	₹0.90cr over 38 licensed engineers	₹2.37 lakh each a year
Bay utilisation	$34 \text{ checks} \times 16 \text{ contracted days over } 2 \text{ bays}$	272 days a bay

₹2.24 crore against a ₹58 lakh invoice is the entire argument of this plan in one ratio. Seven days of an aircraft's life is worth almost four times everything the MRO will ever charge for touching it — AND THE PROCUREMENT PROCESS THAT AWARDS THE WORK HAS NO FIELD IN WHICH TO WRITE IT DOWN.

13. Funding Requirement & Bankability

Item	Position
Requirement	₹34.00cr: ₹12.24cr promoter equity, ₹13.60cr term loan, ₹4.76cr working capital limit, ₹3.40cr scheme support
Security	Hangar leasehold improvements, workshops, tooling and the rotatable pool; receivables; personal guarantee of the promoter

Debt service	Year 3 EBITDA ₹9.49cr against interest ₹2.58cr and scheduled repayment; DSCR above 1.8x from Year 3
The rotatable pool is inventory that behaves like plant	₹4.42cr of parts exists so that a turnaround can be promised, not so that it can be sold. A lender should treat it as capacity rather than as stock, because liquidating it ends the product
Liquidated damages	A deliberate, uninsured, recurring exposure — ₹0.42cr in a normal year and ₹2.16cr in a bad one, provisioned from operations rather than covered
What a lender should test	Not the order book — the median turnaround and the parts pre-positioning rate. The first is the product and the second is what makes it deliverable; a falling pre-positioning rate predicts a penalty year about two quarters ahead of the penalties

Year	EBITDA	Interest	Repayment	DSCR
Year 1	₹5.00cr	₹2.04cr	Moratorium	—
Year 2	₹7.30cr	₹2.34cr	₹1.86cr	1.74x
Year 3	₹9.49cr	₹2.58cr	₹2.62cr	1.82x

14. Risk Analysis & Mitigation

Risk	Impact	Mitigation
The invoice is a rounding error in the cost the work causes	A narrowbody out of service costs ₹25–45 lakh a day. A six-day rectification is about ₹1.92 crore of ground time and about ₹4 lakh of invoice — AND EVERY COMMERCIAL INSTRUMENT BETWEEN THE PARTIES ADDRESSES THE ₹4 LAKH. BOTH SIDES SPEND THEIR ENTIRE ATTENTION ON TWO PER CENT OF THE MONEY. So MROs compete on man-hour rate and parts markup, and nothing in that competition rewards turnaround, which is where all the customer's money is: a shop quoting 10% lower and taking three days longer saves the airline ₹40,000 and costs it ₹96 lakh. Nobody misbehaves — purchasing is minimising the number it owns, the MRO is quoting honestly, and the ₹1.92 crore simply belongs to a different department and appears in no document either party signs	SELL THE GROUND TIME, NOT THE MAN-HOUR. Base maintenance at a fixed price AND a fixed 16-day turnaround against an industry median near 23, WITH LIQUIDATED DAMAGES PAYABLE BY US for every day over — 34 of 34 checks, median achieved 15.2 days, ₹0.42cr paid on the four we ran over. It is only deliverable because findings are PREDICTED rather than discovered: parts pre-positioned before induction rose 31% → 74% of what was eventually used, built on our own findings history by type, age and operator, and funded by a ₹4.42cr rotatable pool. SEVEN DAYS SAVED IS ₹2.24 CRORE AGAINST A ₹58 LAKH CHECK — NEARLY FOUR TIMES THE ENTIRE INVOICE. GENERAL RULE: WHERE THE INVOICE IS A SMALL FRACTION OF THE COST THE WORK CAUSES, THE PRICE IS THE WRONG THING TO NEGOTIATE

The signature is personal and the pressure is institutional	A CRS is signed by a named licensed engineer; the regulator can end HIS licence and in a serious event HE is the individual named — while the commercial pressure sits with the company and is transmitted to him by people carrying no personal consequence. THE COMPANY CAN BE FINED; THE ENGINEER CAN BE FINISHED. And the failure mode is not the one people expect: an engineer under pressure does not sign something unsafe, HE STOPS VOLUNTEERING — he signs exactly what was asked and does not mention the corrosion on the adjacent panel, because raising it opens an unestimable scope and makes HIM the cause of the delay. THE ORGANISATION LOSES HIS JUDGEMENT LONG BEFORE IT COMES NEAR LOSING HIS INTEGRITY, AND NOBODY CAN AUDIT WHAT WAS NOT MENTIONED. Critically, THIS PLAN'S OWN TURNAROUND PROMISE CREATES THAT PRESSURE	Build the control at the same time as the promise. NO CRS SIGNATORY HAS ANY TURNAROUND MEASURE IN HIS APPRAISAL, BONUS OR REPORTING LINE — 38 of 38 — and quality reports to the Accountable Manager independently of production, which is what CAR-145 intends and what commercial pressure erodes everywhere. Observations outside the work scope go to a discretionary-findings channel carrying no turnaround consequence for whoever raises it: 2.1 → 7.4 per check, at ₹2.37 lakh per signatory a year. And the measure that says whether it worked is anonymous: engineers reporting they had withheld an observation in 90 days fell 41% → 9%. THE FIGURE MOVED BECAUSE THE APPRAISAL CHANGED, NOT BECAUSE ANYBODY WAS EXHORTED
DGCA action on the approval	The largest row here. Rated scope suspended is ₹9.80cr and a ₹4.31cr loss — under rule (b) the approval is the asset and a hangar without it is a shed	Quality independent of production as CAR-145 requires and as the appraisal structure actually delivers; occurrence reporting non-punitive under rule (g); the discretionary channel surfaces precursors that an audit would otherwise find first; MOE and records maintained as a live document rather than an inspection artefact
Customer concentration	MRO revenue concentrates by construction; losing the anchor base customer is ₹5.42cr and a ₹1.03cr loss with the hangar and establishment unchanged	Six revenue lines with base maintenance at only 34%; line maintenance contracted at three stations; components and AOG serve a wider operator set; NDT and support sold to other CAR-145 organisations
Forex on parts and rotables	Almost every part is dollar-priced; +18% is ₹3.34cr and rule (h) makes it a cost event rather than a market one	Rotable pool bought ahead in tranches; pooling arrangements rather than outright purchase where the type allows; fixed-price quotations carry a parts-index clause; exchange and repair used in preference to new where approved
Turnaround exposure	Liquidated damages are a deliberate uninsured tail: ₹0.42cr in a normal year and ₹2.16cr in a bad one	Provisioned from operations; the TAT clock starts on induction with a jointly agreed scope so pre-existing condition is not our risk; damages capped per check and per year; the pre-positioning rate is monitored as the leading indicator
Licensed engineer supply	CAR-66 licensed engineers with the right type authorisations are scarce, mobile and internationally recruited	CAR-147 training approval developing our own; type authorisations funded and bonded; the independence structure is itself a retention argument, because engineers who have worked in it do not readily go back

15. SWOT Analysis

Strengths	Weaknesses
The only fixed-TAT base maintenance offer with money attached; a findings-prediction model and a ₹4.42cr pool that make it deliverable; signatories genuinely outside the commercial line; a measured withholding rate nobody else collects; six revenue lines around a concentrated core	5.2% net margin on ₹34.00cr; the commitment costs ₹3.75cr against ₹3.04cr of PAT; a deliberate uninsured damages tail; heavy forex exposure; base maintenance is the thinnest line and carries the hardest promise
Opportunities	Threats
Indian heavy maintenance is still substantially flown abroad and capacity is the constraint; airlines that compute their own ground-time cost are exactly our customer; AOG work migrates to whoever is fastest; the prediction model compounds with every check	DGCA action; customer concentration; the rupee; man-hour competitors who will always quote lower; and the structural fact that the number we sell on has no field in the purchase order

The honest summary is that this MRO sells against a cost its customer genuinely incurs and does not genuinely measure by department. The proposition wins whenever the airline's commercial side is in the room and loses whenever purchasing is alone in it. THE BET IS THAT FLEET GROWTH EVENTUALLY FORCES AIRLINES TO PUT A DAY OF AIRCRAFT AVAILABILITY ON THE SAME PAGE AS AN HOURLY RATE — AND UNTIL THEY DO, THIS BUSINESS IS SELLING ARITHMETIC ITS CUSTOMER HAS TO DO FOR ITSELF.

16. Recommended AiSevak Tools for This Business

- **Business plan and project report generator** — for a term loan on a hangar, workshops and a rotatable pool.
- **Compliance calendar** — CAR-145 approval and scope renewals, CAR-66 licence and type currency, CAR-147 training approval, NDT re-certification, calibration, insurance — under rule (a) these expire independently.
- **Cost and pricing calculator** — cost per man-hour and per check, the fixed-TAT price against a modelled findings distribution, and the customer's cost-of-delay by aircraft type.
- **GST and invoicing helper** — works and services treatment, imported parts and bonded store movements, exchange and repair transactions.
- **Labour and payroll toolkit** — shift rosters under duty limits per rule (f), licence and authorisation currency, EPF and ESI.
- **Loan and subsidy application helper** — MRO policy incentives, customs and GST concessions on parts, and a lender file explaining a rotatable pool as capacity.
- **Contract and terms drafting helper** — the fixed-TAT agreement with its liquidated-damages and scope-agreement terms, the discretionary-findings undertaking, and pooling agreements.

Every tool above is **free to use on AiSevak and needs no signup to explore**. The toolkit link at the end of this plan opens the whole aviation set.

17. Key Assumptions & Notes

- **All financials are illustrative model assumptions, not forecasts, projections or guarantees.** Revenue, check counts, man-hours, turnaround, findings and damages are editable inputs; outcomes depend on fleet growth, DGCA standing, the rupee and licensed engineer supply. Figures are in Indian rupees. **This plan is the fourth in vertical 57**

and inherits the ten aviation anchor rules (a)-(j) from §17 of the drone services plan — in particular (b) the CAR-145 approval is the asset and its rated scope sets the revenue ceiling, (c) airworthiness and currency are recurring opex, (f) duty limits produce the 1,680 productive hours from which hands-on headcount is derived, and (g) safety reporting must be non-punitive or it produces nothing.

- **The central finding is that the invoice is a rounding error in the cost the work causes.** A narrowbody out of service costs ₹25–45 lakh a day, so a six-day rectification is about ₹1.92 crore of ground time against about ₹4 lakh of invoice — **and every commercial instrument between the parties addresses the ₹4 lakh. Both sides spend their entire attention on two per cent of the money.**
- **Which produces a competition that rewards the wrong variable.** MROs compete on man-hour rate and parts markup because those are the fields procurement has, and nothing in that competition rewards turnaround. **A shop quoting 10% lower and taking three days longer saves the airline ₹40,000 and costs it ₹96 lakh — the cheaper quotation is almost always the more expensive decision, and the comparison being made cannot see it.**
- **Nobody misbehaves, which is why it is stable.** Purchasing is correctly minimising the number it has been given; the MRO is quoting honestly against a specification. **The ₹1.92 crore is not hidden or disputed — it belongs to a different department of the customer and appears in no document either party signs. GENERAL RULE: WHERE THE INVOICE IS A SMALL FRACTION OF THE COST THE WORK CAUSES, THE PRICE IS THE WRONG THING TO NEGOTIATE — SO SELL THE GROUND TIME, NOT THE MAN-HOUR.**
- **The remedy is a fixed price and a fixed turnaround with liquidated damages** — 16 days against an industry median near 23, 34 of 34 checks, median achieved 15.2 days, ₹0.42 crore paid on four overruns. It is deliverable only because findings are predicted: pre-positioned parts rose 31% to 74% of those eventually used. **Seven days saved is ₹2.24 crore against a ₹58 lakh check — nearly four times the entire invoice.**
- **The second thread is the control on the first, because the remedy creates the hazard.** A CRS is signed personally by a named engineer whose licence is at risk, while the pressure is institutional and transmitted by people with no personal exposure — **the company can be fined; the engineer can be finished.** And the failure mode is not an unsafe signature: **he stops volunteering**, signing exactly what was asked and not mentioning what he saw elsewhere, because raising it makes him the cause of the delay. **The organisation loses his judgement long before it comes near losing his integrity, and nobody can audit what was not mentioned.** Remedy: no signatory has any turnaround measure in appraisal, bonus or reporting line; a discretionary-findings channel with no turnaround consequence took findings from 2.1 to 7.4 a check; and anonymous reporting of withheld observations fell from 41% to 9%.
- **Volumes and unit economics.** 34 C-checks at ₹58 lakh, 11,600 line events at ₹11,000, 1,600 components at ₹58,000, 240 AOG events at ₹2.90 lakh; 175,600 man-hours across two bays at 272 bay-days each. Hands-on headcount is derived under rule (f), not chosen: $175,600 \div 1,680$ productive hours per person-year = 104.5. Planning and pre-positioning costs ₹4.00 lakh a check (6.9% of the check) and signatory independence ₹2.37 lakh per licensed engineer. **₹1.90 crore of the trade-standard gap is simply billing more hours because the aircraft is on the ground longer — not a penalty for inefficiency but a reward for it.**
- **Compliance and professional advice.** DGCA CAR-145 approval with rated scope by type and capability, an Accountable Manager, a Maintenance Organisation Exposition and quality reporting independent of production — **under rule (b) the approval is the asset and its rated scope, not demand, sets the revenue ceiling**; CAR-66 licensed engineers with category and type authorisations, whose Certificate of Release to Service is signed personally; CAR-147 approved training with recurring currency obligations under rule (c); approved parts with valid release documentation, traceability, bonded stores, shelf-life and life-limited part control, **noting that a part without acceptable paperwork is not a cheap part but scrap**; safety management and occurrence reporting under rule (g); calibrated tooling and NDT personnel qualification; hangar and aerodrome lease, customs and GST on imported parts and rotables under rule (h), and product and hangar-keeper's liability under rule (d). **Note the structural point: CAR-145 already requires**

quality independent of production and certifying staff free to exercise judgement — the regulation is not deficient, it is silent on the mechanism by which independence erodes, which is not instruction but appraisal. An organisation can satisfy every clause and still have a signatory whose bonus depends on the aircraft leaving on Thursday. Professional advice should be taken on the liquidated-damages and scope-agreement terms, parts-index clauses in fixed-price quotations, customs and bonded-store treatment, and liability cover against a deliberately uninsured turnaround tail.

► **Use these tools now — free on AiSevak**

Every tool referenced in this plan is available on aisevak.in. Open the [Aviation and Aerospace Services toolkit](https://aisevak.in/verticals/aviation) to browse and use them all at <https://aisevak.in/verticals/aviation> — or go straight to any specific tool at <https://aisevak.in/service/<tool-name>>. No signup needed to explore; each tool guides you step by step.

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