PUBLIC-INTEREST INVESTIGATION • AVIATION SAFETY • PILOT FATIGUE

Why Indian Pilots Are Dying

What India's own documents show about FDTL reform — and the regulatory choices behind two cardiac deaths in 24 hours

Built from documents the Directorate General of Civil Aviation released only after a Central Information Commission second appeal, supplemented by primary court records, parliamentary answers, peer-reviewed fatigue science, the WHO/ILO 2021 Joint Estimate, and three independent surveys of Indian commercial pilots.

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KEY NUMBERS

Each tile sourced to a primary document; full citations in the body of the report.

2 Indian airline pilots dead (24 hrs, 29–30 Apr 2026)	**1,729** TMU + PMU declarations, 2009–2023	**9×** growth in pilot Temporary-Unfit 2009 → 2021
60 hrs DGCA weekly duty cap (CAR §8.1)	**55 hrs** WHO/ILO mortality threshold (2021 Joint Estimate)	**+5 hrs** India's cap above the science
10 → 4 → 2 DGCA reforms: proposed → adopted → in force	**16×** Air India's under-rate of fatigue reports vs peers	**0 min** buffer Air India schedules between FDP and ceiling
12.1% of pilots trust the fatigue-report channel	**95.6%** Indian pilots with daytime sleepiness (SMF 2024)	**66%** of pilots have experienced in-cockpit microsleep

Sources for each tile: §1 (deaths), §2 (TMU/PMU), §9.5 (WHO/ILO vs CAR), §5 (reform attrition), §7.5 (Air India), §7 (SMF surveys). Full citations in body.

IF YOU HAVE 60 SECONDS

Nine sentences, each independently sourced. Section references in brackets.

- Two Indian commercial pilots — Capt. Tarundeep Singh (Air India, Bali, 29 Apr 2026) and Capt. Arjun Naidu (Akasa Air, Bengaluru, 30 Apr 2026) — died of cardiac arrest in the 24 hours before this report was filed. Both were "within DGCA limits." ALPA India records both as having died "in the line of duty." *(§1, §7.6)*
- India's safety regulator (DGCA) is not statutorily independent — it is a subordinate office of the Ministry of Civil Aviation. The DGCA drafts; the Ministry approves and announces. *(§0)*
- From 2009 to 2023, 1,635 Indian pilots were declared Temporarily Unfit and 94 Permanently Unfit. TMU declarations rose 9× from 25 in 2009 to 223 in 2021. The DGCA does not publish this data. *(§2)*
- The DGCA's own October 2023 internal Impact Analysis told the Hon'ble Minister that ALL ten proposed fatigue reforms could be adopted without affecting flight operations or hampering aviation growth. *(§5)*
- The press release adopted 4 of those 10 reforms. All 4 have since been the subject of carrier-specific exemptions in October 2025–February 2026. As of April 2026, 2 of the original 10 reforms remain in unrestricted force. *(§5, §8)*
- DGCA CAR §8.1 permits a pilot to be scheduled for 60 hours of duty per 7 days. The WHO/ILO 2021 Joint Estimate finds that 55+ hours/week elevates stroke risk by 35% and ischemic heart disease death by 17%. The Indian regulatory ceiling is 5 hours above the international scientific threshold for cardiovascular mortality. *(§9.5)*
- Air India — operating the most fatiguing schedules in the dataset — files only 0.09 fatigue reports per 100 flights, against IndiGo's 1.40 and Air India Express's 1.45. ALPA India / IFALPA, in a letter to the DGCA dated 1 May 2026, records on the basis of RTI replies "an alarmingly low rate of acceptance of fatigue reports by operators." *(§7.5, §7.6)*
- In September 2025, the DGCA implemented FRMS via an Operations Circular — bypassing the 30-day public consultation that statutory rule-making requires. The DGCA's own CAR §1.1 explicitly states that "the State shall establish FRMS Regulations." Regulations. Not circulars. *(§9.7)*
- Pilot federation petitions are being heard for contempt; safety-NGO petitions have been dismissed at preliminary stages on locus standi / maintainability. The substantive evidence has not, on the public record, been adjudicated. *(§8)*

0. Who Actually Decides — Ministry, Regulator, and the Missing Independence

Before the rest of this report can be read, one structural question must be answered: when an Indian Civil Aviation Requirement on flight-crew fatigue is drafted, debated and notified, who actually decides what goes into it? The answer determines whether this is a safety-regulation story or a regulated-policy story. On the documents reviewed, it is the second.

0.1 The formal legal answer

The DGCA frames FDTL Civil Aviation Requirements under powers conferred by Rule 42A read with Rule 133A of the Aircraft Rules, 1937 — the rules cited in Para 1.2 of CAR Sec 7-J-III itself. These flow from the Aircraft Act, 1934 (now superseded by the Bharatiya Vayuyan Adhiniyam, 2024). On paper, the regulator drafts and notifies the FDTL CAR. The Ministry of Civil Aviation is the policy ministry; it does not, formally, draft technical safety rules.

0.2 The institutional reality

The DGCA is not a statutorily independent regulator. It is a subordinate office of the Ministry of Civil Aviation. The Director General of Civil Aviation reports administratively up the line to the Secretary, MoCA, and onward to the Hon'ble Minister of Civil Aviation. Promotions, postings, departmental budgets, parliamentary answers, and — crucially — the political signal on a contested rule travel down the same line. So while the DGCA writes the CAR, the Ministry approves it in practice; and where the Ministry has a view, the Ministry's view tends to prevail.

0.3 The smoking gun — FDTL1 is a "Presentation to HMCA"

The single most informative line in the entire FDTL document set is the cover slide of FDTL1. It does not read "Public Consultation Document" or "Stakeholder Briefing" or "DGCA Notification." It reads:

> *"Impact Analysis of proposed recommendations on FDTL — Presentation to HMCA — Date: 12-10-2023."* — *FDTL1, slide 1 (cover)*

HMCA is the Hon'ble Minister of Civil Aviation. The technical regulator did not publish its impact analysis to the public, did not put it out for 30-day open consultation, did not even circulate it to the pilot federations. It put it in front of the political Minister. Twelve weeks later, the press release that was issued — over the Ministry's masthead, with the Minister tweeting personally — adopted four of the regulator's ten recommendations. The institutional sequence is: regulator analyses → minister decides → ministry announces. The regulator is the drafting hand; the minister is the deciding hand. The technical conclusions of the regulator's own engineers were filtered through political review before publication.

0.4 What ICAO requires this to look like

ICAO Doc 9734 (Safety Oversight Manual) and ICAO Annex 19 (Safety Management) both require — as a structural prerequisite of effective safety oversight — that the State's civil aviation authority be functionally independent of political and commercial pressure. The mature pattern globally is a statutorily autonomous Civil Aviation Authority: the FAA in the US, EASA in the EU, the UK CAA, CASA Australia, Transport Canada Civil Aviation. India is one of the few large aviation markets where the safety regulator remains a subordinate office of the policy ministry.

0.5 The reform that has not happened — the Civil Aviation Authority Bill

The Civil Aviation Authority of India Bill — drafted to convert the DGCA into a statutorily independent CAA on the global model — has been in the public domain for over a decade and has never passed. Its absence is not a technicality. It is the legal vacuum inside which every pattern documented in this report has been able to occur. A statutorily independent regulator would not have needed to "present to HMCA" before publishing an impact

analysis. It would have published the analysis with its findings, opened the consultation, and notified the rule on its own authority. The CAA Bill's non-passage is the single largest regulatory reform India can make to address pilot fatigue, and it is the one nobody is currently pushing.

0.6 Why this matters for everything that follows

Each pattern this report documents — the regulator's own data being inverted in the press release (§§5, 6); the airlines' commercial concerns producing exemptions while pilot proposals produced one-line rejections (§§5, 8); the FRMS Operations Circular bypassing statutory rule-making (§9.7); the contempt petitions in the Delhi High Court (§8) — is individually possible only because there is no firewall between the technical regulator and the political ministry. A statutorily independent CAA could have notified the full ten-reform package on its own authority and required compliance. It could have refused to issue carrier-specific exemptions absent published technical justification. It could have refused to implement FRMS via Operations Circular. The DGCA, structurally, does none of these things — because the institutional sequence runs through the Minister, and the Minister's office faces incentives the technical regulator does not.

> *If you ask "who decides how FDTL is framed," the honest answer is: technically the regulator drafts, but in practice the Ministry approves and announces. That is the difference between a CAR being a piece of safety regulation and being a piece of regulated policy. India's FDTL CAR has, on the documents reviewed in this report, been the second.*

If You Read Nothing Else, Read This

> *In the 24 hours before this report was filed, two Indian commercial pilots died of cardiac arrest. Capt. Tarundeep Singh of Air India died on his Bali layover on 29 April 2026. Capt. Arjun Naidu of Akasa Air died during training at Bengaluru on 30 April 2026. Both were aged below 45. Both, by their employers' accounts, were "within DGCA limits." Both had cleared their statutory medicals. ALPA India, in a letter to the Director General dated 1 May 2026, recorded both as having died "in the line of duty." The formula offered after each such death has been the same. The pages that follow test it against the rule book it relies on, and against the science that rule book is supposed to reflect.*

Why are pilots dying? In one paragraph.

The human body needs roughly seven to eight hours of real, unbroken sleep on a regular cycle to keep the heart, the brain and the immune system working. Indian airline pilots, by their employers' own rosters, are routinely scheduled to operate flights that end at midnight or 2 a.m. and start again twelve hours later, week after week, year after year. Twelve hours sounds like rest. It is not. Inside that twelve hours the pilot must drive home or to a hotel, eat, decompress, fall asleep, sleep through daylight or street noise, wake up, eat again, get to the airport, and pass a fatigue self-check. Real sleep ends up being four to six hours, often broken. Do that for years and the

body breaks. The first thing that breaks is the heart. Cardiac arrest in a 35–40-year-old man with no "pre-existing condition" is not bad luck; it is the predicted outcome of chronic sleep deprivation. That is what is killing Indian pilots.

Why doesn't the regulator stop it?

Stopping it would require airlines to hire more pilots, fly fewer night sectors, and accept lower scheduling efficiency. On the evidence reviewed in this report, the Directorate General of Civil Aviation (DGCA) has so far prioritised scheduling continuity for the operators over the more restrictive rules that its own internal Impact Analysis (October 2023) concluded were operationally feasible. It has written rules that count hours rather than measure fatigue; it has not proactively published the data that would allow independent scrutiny; it has granted carrier-specific exemptions from even the diluted rules in October–December 2025; and the courts have, on procedural grounds, repeatedly closed the door to safety-NGO litigation that sought to force change.

How do we know? Six things, in order:

- **1. The body count is real and rising.** Multiple Indian airline pilots aged 30–40 have died in active duty or scheduled crew rest in the last 32 months. The regulator does not publish a national tally.
- **2. The medical-unfit count exploded.** Loss-of-licence claim data shows pilot Temporary-Medical-Unfit (TMU) declarations rose nearly 9× between 2009 and 2021, from 25 in 2009 to 223 in 2021. Total over 2009–2023: 1,635 TMU plus 94 PMU declarations. (See Section 2 chart.)
- **3. The regulator's own internal study said the safety reforms were costless.** DGCA's October 2023 PowerPoint to the Civil Aviation Minister concluded all ten proposed fatigue reforms could be adopted without affecting flight operations and without hampering aviation growth. (See Section 5.)
- **4. The press release inverted the conclusion.** Three months later, the regulator told the public that only four of the ten reforms could be adopted, and that this was a "balanced" compromise with growth. The data did not say that. The press release did. (See Section 6.)
- **5. The mandatory 30-day public consultation didn't happen.** Indian rule-making convention requires every Civil Aviation Requirement to be issued as a draft for at least 30 days of open public comment. There is no record of this for the FDTL CAR the press release announced. The rule was made behind closed doors. (See Section 4.)
- **6. The regulator buried the file behind RTI walls.** When a private citizen filed a Right to Information request for the file in August 2023, the DGCA refused on the ground of being "voluminous." The file is 24 PowerPoint slides and a comparison table. The Central Information Commission had to be approached on second appeal before it was released. The documents that anchor this report exist in public only because a citizen forced them out. (See Section 3.)

So why does the "within DGCA limits" line keep appearing?

Because, technically, it is correct — and that is the whole problem. The DGCA limits are the maximum a pilot can be flown. The regulator's own internal Impact Analysis (October 2023) records that the airlines plan rosters within minutes of those maxima, with as little as zero buffer (FDTL1, slide 5). "Within limits" means "at the regulatory ceiling." It does not, on the documents reviewed, correspond to "well-rested," to ICAO's science-based fatigue-

management standard, or to the levels at which the regulator's own engineers told it operations could safely run. (See Sections 5, 8, 9.)

What an honest country would do tomorrow

- Publish, by airline, the actual rosters. Pilots already work them. The regulator already has them.
- Publish the death tally and the unfit tally every quarter.
- Re-instate the six fatigue reforms the DGCA itself proposed and then dropped.
- Stop granting carrier-specific exemptions when an airline can't hire enough pilots to meet the law.
- Treat fatigue the way the law already treats alcohol. (After 17 hours awake, the brain performs like it does at the legal driving limit. After 19 hours, it performs at twice the limit. This is not opinion; it is the Williamson–Feyer 2000 study, peer-reviewed, replicated, and ignored.)

> *Until any of those six things change, the next First Officer who dies on layover is statistically foreseeable on the trend lines documented here. The regulator has been put on notice — by its own internal analysis, by independent surveys, by court orders, and by every reported death. What it does next will determine whether this report's forecast is wrong.*

1. The Visible Body Count

These are the in-service Indian airline pilots aged 30–40 whose deaths have been reported in the public press in the last 32 months. Each of them held a current Class I medical certificate. Each of them, by their airline's account, was within DGCA flight-time limits. Each of them died inside a duty cycle or its scheduled crew rest.

Date	Pilot / Operator	Cause	Stage of duty
30 Apr 2026	Capt. Arjun Naidu, Akasa Air	Heart attack	On duty during training in Bengaluru — "in the line of duty" (ALPA India)
29 Apr 2026	Capt. Tarundeep Singh, Air India (Member ALPA India)	Heart attack	Bali layover — "in the line of duty" (ALPA India)
9 Apr 2025	Pilot in his 30s, Air India Express, Srinagar–Delhi	Cardiac arrest; reported vomiting in cockpit	Collapsed at IGI dispatch office immediately after landing
Nov 2023	Capt. Himanil Kumar (37), Air India	Cardiac arrest	On duty, B777 simulator/training at IGI Delhi
Aug 2023	Capt. Manoj Subramanyam (40),	Cardiac arrest pre-flight	Just before operating Nagpur–Pune

Date	Pilot / Operator	Cause	Stage of duty
	IndiGo		

The DGCA does not publish a cumulative national tally of pilot deaths on duty or in layover. There is no quarterly bulletin. There is no annual statistic. There is no minister's answer in Parliament. The list above is what newsrooms surfaced. It is the visible part of an iceberg the regulator chooses not to size.

2. The Medical-Unfit Number That Tells the Story

If a pilot dies, that is one data point. If 1,635 pilots are declared "Temporarily Unfit" to fly over fifteen years, with the annual figure rising nine-fold, that is a public-health pattern.

The chart and table below reproduce loss-of-licence claim data published in mindFly: Human Follies & Malice in Aviation by Capt. Amit Singh FRAeS (Figure 41). "TMU" is Temporarily Medically Unfit — the pilot is grounded but expected to recover; conditions include hypertension, anxiety, sleep disorder, and cardiac events that respond to treatment. "PMU" is Permanently Medically Unfit — the pilot's licence is terminated; conditions include chronic heart disease, severe arrhythmia, neurological disease, and others which medicine cannot reverse.

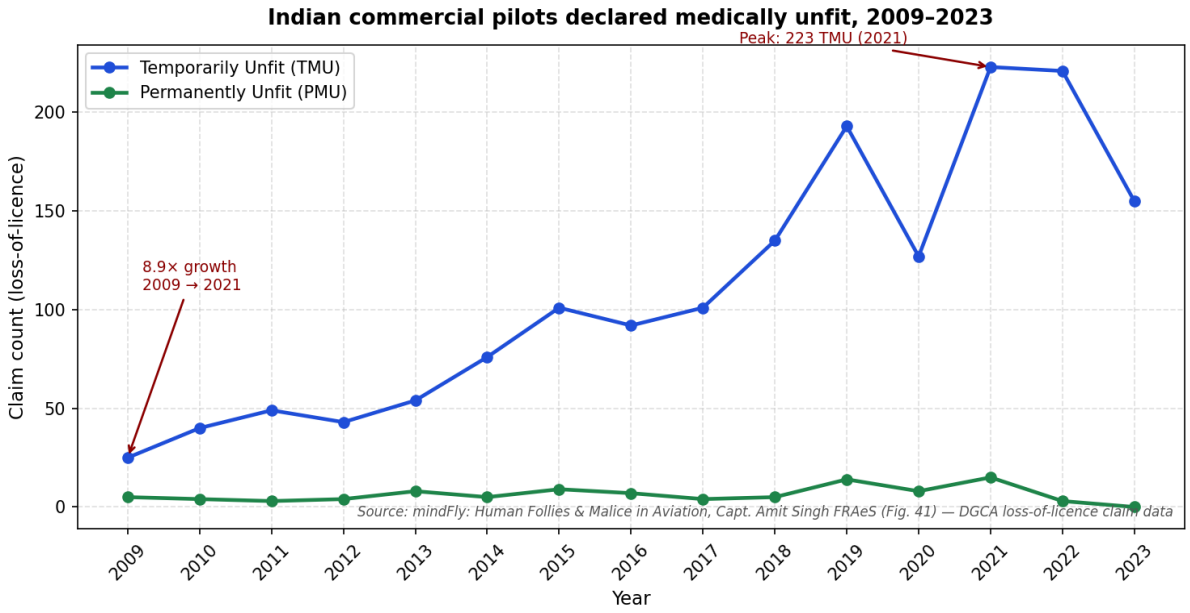

Figure 1 — Indian commercial pilots declared medically unfit, 2009–2023.

The numbers behind the chart

Year	TMU (Temporarily Unfit)	PMU (Permanently Unfit)
2009	25	5
2010	40	4

Year	TMU (Temporarily Unfit)	PMU (Permanently Unfit)
2011	49	3
2012	43	4
2013	54	8
2014	76	5
2015	101	9
2016	92	7
2017	101	4
2018	135	5
2019	193	14
2020	127	8
2021	223	15
2022	221	3
2023	155	0
Total 2009–2023	**1,635**	**94**

How to read this

- Absolute trend: TMU declarations rose roughly nine-fold between 2009 (25) and 2021 (223). The annual figure has stayed above 150 every year since 2018 except 2020.
- Per-capita trend: the Indian commercial pilot population grew over this window — but, on industry-reported population estimates, at a substantially lower rate than the rate of TMU declarations. The per-capita rate of pilots being placed Temporarily Unfit therefore rose materially even after adjusting for headcount growth.
- Cumulative figures: 1,635 TMU + 94 PMU = 1,729 instances over fifteen years in which an Indian commercial pilot's body led the medical board to take them off the flight deck.
- Timing: the peak of the curve (2018–2022) coincides with the period in which the DGCA was preparing the FDTL revision. The regulator had this data while it was making decisions about how lightly to reform the rule book.

> *On the trend documented here, pilots are being placed medically unfit at a rate the regulator did not place in the public domain while it was writing the rule. The data only became publicly readable when a working pilot reproduced it in a privately-published book.*

What the regulator publishes about this

Nothing. There is no DGCA quarterly bulletin of TMU/PMU declarations. There is no cause-of-unfitness breakdown. There is no operator-by-operator comparison. The numbers above had to be reconstructed from claim data and reproduced in a privately-published book by a working pilot before the public could see them. The regulator that has the underlying records does not put them in the public domain.

3. How These Documents Even Reached Us — the RTI / CIC Story

The two documents that anchor this report — the DGCA's internal "Impact Analysis" presentation to the Hon'ble Minister of Civil Aviation (FDTL1) and the table of pilot recommendations versus DGCA remarks (FDTL2) — are not, in any meaningful sense, public documents. They are documents the regulator was forced to disgorge.

The original RTI

On 31 August 2023, an application was filed under the Right to Information Act, 2005, asking for the "complete file pertaining to Duty Period, Flight Duty Period, Flight Time Limitations and Prescribed Rest Periods — Flight crew Engaged in Scheduled Air Transport Operations." The application is on record as DGOCA/R/E/23/00439, applicant Amit Singh.

On 27 September 2023, the DGCA disposed of the application with one of the most familiar evasions in Indian public-information practice:

> *"The information sought is voluminous in nature. The collation and disclosure of the same would disproportionately divert the resources of the public authority. Hence, you are requested to visit this office on a pre-decided working day to get the desired information/records."* — *DGCA reply, RTI DGOCA/R/E/23/00439, 27 Sep 2023*

Translation: come to our office, on a date we choose. The "file" the regulator described as too voluminous to email turned out to be 24 PowerPoint slides and a four-column comparison table. Both fit on a single email. Both are in the public record only because the citizen took the matter to second appeal before the Central Information Commission.

Why this matters

A regulator that proactively publishes only the press release, and that resists releasing the analysis behind it until ordered by the CIC, is not transparently regulating. It is performing transparency. The 8 January 2024 press release announces a fatigue reform supposedly grounded in "extensive data analysis." The data analysis it refers to is the file the regulator simultaneously claimed was too voluminous to release. The same document is small enough to base a press release on, and large enough to deny a citizen.

4. The Public Consultation That Has No Public File

The DGCA's own published practice, in line with the wider Indian convention for subordinate legislation, has been to put draft Civil Aviation Requirements out for public comment for a stated period — typically not less than 30

days — before notification. The purpose of an open-comment window is to invite written submissions from pilots, scientists, aviation-safety NGOs, the international fatigue-research community and the public; to produce a documented comments register; and to produce a reply matrix showing how each comment was disposed of.

What is on record, and what is not

The PIB press release of 8 January 2024 references "feedback from airline operators, pilot associations and individuals" but does not link a comments file. To date, the present authors have not found a published comments register or reply matrix for the FDTL CAR the press release announced. If a 30-day stakeholder-consultation file does exist, the regulator is invited to publish it. The statement here is that, on the public record reviewed, no such file is presently available.

FDTL2, obtained via RTI/CIC, records that the pilot associations' written submissions on the contested provisions were met with a recurrent boilerplate response: "the proposed recommendation may not be accepted." Subsequent regulatory conduct in the year and a half since notification — phased extensions, named-carrier exemptions in October–December 2025, and the December 2025 IndiGo relaxation — is consistent with greater responsiveness to operator concerns than to pilot concerns.

Why this is not a procedural quibble

Open consultation is the procedural firewall between "regulation" and "private deal." Where a comments file is published, the public can verify that affected parties were heard and that the regulator's reasoning is on record. Where no such file is in the public domain, that verification is unavailable; the only inference an outside reader can draw is from the conduct of the parties before, during and after notification. This report draws that inference cautiously and with the regulator's right of reply preserved.

5. The Document the Regulator Did Not Want You to Read: FDTL1

FDTL1 is the DGCA's 24-slide "Impact Analysis of proposed recommendations on FDTL — Presentation to HMCA," dated 12 October 2023. File no. DGCA-22024/12/2022-FSD; computer no. 230417, generated from the DGCA eOffice. It was withheld until forced into the public domain. It tells a story precisely opposite to the press release.

5.1 What FDTL1 measured

Slide 13 records that the DGCA analysed actual scheduling and fatigue reports submitted by Air India Express, AIX Connect (AirAsia India), IndiGo, Vistara and SpiceJet for the full year 1 August 2022 – 31 July 2023, and ran a comparative review of EASA, FAA and DGCA regulations on weekly rest, WOCL flights and FDP extension.

5.2 What it found about utilisation (Slide 4)

Operator / Fleet	Flight Time (hrs/mo)	FDP (avg)	Total Duty Period	Weekly rest (hrs)
IndiGo Airbus	56.8	85.85	114.85	49.81
IndiGo ATR	60.7	86.2	112.85	45.57

Operator / Fleet	Flight Time (hrs/mo)	FDP (avg)	Total Duty Period	Weekly rest (hrs)
Air India A320	56.5	81.95	115.85	48
Air India B777	70.48	97.6	109.75	65
Air India B787	66.65	91.8	107.55	60
Vistara A320	64	91.15	120	52.5
Vistara B787	50	73.2	85.1	61.5
SpiceJet B737	48	67.5	91.5	51.5
SpiceJet Q400	48.5	66	86	51.5
Akasa B737	58.77	87.97	128.05	94
Alliance ATR	59.5	90	126.5	42
INDUSTRY AVG	**55.59**	**80.18**	**105.05**	**55.78**

5.3 The regulator's own conclusions on Slide 6

> *"Average Flight Time (FT) of the scheduled operators is between 55–60 hrs per month (maximum allowable as per CAR is FT of 100 hrs)."* — *FDTL1, slide 6*
>
> *"Average Flight Duty Period (FDP) of the scheduled operators is between 80–100 hrs per month."* — *FDTL1, slide 6*
>
> *"Duty period (DP) of the scheduled operators is between 90–130 hrs per month (maximum allowable as per CAR is DP of 190 hrs)."* — *FDTL1, slide 6*
>
> *"Average weekly rest planned by the scheduled operators is more than 48 hrs."* — *FDTL1, slide 6*

Plain reading: the airlines were flying at half the legal ceiling on flight time, and at roughly 55% of the legal ceiling on duty period. There was operational headroom. The regulator told the Minister so, in writing, twelve weeks before issuing a press release implying the opposite.

5.4 The 10 reforms the regulator itself recommended

Slide 3 lists ten substantive recommendations the DGCA put up to the Minister. They were not pilot demands the regulator reluctantly entertained; they were the regulator's own list:

- Weekly rest increased to 48 hrs from 36 hrs (incl. 02 local nights).
- FDP capped at 10 hrs if encroaching night duty across multiple sectors.
- Maximum 02 landings while encroaching night duty.
- Night duty redefined as 2300–0600 (from 0000–0500).
- No FDP extension allowed if encroaching night duty.

- Review of transportation time inside the CAR.
- Split duty to be considered as part of FDP in night duty.
- Post-flight rest period increased by 4 hrs after FDP extension.
- Suitable accommodation if a split duty encroaches WOCL.
- FDP extension capped at 02 hrs / 1 hr flight time per day, with cumulative 28-day cap of 8 hrs FDP / 4 hrs flight time.

5.4a What survived, and what did not — the audit chain

Of those ten recommendations, the press release of 8 January 2024 adopted four. Six were either dropped at notification or weakened. Of the four that were adopted, all four have been the subject of carrier-specific exemptions in October 2025–February 2026. The chart below tracks the attrition:

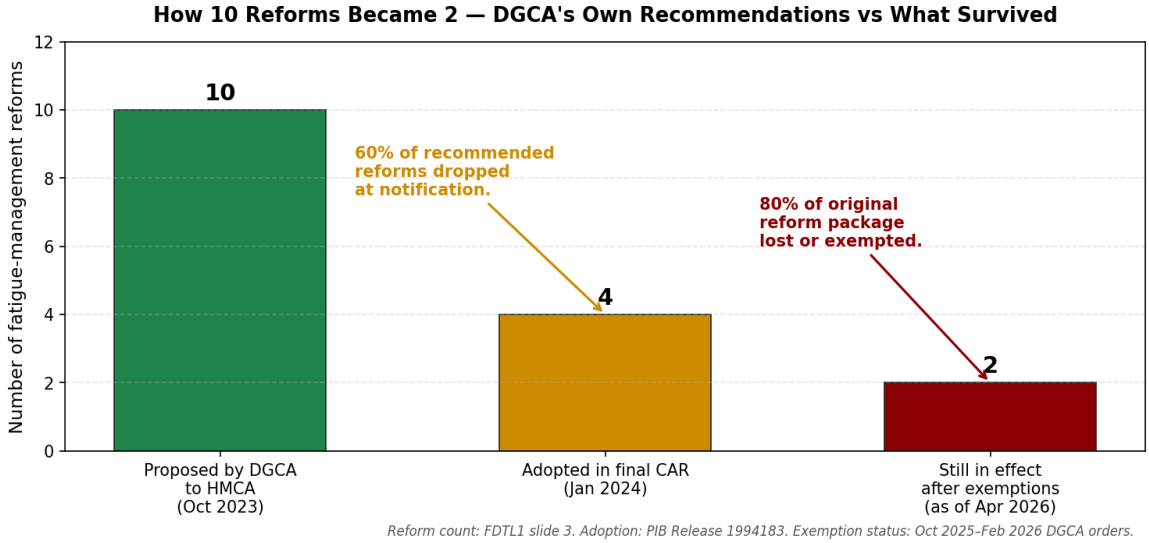

Figure 2 — Attrition of the FDTL reform package, October 2023 to April 2026.

Recommendation-by-recommendation status

#	DGCA-recommended reform (FDTL1 slide 3)	Adopted in CAR (Jan 2024)	Status as of Apr 2026	Carrier exemptions issued?
1	Weekly rest 36→48 hrs (incl. 02 local nights)	YES	Diluted via exemption	Yes (IndiGo Dec 2025; multi-carrier Oct 2025)
2	FDP cap 10 hrs if encroaching night, multiple sectors	Partial — 10 hrs but with 2 landings only	In effect with carve-outs (cargo: 4 landings)	Yes (cargo)
3	Max 02 landings while encroaching night duty	YES (CAR §6.1.4)	In effect	Cargo carve-out to 4 landings

#	DGCA-recommended reform (FDTL1 slide 3)	Adopted in CAR (Jan 2024)	Status as of Apr 2026	Carrier exemptions issued?
4	Night duty redefined 2300–0600 (from 0000–0500)	Partial — 0000–0600 only	In effect (1 hr extension only)	—
5	No FDP extension if encroaching night duty	Partial via Para 16.1	Permitted in unforeseen circumstances	—
6	Review of transportation time inside CAR	Not adopted	CAR §10.5 still excludes first 30 min	—
7	Split duty considered as part of FDP in night duty	Not adopted	CAR §9 unchanged	—
8	Post-flight rest +4 hrs after FDP extension	Partial via Para 16.1(f)	Limited to >1 hr extensions	—
9	Suitable accommodation if split duty encroaches WOCL	Partial via CAR §9(b)	In effect for >6-hr breaks only	—
10	FDP extension capped 02 hrs/day, 28-day cap 08 hrs	Adopted via CAR §16.1	In effect	—

5.5 The verdict the regulator gave its own proposals

> *"As per available data, pilots are scheduled with more than 48 hours of weekly rest. Incorporation of 48 hrs weekly rest provision would not have any adverse impact on operations if planning of pilot schedule is done effectively."* — *FDTL1, slide 7*
>
> *"Based on data available, average crew FDP is between 5 to 6 hrs per day. Restricting FDP to 10 hours from existing 11/13 hrs (6/2 landings) will not impact the operations."* — *FDTL1, slide 8*
>
> *"02 landings while encroaching night duties will ensure better fatigue management in line with proposed FDP restrictions and will not impact flight operations."* — *FDTL1, slide 8*
>
> *"Initiation of night duty from 2300 hrs will cause disruption to the flight operations. Night duty may be considered between 0000–0600 hrs (addition of 01 hour to existing 0000–0500 hrs) which shall take into consideration the WOCL period as well, without adverse impact on operations."* — *FDTL1, slide 9*
>
> *"[Recommendations 5–10] would not impact flight operations as these shall be implemented as procedural and cumulative fatigue reduction measures."* — *FDTL1, slide 10*

> *"Revising FDTL regulations based on these recommendations would address pilot fatigue, without affecting flight operations and would not hamper growth of aviation in India." — FDTL1, slide 11 (cumulative effects)*

> *Read that last sentence again. The regulator told the Minister, in October 2023, that all ten reforms could be adopted without hurting growth. The trade-off the press release implies is fictional. It was constructed for the public, not for the file.*

5.6 What the airlines were already doing (Slide 5)

Roster planning metric	Air India	IndiGo	Vistara	AI Express
Planned rest period (CAR mandates 12 hrs)	12 hrs	12:30 hrs	12 hrs	13:30 hrs
FDP buffer margin (per duty cycle)	**Nil**	10 min	01 hr	15 min
FT/FDP planned in 168 hrs (CAR cap: 35/60)	35 / 60	34 / 58	35 / 60	34 / 59

The airlines plan rosters to within minutes of CAR ceilings. Air India plans to the maximum allowed FT and FDP in any 168-hour week — with zero buffer. The "averages" look comfortable only because rest days dilute the in-duty week. Inside an active duty week, Indian commercial pilots are scheduled at 97–100% of regulatory maxima with 12 hours of rest between duties — the legal floor. Slide 5 of FDTL1 says so. The press release does not.

Figure 3 — Buffer margins between scheduled FDP and the CAR ceiling, by carrier (FDTL1 slide 5).

5.7 What the operators tried to do during notification (FDTL2)

FDTL2 is the four-column comparison sheet obtained via RTI/CIC. Its columns are: Amended Para, Operator's response, Proposed recommendation, DGCA remarks. It records the operators' formal pushback against the CAR being notified, and the regulator's on-paper disposition. Five rows survive in the public record:

Amended Para	Operator's response	Proposed recommendation (pilot/safety side)	DGCA disposition
3.11 — Night duty (definition)	"Crew availability and utilisation will be reduced due to increase in night duty period till 06:00."	Retain the EASA scientific definition: night = duty encroaching 02:00–04:59 in time zone of acclimatisation.	Rejected. Boilerplate: "…taken by competent authority after extensive data driven study… proposed recommendation may not be accepted."
6.1 — Max FT, FDP, landings	"Application of Para 6.1.4 would have a serious impact on Cargo operations which are undertaken primarily by night."	Permit scheduled cargo operators 4 landings within prescribed FT and FDP.	Partially accommodated: cargo carve-out granted with post-flight rest per Para 13.4 (24 hrs incl. local night).
9 — Split Duty	(no detailed objection recorded)	Maintain split duty as per existing CAR with no restriction on extension.	Rejected. Boilerplate: "amendments are in line with international best practices and to mitigate pilot fatigue… may not be accepted."
10.6 — Weekly Rest	Operators proposed: keep 36-hr recurrent extended rest, with 168-hr cap, plus 2 local-day extensions twice/month.	Maintain 36 hrs with two local nights (i.e. status quo before reform).	Rejected. The 48-hr rule was retained — but later granted as exemption to multiple carriers (Oct–Dec 2025).
16.1 — Unforeseen Operational Circumstances	"In case of extension of FT/FDP additional 4 hours rest for crew member… will drastically impact the roster stability of pilots and lead to dissatisfaction."	Maintain permissible extension on FT, FDP and landings as per existing CAR.	Rejected. Same boilerplate. The 4-hr rest provision was retained.

Reading the FDTL2 trail

Two patterns are visible. First, the regulator on paper rejected the operators' 'keep the old rule' requests with the same one-line boilerplate it deployed against the pilot side. Second, the rules the regulator refused to dilute on paper — most prominently the 48-hour weekly rest — have since been the subject of named carrier exemptions in October–December 2025. The institutional behaviour, read across both documents and the subsequent exemption orders, is: publish what looks like a strong rule, then hollow it out by exemption when carriers complain.

5.8 The 12 pilot proposals the regulator rejected with one line each (FDTL1 slides 23–24)

Beyond the formal CAR-amendment process, the DGCA recorded a further 12 pilot/stakeholder suggestions in its own deck. Most were rejected with a single sentence. The full disposition:

#	Pilot suggestion	DGCA disposition (verbatim where shown)
13	Extra rest day after extended layovers, in addition to weekly rest	"No justification given to that. Not being considered."
14	Re-define flight time / power-out start point	"The chocks-off is clearly defined in CAR."
15	Cap of 4 sectors in monsoon season	"FDTL is not season specific."
16	Onboard rest facility / rest seat to be added to MEL	"Consideration of rest seat under MEL is OEM and Operator specific requirement. DGCA has no role in it."
17	10 hrs / 12 hrs rest after leave	"10 hours of rest being considered."
18	Treat simulator training as FDP after consecutive night ops	"SIM trg shall not be part of FDP. However, duty after a consecutive night operation is being considered in para 13.4."
19	Cap FDP at 10 hours in tail swaps / aircraft changes	"No justification given to that. Not being considered."
20	Cap maximum landings at 4	"No justification given to that. Not being considered."
21	After 5-day domestic layover: 2 days + 1 day rest	"The airline operations requirements. Sufficient rest given during layovers. Therefore, cannot be considered."
22	Treat utilisation leave as rest period	"Is being put up for considerations/discussions."
23	Bring 10.4 in conjunction with 6.1.4	"Already considered by limiting the daily duty period."
24	Overtime hours should be optional, not mandatory	"Not in the purview of DGCA."

Of 12 substantive pilot proposals, 8 were rejected outright, 1 was deferred (#22), 2 were claimed already addressed (#17, #23), and 1 was disclaimed as outside DGCA jurisdiction (#24). The boilerplate "No justification given to that. Not being considered" is, on the face of the document, a regulator returning a serve without engaging the substance.

6. The Press Release vs. the File — Side by Side

What the press release said	What the file / law / science say
"Extensive data driven approach."	FDTL1 is the data. It concludes all 10 reforms can be adopted without operational impact. The press release adopts 4.
"Balancing pilot fatigue with the projected growth of the aviation sector."	FDTL1 slide 11: the reforms "would not hamper growth of aviation in India." Nothing to balance.
"In line with FAA & EASA best practices."	EASA caps night-encroaching FDP at 10 hrs, prohibits FDP extension at night, mandates 60-hour recurrent extended rest twice a month, requires accommodation for split duty in WOCL. FDTL1 proposed all of these. The final CAR adopts only some — and even those have been exempted.
"Feedback from pilot associations and individuals."	FDTL2 records pilots' proposals being met with the boilerplate 'the proposed recommendation may not be accepted.' FDTL1 slides 23–24 record additional pilot suggestions met with 'no justification given.' No 30-day public-consultation file is on record.
"Effective forthwith… latest by 1 June 2024."	1 June 2024 deadline missed. Implementation court-ordered in April 2025. Carrier-specific exemptions granted October–December 2025. Contempt petition pending. As of April 2026 the rule the press release announced has not been fully implemented.

The PIB release is technically true in its narrowest phrases and substantively misleading at every level.

7. What the Pilots Themselves Have Said — Three Independent Surveys

In the absence of a regulator-published evidence base, three Safety Matters Foundation (SMF) Safety Culture Surveys — 2018, 2022, 2024 — provide the only structured large-N picture of fatigue inside Indian airline cockpits. Each was conducted online with 500+ respondents drawn from across major scheduled carriers.

2024 Survey — 530 respondents, 16–22 July 2024

- 54.2% report severe excessive daytime sleepiness; 41.4% report moderate. Combined: 95.6% of Indian pilots are operating with measurable daytime sleepiness.
- 66% report having fallen asleep in the cockpit without the consent of the other pilot, or experienced microsleep episodes during a flight.
- 71% report being so tired during a recent duty cycle that they should not have been on cockpit duty at all.

2022 Survey

- Same Epworth-style sleepiness profile: 54.2% severe, 41.4% moderate.
- The 2022 report concluded with the words: “a wakeup call to the DGCA and the Airlines that there is an imminent threat to flight safety and the subject needs immediate redressal.”

2018 Survey

- First Indian Safety Culture Survey of its kind. Identified pilot fatigue and the absence of a credible feedback channel as the two most acute safety-management deficiencies.

Three surveys, six years apart, all converging on the same picture: nine in ten Indian commercial pilots show measurable daytime sleepiness, two in three have lost consciousness in the cockpit, seven in ten have flown when they self-assessed they should not have. Set this against FDTL1 slide 15 — “fatigue reports are minimal” — and the gap between what the regulator records and what the pilots experience is the entire story.

Why pilots can’t simply speak up

A working pilot who publicly says the system is unsafe is, in practical terms, ending their career. Indian airline labour markets are concentrated and reputationally interlinked. Pilots speak in three places only: in anonymous surveys (where they say what is in this section), in formal fatigue reports (where, by the regulator’s own admission, only 12.1% trust the channel), and posthumously. That structural silence is part of why the public hears “within DGCA limits” instead of the truth.

7.5. The Air India Anomaly — When the Roster Wins Over the Pilot

FDTL1 slide 15 sets out fatigue-report counts by carrier for August 2022 to July 2023. The number that should disturb every reader is the smallest one in the table:

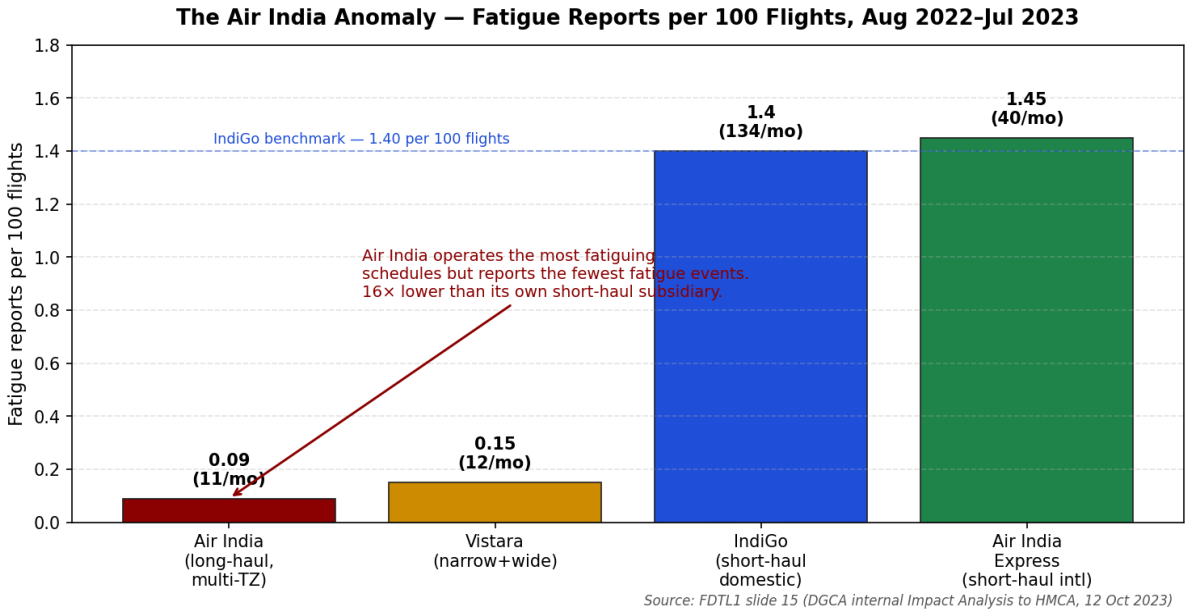

Figure 4 — Fatigue reports per 100 flights, by carrier (FDTL1 slide 15).

Why Air India's number is the loudest

Of all four carriers in the DGCA's sample, Air India operates the most fatiguing schedules: long-haul international (B777, B787), multi-time-zone, deep-night arrivals into IGI Delhi, layovers across the WOCL. Its short-haul subsidiary AI Express, by contrast, runs short-haul international and domestic — operationally comparable to IndiGo. On every clinical and operational basis, Air India crew should be filing more fatigue reports per 100 flights than any other carrier in this table, not the fewest.

The actual numbers reverse the expected pattern by an extraordinary margin. Air India's 0.09 reports per 100 flights is:

- 16× lower than its own short-haul subsidiary, Air India Express (1.45).
- 15× lower than IndiGo (1.40), a low-cost domestic operator on shorter, less circadian-disruptive sectors.
- Nearly 2× lower even than Vistara, then a smaller and more lightly-utilised carrier (0.15).

What does an institutional rejection rate look like?

The medical and operational explanation for Air India's reports being 15–16× lower than peers is structural under-reporting. There are two compatible mechanisms — they reinforce one another:

- **Self-suppression:** Pilots filing a fatigue report at a legacy airline with concentrated career paths face a credible risk of unspoken professional consequence. The DGCA-cited Baines Simmons survey (FDTL1 slide 15) records that only 12.1% of pilots trust the fatigue-report channel and only 10.8% believe such reports lead to operational change. At Air India specifically, those figures are likely worse — and the data show that they are.
- **Institutional rejection:** When a fatigue report is filed at Air India, the operator's standard line of analysis is the roster: did the pilot exceed the regulatory ceiling? Almost by definition the answer is no — because the airline plans to within minutes of the ceiling but not over it (FDTL1 slide 5: zero buffer at Air India). The roster says the pilot was within limits; therefore, in the operator's framework, the pilot

cannot have been fatigued; therefore the report is closed. The roster-generated arithmetic wins over the pilot's lived perception. That is what the pilot community describes as Air India's rejection culture, and the per-100-flight rate is the empirical signature of it.

Why this matters for everything else in this report

FDTL1 captioned its fatigue-report counts as "minimal" and used that minimality, in the same deck, as part of the case that fatigue was being managed. But if the pilots are not filing — or the operator is not accepting what is filed — then the report counts are not measuring fatigue. They are measuring the operator's appetite for hearing about it. Air India's 0.09 figure is not a low-fatigue signal; it is a high-suppression signal.

> *The lowest fatigue-report rate in the dataset belongs to the carrier with the most fatiguing schedules. That inversion is the single sharpest indicator in this entire report that the regulator's "minimal fatigue reports" framing is reading a measurement instrument that has been disabled at the source.*

The DGCA knew, on the same slide

The Baines Simmons figure cited by DGCA on FDTL1 slide 15 — 12.1% trust, 10.8% confidence in change, 53.2% saying fatigue is mostly-not or not-well managed — is an external acknowledgement that the formal fatigue-reporting channel is structurally untrusted. The regulator knew. It cited the figure on the same slide as the Air India 0.09 number. It then told the Minister, on the strength of those low report counts, that fatigue was being addressed. That is not a regulator listening to data. That is a regulator citing the disconnect and acting as if the disconnect were not there.

7.5b. Two Snapshots, Three Years Apart — The 2025 SOC Data

§7.5 used FDTL1 slide 15 (Aug 2022 – Jul 2023) to make the institutional-rejection point by inference: the carrier with the most fatiguing schedules filed the fewest reports per 100 flights. The 2025 SOC (Safety Oversight Committee) data submissions made by Air India, Air India Express and IndiGo to the DGCA on 19 February 2026 — pursuant to the DGCA Operations Circular of 20 November 2024 mandating quarterly fatigue-report disclosure — provide the next layer of evidence. They show what each operator did with the reports it received.

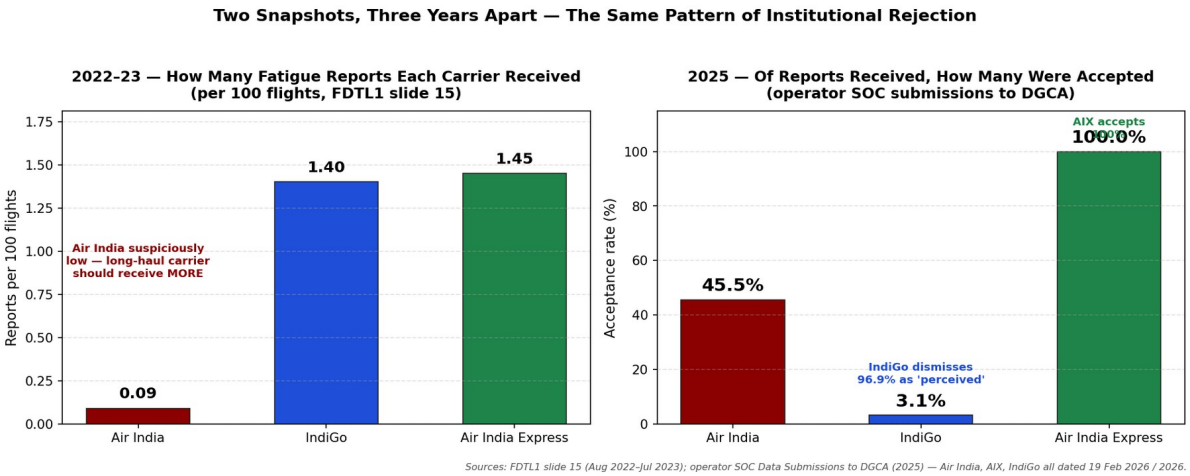

Figure 6 — 2022–23 receipt rate (left) and 2025 acceptance rate (right). Same three carriers, same pattern.

The 2025 numbers, side by side

Operator	Reports received (CY 2025)	Accepted	Rejected	Rejection rate
Air India Express (short-haul subsidiary)	278	278	0	**0.0%**
Air India (legacy / long-haul)	1,578	718	860	**54.5%**
IndiGo (domestic low-cost)	8,721	272	8,449	**96.9%**

Are only Air India pilots 'misreporting'?

This is the question the 2025 data settles definitively. If the answer were yes — if Indian commercial pilots from one specific carrier were uniquely prone to filing unsubstantiated fatigue reports — then the rejection rate would cluster around that carrier alone. It does not. The pattern across the three operators in this dataset is:

- AIX (Air India Express): 100% acceptance, 0 rejected. The same Tata-owned parent. The same training pipeline. The same Indian medical standards. The same DGCA.
- Air India: 54.5% rejection. Same parent as AIX, same pipeline, different fatigue-handling policy.
- IndiGo: 96.9% rejection. Different parent, same pipeline, different fatigue-handling policy. IndiGo's SOC submission goes further than Air India's and labels its columns 'Accepted (Actual)' and 'Rejected (Perceived)' — i.e. the operator's framing is that 96.9% of fatigue reports are pilot perception, not real fatigue.

If the explanation were 'misreporting pilots,' the rejection rate would not vary by operator. It would vary by pilot. The data shows the opposite: it varies by operator, by 96 percentage points (0% at AIX vs 96.9% at IndiGo) for

pilots drawn from the same Indian aviation labour pool. The variable that explains the variation is the operator's policy, not the pilot's honesty.

> *The question 'are pilots misreporting?' presumes that what is being measured is pilot honesty. What the data above measures is something else: the operator's appetite for accepting what is filed. AIX accepts everything. IndiGo accepts almost nothing. Air India accepts about half. The pilots have not changed; the policies have.*

7.5c. Air India's Rejection Rate Climbed Through 2025 — Especially After 1 Nov

Air India's SOC submission breaks the 2025 fatigue-report data down by quarter. The trajectory is unmistakable. The rejection rate rose every quarter through 2025 and accelerated sharply after 1 November 2025 — the date the new FDTL CAR took effect:

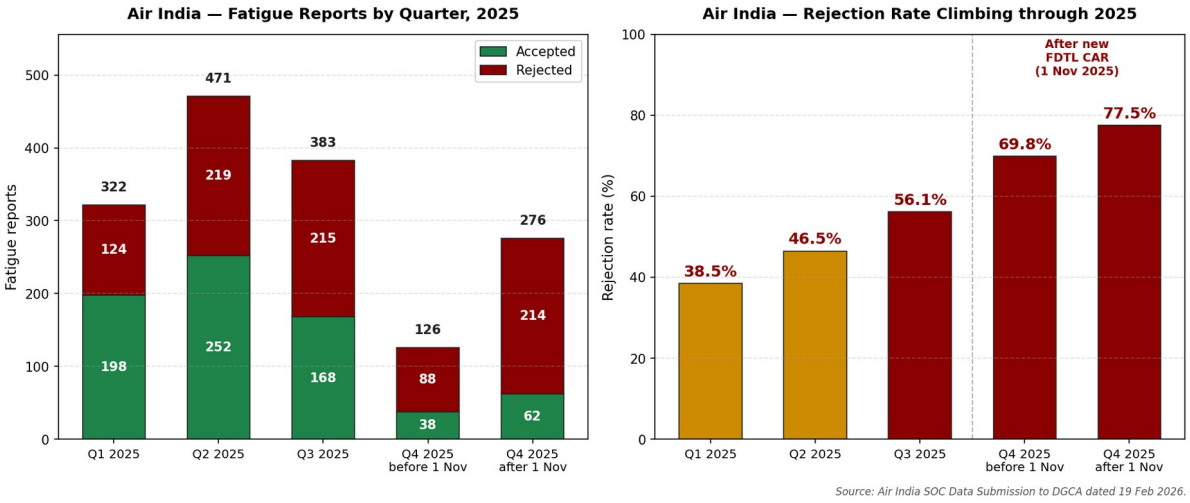

Figure 7 — Air India fatigue reports by quarter, 2025. Rejection rate climbed from 38.5% (Q1) to 77.5% (Q4 post-1 Nov).

What changed on 1 November 2025

The new FDTL CAR — the regulation that the press release of 8 January 2024 had announced as effective 'forthwith' — finally took effect on 1 November 2025 after seventeen months of delay and exemptions. It tightened weekly rest, redefined night, and capped FDP for night-encroaching flights. It would, on its face, give pilots more grounds to report fatigue when an operator's schedule encroached the new limits. Air India received 276 fatigue reports in the eight weeks after 1 November alone — more than the 198 it accepted in all of Q1. It rejected 214 of them. 77.5% rejection rate.

Read together with the Section 7.6a finding that rejected fatigue reports are reclassified as sick leave on the crew portal, the 1 November escalation has a precise operational signature: pilots filed more fatigue reports under the new tighter rules; the operator rejected more of them; the pilots lost more sick days; the formal record reads 'fatigue is being managed.'

7.5d. IndiGo — A 96–99% Rejection Rate Sustained for Twelve Quarters

IndiGo's SOC submission — the most detailed of the three operator filings — covers thirteen quarters from Q1 2023 to Q4 2025. Across that entire window, the rejection rate has been between 95% and 99.5% in every single quarter. The reporting rate has more than doubled, from 48 reports per 10,000 flight-duty-time-units in Q1 2023 to 122 in Q4 2025. The operator's response to that doubling has been to maintain its 96%+ rejection rate.

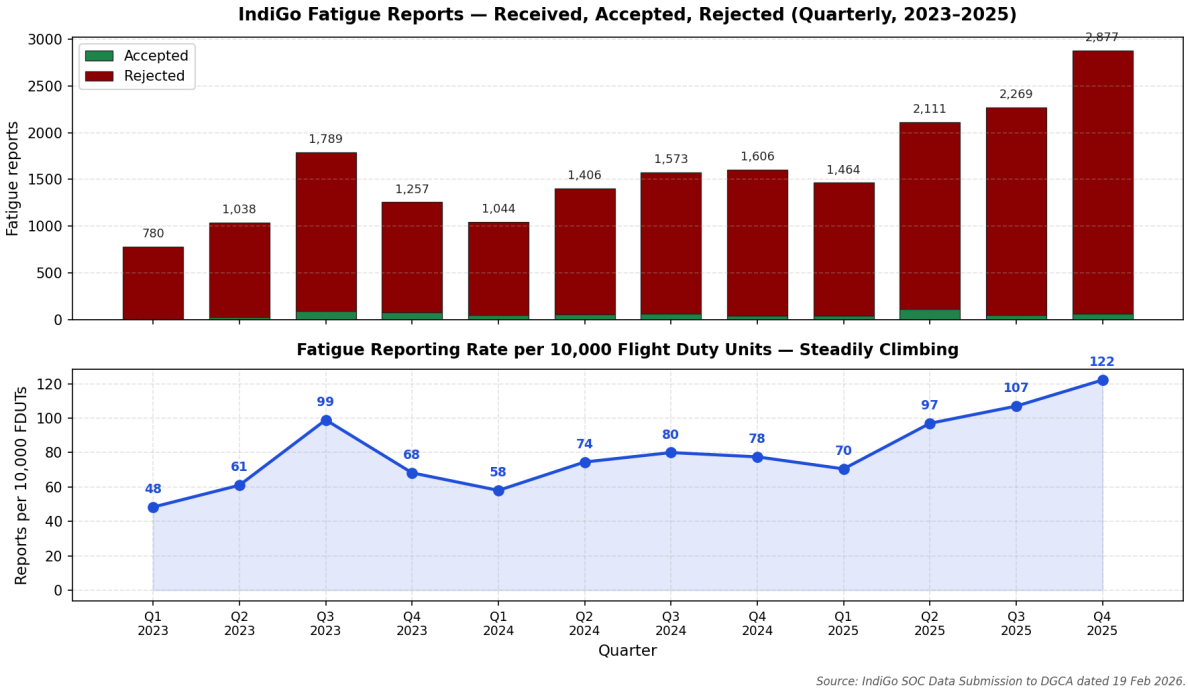

Figure 8 — IndiGo fatigue reports by quarter, 2023–2025. Reporting rate rising; rejection rate sustained.

The labelling is the finding

IndiGo's SOC table headers, reproduced verbatim from the operator's own filing, are:

> *"Fatigue Reports Accepted (Actual). Fatigue Reports Rejected (Perceived)."* — *IndiGo SOC Data Submission to DGCA, 19 Feb 2026*

The categorical labelling — accepted reports as 'actual,' rejected reports as 'perceived' — defines the airline's position. Pilot perception is, by definition, not actual fatigue. The framework cannot produce a different answer no matter how many reports are filed. It is the operator's framing, in its own statutory disclosure, that 96.9% of pilot fatigue is imagined.

> *Across thirteen quarters, IndiGo's rejection rate has not fallen below 95%. Across the same window, IndiGo cancelled 1,200+ flights in December 2025 and was granted weekly-rest exemptions by the DGCA. The operator that classifies almost all pilot fatigue as 'perceived' is the operator that runs out of pilots to fly its schedule. The labelling and the cancellation crisis are the same fact, observed twice.*

7.5e. The Air India Recruitment Squeeze — Hiring Stopped, Aircraft Pushed Harder

Air India's SOC submission contains a second dataset that explains the rejection-rate trajectory in §7.5c more completely than any policy document could. The carrier has been pushing more flying out of fewer pilots, year after year:

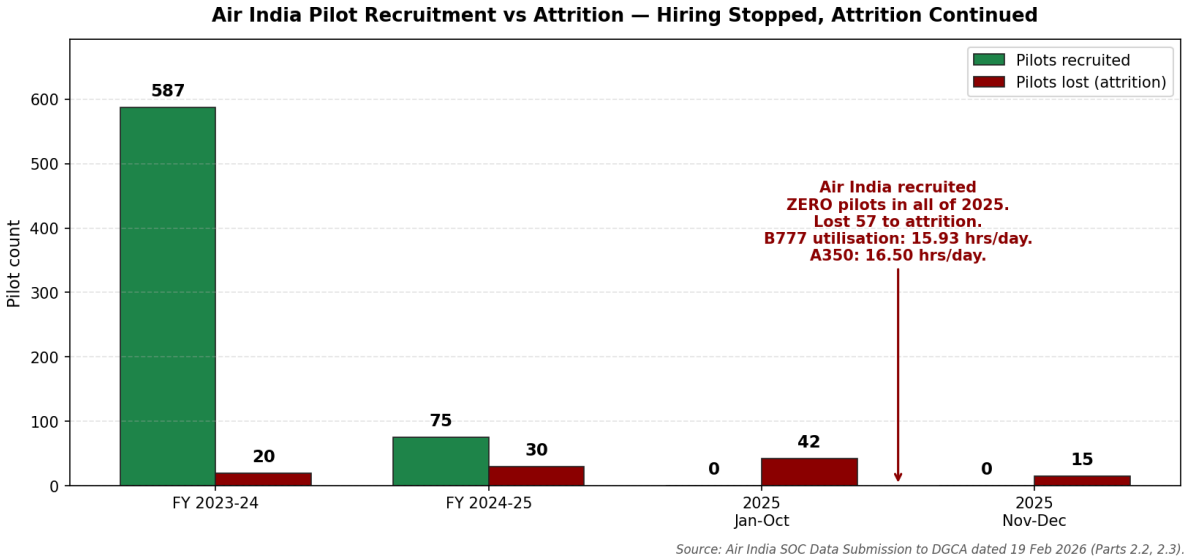

Figure 9 — Air India pilot recruitment vs attrition, FY 2023–24 to Dec 2025.

What the numbers say

- **FY 2023–24: 587 pilots recruited**, 20 attrition. Net +567.
- **FY 2024–25: 75 pilots recruited**, 30 attrition. Net +45.
- **Jan–Oct 2025: ZERO pilots recruited**, 42 attrition. Net −42.
- **Nov–Dec 2025: ZERO pilots recruited**, 15 attrition. Net −15.

Air India recruited zero pilots in the entire 2025 calendar year and lost 57 to attrition. Over the same period, the carrier increased aircraft utilisation across its fleet:

Fleet	Q4 2023 (hrs/day)	Oct 2025 (hrs/day)
B777	15.36	15.93
B787	14.16	14.18
A350	(in induction)	16.23
A320	13.33	12.31

B777 utilisation reached 15.93 hrs/day; the A350 reached 16.50 hrs/day in Q2 2025. Aircraft are by definition machines — they do not file fatigue reports. The pilots flying them do. The carrier expanded its block hours per

aircraft, did not hire any new pilots in 2025 to absorb the load, and rejected over half of the fatigue reports its existing pilots filed.

> *Air India is the cleanest natural experiment in commercial aviation's effect on pilot fatigue currently visible in the public record. Holding training, medical screening and regulatory framework constant, an operator that combines maximum aircraft utilisation with zero new pilot intake and a 54% fatigue-report rejection rate is producing the conditions documented in §7.5b. Capt. Tarundeep Singh died in a Bali hotel three months after the new CAR took effect, on the rotation Air India had not hired anyone to share.*

7.6. The ALPA India / IFALPA Letter of 1 May 2026 — and the Rejection Rate

On 1 May 2026 — the day after Capt. Arjun Naidu died in Bengaluru and two days after Capt. Tarundeep Singh died in Bali — the Airline Pilots' Association of India (ALPA India), an IFALPA member, addressed a formal letter to the Director General of Civil Aviation. The letter is signed by Capt. Sam Thomas, President of ALPA India and IFALPA Director, with a copy to the Secretary, Ministry of Civil Aviation. The reference field of the letter names both pilots and records each as having died "in the line of duty." The letter is on the public record and is reproduced in the Sources.

What the letter establishes

Five findings in the letter directly substantiate or extend findings already made in this report:

Finding 1 — Variations have become the rule

> *"It is submitted that the continued grant of variations to operators has materially diluted the intent of the FDTL regulations. These variations, originally conceived as transitional measures, have effectively become the norm. This defeats the purpose of fatigue management framework and perpetuates scheduling practices that operate at or near regulatory limits without adequate safety buffers."* — *ALPA India / IFALPA letter to DGCA, 1 May 2026*

This is the same finding reported in §5.4a and §8 of this report — that the carrier-specific exemptions of October–December 2025 have hollowed out the reform package — now corroborated in writing by the IFALPA-affiliated Indian pilot body.

Finding 2 — RTI-derived: an alarmingly low rate of acceptance of fatigue reports

> *"Serious concerns have also been raised by pilot bodies, including ALPA India, regarding the discouragement and penalisation of fatigue reporting. Available information obtained through RTI indicates an alarmingly low rate of acceptance of fatigue reports by operators. Such trends are inconsistent with the principles of a just safety culture and undermine fatigue risk management systems."* — *ALPA India / IFALPA letter to DGCA, 1 May 2026*

This is the rejection-rate finding §7.5 of this report could only reach by inference. ALPA India has now stated, on the basis of RTI replies, that the rate at which operators ACCEPT fatigue reports filed by pilots is alarmingly low. Two distinct mechanisms are now both established on the public record: pilots are not filing (FDTL1 slide 15's 12.1% trust figure), and of the few who do file, the operators are not accepting. The institutional rejection of fatigue claims is no longer an inference; it is a documented finding.

Finding 3 — The IndiGo December 2025 inquiry report has been withheld

> *"In a related context, it is noted that despite multiple representations, including under the RTI Act, the inquiry report pertaining to the IndiGo disruption of December 2025 has not been made available. The continued withholding of such a report raises concerns, particularly when the findings have a bearing on systemic resilience and operational planning. It is requested that the same be disclosed in the interest of transparency and institutional accountability."* — *ALPA India / IFALPA letter to DGCA, 1 May 2026*

The December 2025 IndiGo crisis — 1,200+ flight cancellations, the regulator granting weekly-rest exemptions until 10 February 2026 — was followed by an internal DGCA inquiry. The inquiry report has not been published; ALPA India's RTI requests for it have been refused. This is a second, independent instance of the regulator using the RTI exception to keep substantive material out of the public domain on this subject. It is the same procedural pattern documented in §3 of this report (the DGCA's "voluminous" reply on RTI DGOCA/R/E/23/00439).

Finding 4 — TMU / PMU data must be published

> *"There is a pressing need for the DGCA to publish periodic data on pilot availability and medical fitness, including: Instances of Permanent Medical Unfitness (PMU); Instances of Temporary Medical Unfitness (TMU); and Trends correlated with operational scheduling practices. Such data is critical to objectively assess whether current rostering practices are adversely impacting pilot health. The absence of disclosure, despite RTI requests, creates an avoidable perception that material safety indicators are not being transparently examined."* — *ALPA India / IFALPA letter to DGCA, 1 May 2026*

The TMU / PMU dataset reproduced in §2 of this report (1,635 + 94 declarations, 2009–2023) had to be reconstructed from claim data and published in a privately-authored book because the regulator does not publish it. ALPA India has now formally requested, in writing, that the regulator do exactly what §2 of this report identifies as the missing public-health bulletin.

Finding 5 — Cadet pilot exploitation

> *"Concerns are also noted regarding cadet pilot programmes…wherein significant financial burdens are placed on trainees, followed by employment conditions that are not commensurate with such investments. At the same time, privately trained and licensed pilots remain underutilised, even as operators cite crew shortages. This structural imbalance merits regulatory attention to ensure fairness and sustainability in the pilot workforce pipeline."* — *ALPA India / IFALPA letter to DGCA, 1 May 2026*

This is the structural backdrop against which the December 2025 IndiGo cancellation crisis occurred. The carrier preferred a regulatory exemption to hiring already-licensed Indian pilots. The regulator granted the exemption rather than enforcing the rule that would have required the hiring. ALPA India has now made the connection on the record.

ALPA India's six-point demand to DGCA

- Time-bound roadmap for full implementation of FDTL regulations.
- All temporary variations progressively withdrawn.
- Provisions disallowing leave to be substituted in place of weekly rest reinstated gradually.
- Fatigue reporting systems made transparent and accountable, with quarterly public disclosures.
- Pending inquiry reports and medical fitness data disclosed.
- Disallow any proposals seeking dilution of FDTL norms, keeping safety and regulatory integrity paramount.

> *This report's recommendations in §12 and the demands in the ALPA India / IFALPA letter of 1 May 2026 are, on substance, the same. The country's pilots, their international federation, and the documents reviewed in this report are saying the same thing in the same week. The Director General of Civil Aviation now has both. What happens next is a matter of institutional choice.*

7.6a. How Air India Mechanically Penalises Pilots for Reporting Fatigue

In September 2024, Air India introduced a new internal fatigue policy that operationalises the rejection pattern documented in §7.5 and §7.6 in the most direct way possible: a fatigue report filed by an Air India pilot is, on the airline's own published procedure, marked initially as sick leave on the crew portal. A Fatigue Committee then reviews the report. If the committee deems the report 'unsubstantiated' — i.e. rejects it — the entry remains classified as sick leave. The pilot's annual sick-leave entitlement (six days for narrow-body crew) absorbs the deduction.

Why this matters

The mechanism creates three compounding disincentives to filing a fatigue report:

- **Loss of off days for recovery.** An Air India narrow-body pilot has six sick days a year against twelve privilege leave days. A rejected fatigue report consumes a sick day. Across a year, two or three rejected fatigue reports exhaust the entire annual sick-leave allowance. The pilot now has no statutory leave protection if they fall genuinely ill.
- **Material penalty without due process.** The pilot does not appeal the Fatigue Committee's rejection. The reclassification is automatic. The principle the DGCA itself wrote into CAR §4.10.2 — that fatigue reporting must be non-punitive and confidential — is, on this mechanism, materially defeated.

- **Suppression at source.** Pilots who learn the policy file fewer fatigue reports. Air India's 0.09 reports-per-100-flights figure in §7.5 is the empirical signature of exactly this suppression. Each rejected report carries a personal cost; each unfiled report avoids that cost.

How this connects to the Air India Express comparison

Air India Express, owned by the same parent (Tata), accepts 100% of fatigue reports filed (Section 7.5b). It does not appear to operate the same fatigue-as-sick-leave reclassification. Same workforce pipeline. Same medical standards. Same regulator. The only variable that differs is the operating company's internal fatigue-handling policy. The data follows the policy.

> *If the question is whether Air India pilots are uniquely 'misreporting' fatigue, the answer is no. The question with explanatory power is whether Air India pilots have unique structural reasons not to file. That is what the policy in this section describes, in the operator's own procedural language.*

8. The Court Door That Was Closed: Maintainability

A safety regulator that proactively publishes only its press releases will be checked, if anywhere, in court. India's aviation-safety litigation history reads like a chronology of citizens trying to make the rule book do what it claims to do.

- 2008 — Mumbai HC Writ Petition 1687/2008 challenges DGCA's decision to keep the 2007 FDTL CAR in abeyance. DGCA prevails.
- 2009 — Government re-constitutes the FDTL Committee under Dr Nasim Zaidi (then DGCA), public notice 6 Aug 2009. First meeting 18 July 2009.
- 2011 — Supreme Court Civil Appeal 3844/2011 (Joint Action Committee of pilot associations) directs DGCA to bring out new FDTL regulations expeditiously.
- 11 Aug 2011 — DGCA issues CAR Section 7, Series J, Part III, Issue II. Effective in phases from 15 Sep 2012.
- 2012 — ICPA Writ Petition 6632/2012 in Delhi HC challenges Air India's non-implementation of the new CAR.
- 2013 — Society for Welfare of Indian Pilots (SWIP) approaches Supreme Court alleging non-implementation. SC issues notice.
- 2017 — Capt. Yashwanth Shenoy files Writ Petition 10862/2017 in Delhi HC against DGCA-approved "variations." Lok Sabha answer (Q.1673, 28 Dec 2017): "No new law is required in view of CAR Section 7, Series J, Part III."
- 2018 — EASA-commissioned scientific review (Effectiveness of FTL, MOVE/C2/2016-360) concludes that night FDPs are associated with high fatigue at top-of-descent and that this is not reflected in current FTL regulation.

- 2024 — FIP / pilot federation petitions on the new CAR. Delhi HC takes DGCA's phased-implementation affidavit on record in April 2025.
- November 2025 — FIP files contempt petition: DGCA has granted carrier-specific exemptions in October 2025 and is not honouring the timetable.
- December 2025 — IndiGo cancels 1,200+ flights as the new CAR begins to bite. DGCA grants IndiGo a fresh exemption from weekly-rest and night-duty norms until 10 February 2026.
- April 2026 — Contempt hearing continues. Delhi HC has on the record asked DGCA why it has "indefinitely relaxed" the weekly-rest norm.

Where Safety Matters Foundation's case stood

Safety Matters Foundation (SMF), a registered NGO led by Capt. Amit Singh, has been one of the most persistent civic actors in this history. Its substantive case rested on a clear chain of evidence: ICAO Doc 9966 requires science-based fatigue management; the Indian CAR is not constructed in a manner that satisfies that science-based requirement; pilots are being declared medically unfit at unprecedented rates; and pilots have died on or adjacent to duty. Litigation pursued by SMF on these issues has been disposed of at preliminary stages on questions of locus standi / maintainability — the recurrent objection in Indian PIL practice that an NGO whose members are not "directly affected" cannot agitate aviation-safety petitions. The substantive evidence in those cases has not, to the present authors' knowledge, been adjudicated.

This is the procedural pattern around aviation-safety PIL. Working pilots — the "directly affected" class — face commercial constraints that make public litigation difficult without professional consequence. Their unions can litigate but operate within an employment-relations framework. Civic organisations that could litigate without those constraints have been told, at the preliminary stage, that they lack locus standi. The cumulative effect is that aviation-safety litigation has, on the public record, struggled to reach the merits stage on these issues.

> *Read together, the "voluminous" RTI exception and the locus-standi bar function as parallel limits on independent scrutiny: each is, in itself, a recognised procedural tool, but applied to a domain of public safety whose data the regulator does not proactively publish, they have left the public with little visibility on the regulator's reasoning.*

9. The Standard the Indian CAR Does Not Meet: ICAO Doc 9966

ICAO Doc 9966 — Manual for the Oversight of Fatigue Management Approaches — is the binding international reference. It permits two approaches:

- A prescriptive approach with defined duty-time limits, provided those limits are themselves grounded in fatigue science.
- A performance-based approach via a Fatigue Risk Management System (FRMS), provided it is data-driven and continuously evaluated.

> *"…based on scientific principles and knowledge and operational experience. More specifically, fatigue management accounts for: the need for adequate sleep to restore and maintain all*

> *aspects of waking function (including alertness, physical and mental performance, and mood); daily rhythms in the ability to perform mental and physical work, and in sleep propensity, that are driven by the circadian clock in the brain; and the operational context and the safety risk that a fatigue-impaired individual represents in that context."* — *ICAO Doc 9966, 2nd ed.*

The Indian CAR does none of this. It counts hours. It does not model alertness across the WOCL. It does not align FDP categorisation to a published bio-mathematical model. It does not require operators to monitor circadian disruption. The 2018 EASA Effectiveness study (MOVE/C2/2016-360) identified three subgroups of night FDPs by fatigue probability and recommended fatigue-risk-management strategies tailored to FDP type. India's revised CAR adopted neither the categorisation nor the framework. By the standards of ICAO Doc 9966 and the EASA 2018 review, the Indian CAR is sub-scientific.

The Williamson–Feyer benchmark — what 17 hours awake actually does to a brain

> *"After 17–19 hours without sleep, performance on some tests was equivalent or worse than that at a BAC of 0.05%. Response speeds were up to 50% slower for some tests and accuracy measures were significantly poorer than at this level of alcohol. After longer periods without sleep, performance reached levels equivalent to the maximum alcohol dose given to subjects (BAC of 0.1%)."* — *Williamson & Feyer, Occup Environ Med 2000;57:649–655*

17 hours awake — common for an Indian airline pilot whose night-encroaching duty pushes report time into late evening — produces cognitive impairment in cognitive and motor tests equivalent to drink-driving over the legal limit. 19 hours awake — common for a pilot rostered to the CAR ceiling — is equivalent to BAC 0.10%, twice the limit. The DGCA's rule book treats this as compliant. No country tolerates a driver at 0.10% BAC. India tolerates a pilot at the same cognitive impairment level.

9.5. The CAR Allows What WHO and ILO Say Will Kill You

In May 2021, the World Health Organization and the International Labour Organization published, in Environment International, the first global analysis of the loss of life and health from long working hours. The conclusion is unambiguous and is backed by the largest existing meta-analysis in the field: 37 studies of ischemic heart disease (>768,000 participants) and 22 of stroke (>839,000 participants).

> *"Long working hours led to 745,000 deaths from stroke and ischemic heart disease in 2016, a 29% increase since 2000. Working 55 or more hours per week is associated with an estimated 35% higher risk of a stroke and a 17% higher risk of dying from ischemic heart disease, compared to working 35–40 hours a week."* — *WHO/ILO joint news release, 17 May 2021*

The Indian commercial-aviation rule book is the DGCA Civil Aviation Requirement Section 7, Series J, Part III (CAR Sec 7-J-III). Section 8 of that CAR sets the maximum cumulative duty-period limits for an Indian airline pilot. Section 8.1 reads:

> *"In 7 consecutive days: Maximum Flight Time 35 hours; Maximum Cumulative Duty Period 60 hours."* — *DGCA CAR Sec 7-J-III, §8.1*

Set against the WHO/ILO finding, the comparison is direct:

Metric	WHO/ILO mortality threshold	DGCA CAR ceiling for pilots
Hours of work per 7-day week	≥ 55 hrs/week associated with elevated cardiovascular mortality	**60 hrs of duty allowed in any 7 consecutive days (CAR §8.1)**
Stroke mortality risk (vs 35–40 hrs/week)	+35%	Not assessed by regulator
Ischemic heart disease death risk (vs 35–40 hrs/week)	+17%	Not assessed by regulator
Hours per 14 days	(Not separately stated)	100 hrs duty / 14 days = 50 hrs/week avg (CAR §8.2)
Hours per 28 days	(Not separately stated)	190 hrs duty / 28 days = ~47.5 hrs/week avg (CAR §8.3)
Maximum daily flight duty period	(Not assessed)	13 hrs (2-pilot) / 14 hrs FDP + 1 hr DP (augmented) — Para 6.1, 7.1
ULR FDP ceiling	(Not assessed)	21 hrs FDP / 17 hrs FT (Para 7.1.3)

In one paragraph

The WHO and ILO concluded, on global meta-analysis, that working 55 hours or more in a week elevates an adult's risk of dying from heart disease by 17% and from stroke by 35%. India's aviation regulator permits an airline to schedule a pilot for up to 60 hours of duty in any 7 consecutive days. The regulatory ceiling India applies to its commercial pilots sits 5 hours above the threshold the WHO and the ILO have identified as the level at which death from cardiovascular disease becomes statistically more likely. This is not a marginal exceedance; it is the regulator publishing the cause-of-death threshold and writing the rule above it.

And these are duty hours only

The 60-hour figure does not include several categories of time the pilot is actually committed to work:

- Transport time to and from the airport up to 30 minutes (CAR §10.5) — explicitly "shall neither be counted towards duty time nor rest period."
- Standby periods at home or hotel that do not culminate in duty (only 25% counted, CAR §11.2.4).
- The first 6 hours of a home/hotel standby that does culminate in duty (CAR §11.2.3 a).
- Pre-flight commute, sleep prep, family responsibilities.

In other words, an Indian commercial pilot operating at the CAR §8.1 ceiling of 60 duty hours per week may readily be at 65–70+ hours of work-time-committed per week — well above the WHO/ILO mortality threshold, and well into the band the meta-analysis associates with measurable excess cardiovascular mortality.

And the 28-day cap is not a defence

It will be argued that the binding constraint is the 28-day cap of 190 duty hours, which averages to ~47.5 hrs/week — below the WHO/ILO threshold. That argument fails for two reasons. First, the WHO/ILO threshold is per-week exposure, not per-month average. Heart-attack risk integrates short-term exposure to long working hours; an averaged-out monthly figure does not reverse the mortality signal of weeks worked at 60. Second, FDTL1 slide 5 documents that airlines plan rosters to within minutes of these caps with as little as nil buffer; the binding constraint inside an active duty week is the 7-day cap, not the monthly average.

The legal corollary

Para 4.4 of the CAR reads: "No Operator may schedule any flight crew member for an assignment which shall exceed the prescribed limitation." Para 4.3 reads: "The Operator shall not require a flight crew member to perform flight crew duties on a flight if it is known or suspected that the flight crew member is fatigued to the extent that the safety of flight may be adversely affected." These two clauses ask the operator not to exceed a limit, and not to roster a fatigued pilot. They do not address the prior question — whether the limit itself is set above the international scientific threshold for cardiovascular harm. On the WHO/ILO 2021 finding, on the documents reviewed in this report, that prior question is the one this CAR has not answered.

> *The cause of death of every Indian airline pilot whose heart has stopped during a duty cycle or in scheduled crew rest is, on the WHO/ILO 2021 finding, attributable to a regulatory ceiling that the regulator's own science-aligned reference body has identified as the level at which death from cardiovascular disease becomes more likely. The pilots are not dying despite the rules. They are dying inside the rules.*

9.5b. The 10-Hour FDP Scientific Cap — and India's Missing Derogation Analysis

ICAO Annex 6 and ICAO Doc 9966 require that prescriptive duty-time limits be grounded in scientific evidence. A State that adopts a limit beyond the international scientific consensus must — under the same instruments — demonstrate, with its own equivalent scientific analysis, that operational conditions in its jurisdiction make the higher limit safe. India has done neither demonstrably. The CAR sets limits well above the international scientific cap; the equivalent derogation analysis is not on the public record.

9.5b.1 What the international scientific consensus says about 10 hours

EASA Moebus Report 2008 — the foundational scientific evaluation

The European Aviation Safety Agency commissioned MOEBUS Aviation, led by Dr Philipp Moebus, to conduct a Scientific and Medical Evaluation of Flight Time Limitations (TS.EASA.2007.OP.08, September 2008). The Moebus Report's headline conclusions on the FDP cap, reproduced in subsequent EASA and parliamentary documentation, are:

> *"The allowed maximum of 11:45 hours night duty should be reduced to 10 hours, because of the particularly fatiguing nature of work at night."* — *Moebus Report, EASA Scientific and Medical Evaluation of Flight Time Limitations, 2008*
>
> *"The allowed maximum daily flight duty period of 13–14 hours exceeds reasonable limits and is not in keeping with the body of scientific evidence; it should therefore be reduced."* — *Moebus Report, 2008*
>
> *"It is recommended that the maximum FDP be reduced by 30 minutes per sector for every sector after the first."* — *Moebus Report, 2008*

These three findings together establish the scientific consensus position: 10 hours is the cap for night-encroaching FDPs; 13–14 hours daytime maximum is already beyond the scientific evidence; and multi-sector duty days require a per-sector reduction.

EASA Effectiveness Review 2018 (MOVE/C2/2016-360)

EASA's ten-year-on review of its own FTL framework, published November 2018, confirmed Moebus on the night-FDP point on the basis of a fresh field study. The review identified three subgroups of night FDPs by fatigue probability and concluded:

> *"Night FDPs, both longer and shorter than 10 hours, were associated with a high probability of high fatigue at top of descent. This is not fully reflected in the current FTL regulation and guidance material."* — *EASA Effectiveness of FTL Final Report, MOVE/C2/2016-360, Nov 2018*

Even EASA's 10-hour cap — already the most restrictive among major regulators — was identified by EASA's own review as insufficiently aligned with the science it had commissioned.

NASA Ames — Rosekind, Gander et al.

The NASA Ames Fatigue Countermeasures Group (Mark Rosekind, Philippa Gander, Donna Miller and others) conducted the foundational US research on transport-cockpit alertness from 1990 onwards. Their findings, replicated across decades:

> *"Sustained wakefulness of only 19 hours can lead to performance decrements equivalent to those of someone with a blood alcohol concentration of 0.05%. The average number of continuous hours that a person can stay awake with sustained vigilance is approximately 16 hours; beyond this, acute sleep deprivation occurs."* — *NASA / FAA, Risk of Performance Decrements and Adverse Health Outcomes Resulting from Sleep Loss*

The 19-hour BAC-0.05% benchmark coincides with the Williamson & Feyer 2000 finding already in §9. Aligned to FDP, this means: a pilot who reports for duty after a normal day awake hits the cognitive-impairment-equivalent-to-drink-driving threshold during a 13-hour FDP. India's CAR permits 13-hour FDPs in the base case.

9.5b.2 What the Indian CAR actually allows

Operation type	Scientific cap (Moebus / EASA / NASA)	DGCA CAR Sec 7-J-III
Night-encroaching FDP (2-pilot)	10 hours (Moebus, EASA 2018)	10 hours (post-Jan 2024 reform; was 11–13)
Daytime FDP (2-pilot, multi-sector)	Reduce 30 min per sector after first	11–13 hours; no per-sector reduction (CAR §6.1)
FDP, augmented 3-crew, isolated rest seat	Not addressed by Moebus — implies extension via rest only	15 hours (CAR §7.1.1)
FDP, augmented 4-crew, bunk	Limited extension only with quality bunk rest	18 hours (CAR §7.1.2)
Ultra-Long Range (ULR) FDP	Not addressed by prescriptive science; performance-based FRMS required	21 hours / 17 hrs flight time (CAR §7.1.3)
FDP extension at night	PROHIBITED (Moebus, EASA, FAA)	PERMITTED via Para 16.1 (unforeseen circumstances)
Cumulative extension cap (28-day)	FAA: 2 hrs in any 7 days; EASA: 1 hr × 2 in any 7 days	8 hrs FDP / 4 hrs flight time in 28 days

9.5b.3 The ICAO requirement India has not met

ICAO Annex 6, Part 1, Standard 4.10.6 requires:

> *"The State of the Operator shall establish regulations specifying the limitations applicable to the flight time, flight duty periods, duty periods and rest periods of flight crew members. These regulations shall be based upon scientific principles and knowledge."* — *ICAO Annex 6, Part 1, §4.10.6*

ICAO Doc 9966 — the Manual the DGCA itself references — operationalises the Annex 6 standard. It states explicitly that a State which adopts duty-time limits beyond the science-aligned threshold must, contemporaneously, have produced an equivalent scientific analysis demonstrating that operational conditions in its jurisdiction make the higher limit safe. The analysis is not optional; it is the legal basis on which the higher limit can stand.

What the public record shows for India

- **FDTL1 (Oct 2023)** is an 'Impact Analysis on Operations' — it tests whether the proposed reforms would disrupt scheduling. It is not a fatigue-science derogation analysis. It does not contain bio-mathematical modelling, circadian-disruption modelling, or any analysis of why Indian operating conditions justify FDPs above the Moebus / EASA 10-hour cap.

- **The Zaidi Committee (2008–2011)** produced an FDTL recommendation, not an open-published scientific evaluation. The Zaidi Committee's working papers are not on the DGCA website.
- **The CAR itself (Para 1.1)** acknowledges the ICAO Annex 6 requirement that prescriptive limits be science-based, then sets limits substantially above the science-based caps recommended by Moebus, EASA and NASA — without citing any scientific analysis specific to India that would justify the derogation.
- **No published bio-mathematical model of Indian airline rosters** — using the Three Process Model of Alertness, the SAFE model, or the SAFTE-FAST model — has been produced by or for the DGCA, on the public record reviewed for this report.

> *If India wants to permit FDPs above 10 hours for night-encroaching duty, ICAO requires India to publish the science that says it is safe to do so. India has set the FDP at 13 hours (and up to 21 hours for ULR) without publishing that science. The higher limit therefore stands on no legal basis other than the ministerial signature on CAR Sec 7-J-III. 'The science says we can' is what every regulator above the international threshold has had to prove. India has not.*

9.5b.4 The implication for ULR (Ultra-Long Range)

CAR §7.1.3 permits a 21-hour FDP and 17-hour flight time for ULR operations with four pilots and bunk rest. ICAO Doc 9966 explicitly classifies ULR as a category that prescriptive limits cannot adequately regulate; ULR is the FRMS use-case par excellence. India has implemented FRMS through an Operations Circular (§9.7) issued without demonstrating regulator FRMS competence, and is permitting 21-hour FDPs under prescriptive rules in the meantime. The combination is uniquely permissive among major aviation regulators.

Why this matters for the deaths in §1

The Bali rotation Capt. Tarundeep Singh was operating is exactly the duty profile this section addresses: long-haul, deep-night arrival into the destination, scheduled rest in a hotel before the return sector. CAR §10.1(b)(ii) gives such a pilot 18 hours of rest after crossing 3–7 time zones. ICAO Doc 9966 and the Moebus / EASA / NASA findings together suggest that the science requires recovery measured in physiological days, not hours, particularly when integrated across consecutive rotations. India's prescriptive limit on this profile is in the upper range of what is scientifically defensible at the most permissive end. The fatality on this rotation does not, on its own, prove the limit is wrong; it does establish that the limit operates without the scientific demonstration of safety that ICAO requires before it can be set this high.

9.6. India vs the World — Side-by-Side Comparison

FDTL1 slides 18–22 set out the DGCA's own comparative review of its rules against EASA (Europe) and FAA (USA). Read against ICAO Doc 9966 and the WHO/ILO threshold above, the comparison shows where India sits relative to both peer regulators and global health standards:

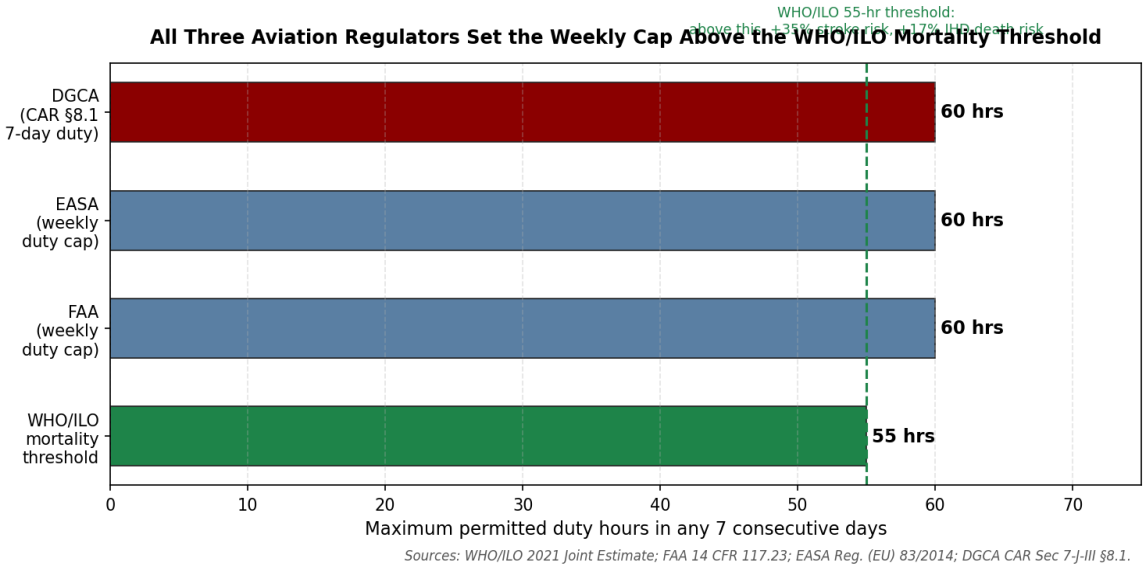

Figure 5 — Maximum 7-day duty hours: regulator caps vs WHO/ILO mortality threshold.

Side-by-side: where India is more permissive

Parameter	DGCA (India)	EASA (EU)	FAA (USA)
"Night" definition	0000–0600 (post-Jan 2024) [Pre: 0000–0500]	Encroaching 02:00–04:59 (acclimatised TZ)	WOCL 0200–0559 within physiological night
WOCL definition	0200–0600	0200–0559	0200–0559
FDP cap, night-encroaching	10 hrs (after Jan 2024 reform)	10 hrs (no extension at night)	Reduced FDP at night
FDP extension allowed at night?	Yes, via Para 16.1	NO	NO
Max consecutive nights	2 (CAR §13.1)	Combinations of 4 consecutive nights / early starts permitted with mandatory 60-hr extended recovery	Up to 5 consecutive nights with rest opportunity
Weekly rest	48 hrs / 168 hrs (post-Jan 2024) [Pre: 36 hrs]	36 hrs / 168 hrs PLUS 60-hr extended recovery 2× per month	30 hrs / 168 hrs at base; 36 hrs away from base; +56 hrs after long crossings
FDP extension cap (cumulative)	8 hrs FDP / 4 hrs FT in 28 days (CAR §16.1)	Max 1 hr extension, max 2× in any 7 days, with extra rest	Max 2 hrs FDP in any 7 days
Max landings, night-encroaching	2 (after reform; cargo: 4)	4 landings cap with FDP 10 hrs	2 landings if encroaching night

Parameter	DGCA (India)	EASA (EU)	FAA (USA)
Onboard rest in MEL	DGCA disclaims jurisdiction (FDTL1 slide 24)	Required for ULR	Required for ULR
FRMS implementation	Operations Circular Sept 2025 (see §9.7)	Regulation-level (Reg. EU 83/2014 + AMC)	Regulation-level (14 CFR Part 117 + FRMS rule)

Reading the table

On every parameter where India and the two reference regulators differ, India sits at the more permissive end. EASA mandates a 60-hour recurrent extended recovery rest twice a month — India does not. EASA and FAA both prohibit FDP extension at night — India permits it under unforeseen-circumstances clauses. FAA caps weekly FDP extension at 2 hours — India caps it at 8 hours over 28 days. EASA and FAA both implement FRMS through statutory regulation — India did so through an Operations Circular (next section). The Indian CAR is not aligned with "international best practices" in the form the press release claims; it is aligned with the most operator-favourable interpretation possible at each parameter.

9.7. FRMS by Operations Circular — A Regulator Bypassing Its Own Rule Book

In September 2025, the DGCA released a draft "Operations Circular" titled 'Fatigue Risk Management System (FRMS) Implementation for Flight Crew Members in Scheduled Air Transport Operations', inviting feedback until 15 September 2025. An Operations Circular is a guidance document the regulator issues to its inspectors and operators. It is not a Civil Aviation Requirement. It is not a statutory regulation.

What the existing CAR itself requires

The DGCA's own CAR Section 7, Series J, Part III — the very document the press release of January 2024 reformed — states the requirement in plain language at Para 1.1:

> *"The ICAO Annex 6, Part 1, requires that the State of the operator shall establish regulations for the purpose of managing fatigue. Accordingly, the State shall establish prescriptive regulations for Flight Time, Flight Duty Period, Duty Period and Rest Period Limitations and, if authorizing the operator to use a Fatigue Risk Management System (FRMS) to manage fatigue, establish FRMS Regulations."* — *DGCA CAR Sec 7-J-III, §1.1*

The phrase that disposes of the question is: "the State shall establish FRMS Regulations." Regulations. Not circulars. Not advisories. Regulations. The CAR is acknowledging the binding ICAO Annex 6 requirement that FRMS authorisation must rest on statutory rule-making, not on internal departmental guidance.

What the regulator did instead

It issued an Operations Circular. Operations Circulars in Indian aviation administration are not subject to the 30-day open public consultation the CAR amendment process requires. They are not gazette-notified. They are administratively quicker to amend, withdraw, or selectively apply — features which from an operator's perspective are useful, and from a public-safety perspective are precisely what statutory regulations are designed to prevent. The Federation of Indian Pilots formally raised this objection at the time, warning that issuing FRMS through an Operations Circular rather than a CAR "risked undermining legislative rigour and stakeholder consultation."

Why this matters

The substantive significance of an FRMS regime is that it permits operators to derogate from the prescriptive duty-time limits in exchange for a demonstrated, data-driven fatigue-management programme. That trade-off is acceptable only if the FRMS framework itself is rigorous — which is precisely why ICAO Doc 9966 and the DGCA's own CAR §1.1 require it to be set out in regulation, not in a circular. By issuing FRMS through an Operations Circular:

- The 30-day stakeholder consultation that statutory rule-making requires was bypassed.
- The procedural firewall against quiet selective amendment was removed.
- The instrument used to authorise operator derogations from the prescriptive limits is itself non-statutory — meaning operator-by-operator FRMS approvals can be granted, modified or withdrawn without the gazette process or the right of pilots and the public to object.
- The CAR's own Para 1.1 — which requires "FRMS Regulations" — has been disregarded by the regulator that wrote it.

> *The regulator wrote into its own CAR that FRMS must be implemented through regulations, then implemented FRMS through a circular. That is not a procedural gloss. That is the regulator overriding the regulator's own statutory requirement, in a domain where the regulator's explicit task is to bind itself to the discipline of rule-making.*

The deeper problem — who is qualified to approve an FRMS?

ICAO Doc 9966 is unambiguous about the prerequisites for FRMS authorisation. FRMS is a performance-based, data-driven derogation from prescriptive limits; an operator's FRMS programme has to be evaluated, approved and continuously oversighted by a regulator that is itself capable of doing the science. The Manual states that FRMS authorisation should be considered only by States whose Safety Management System (SMS) oversight is mature, whose regulator possesses the in-house fatigue-science and bio-mathematical-modelling competence to evaluate operator submissions, and where adequate inspector training has been completed. ICAO is explicit that States without that maturity should remain on prescriptive regulation and not authorise FRMS.

On the public record, the DGCA has not certified that this prerequisite is met in India:

- There is no published evidence of fatigue-science or bio-mathematical-modelling training programmes for DGCA inspectors with respect to FRMS approval.

- There is no published list of DGCA officers qualified to evaluate operator FRMS submissions.
- The September 2025 Operations Circular itself does not enumerate the training, scientific competence, or independent-review framework that a regulator authorising FRMS would have to demonstrate it possesses before an operator's programme can be assessed.
- The Indian SMS landscape has been criticised in successive ICAO USOAP reviews; the underlying SMS maturity that ICAO Doc 9966 requires before FRMS can safely be authorised has not been independently certified.

The practical consequence is sharp. If the regulator does not have the in-house competence to evaluate an operator's FRMS programme on its scientific merits, then approval becomes a paper exercise — the operator submits a plan, the inspector cannot meaningfully critique it, the plan is approved, and the operator is now authorised to derogate from the prescriptive limits that until that approval applied. The derogation is the prize. The evaluation that is supposed to justify it is missing.

> *FRMS is the most consequential single concession a fatigue regulator can make to an airline — it is the legal mechanism by which the operator escapes the prescriptive duty-time ceilings entirely. ICAO mandates that this concession be granted only by a regulator demonstrably equipped to evaluate it. India has issued the framework as a circular, before the regulator has shown the country it has the people, the training and the SMS maturity to evaluate operator FRMS submissions. That sequencing is the reverse of what ICAO Doc 9966 prescribes.*

The pattern this completes

Read alongside (a) the absent 30-day public consultation file for the January 2024 FDTL CAR (Section 4), (b) the carrier-specific exemptions of October–December 2025 (Section 8), and (c) the Operations Circular implementation of FRMS in September 2025 ahead of demonstrated regulator capacity (this section), the institutional behaviour is consistent. Where the rule-making process would create transparency, friction, or a public record the regulator might later be held to, an alternative non-statutory instrument is preferred. Each of these instruments is, individually, a recognised regulatory tool. Used together, in this domain, they have the cumulative effect of removing the safety regulation of pilot fatigue from the public-law framework that the regulator's own foundational document says it should sit in.

9.8. The Smoking Gun the Regulator Cannot Refute — SMS Failure

A Safety Management System (SMS) is, in ICAO Annex 19 doctrine, the definitional test of whether a regulator and an airline are managing safety as a function or merely complying with a rule book. The first SMS principle is hazard identification: when a measurable adverse safety indicator rises, the operator must analyse it; when the operator does not, the State Safety Programme (SSP) must require it; when the SSP does not, the State has failed the SMS test ICAO Annex 19 establishes. India is failing this test in writing.

The TMU/PMU rise is exactly the indicator SMS exists to detect

§2 of this report documents a 9× rise in pilot Temporary-Medical-Unfit declarations between 2009 and 2021, with a sustained plateau through 2023. SMS doctrine is unambiguous about what should have happened next:

- The operators should have analysed the rise — by fleet, by base, by roster pattern, by ailment category — and reported the analysis to the regulator with a remediation plan.
- The regulator should have required and reviewed the analysis, looked across operators for common patterns, and asked the next-order question: is something wrong with our regulations?
- The State Safety Programme should have triggered the corresponding hazard-identification, risk-management and safety-assurance loops.

None of these things has visibly happened on the public record. ALPA India's RTI DGOCA/R/E/25/00578 (9 Aug 2025) asked the DGCA Medical Directorate for the TMU/PMU data the regulator was supposed to be analysing. The DGCA replied on 11 Sep 2025: 'Data is not in a completed format as requested.' ALPA India's appeal (16 Oct 2025) was disposed of with: 'the Appellant does not fulfill the eligibility criteria.' Translation: not only has the regulator not analysed the TMU/PMU rise, the regulator does not have the data in any form that can be analysed.

The ICAO USOAP 2022 audit confirmed the foundation is weak

ICAO's Universal Safety Oversight Audit Programme (USOAP) audited India in 2022 — the eighth such mission since 2006. India's headline Effective Implementation (EI) score is 85.65%, above the 70% Global Aviation Safety Plan target. That is the number the regulator quotes. The audit's sub-findings — also published — tell a more complicated story:

Indicator	ICAO Target	India 2022 Result
Open USOAP protocol findings	0 ideal	**93 OPEN**
Critical Element 4 (Technical Personnel Qualification & Training) — open findings in Air Navigation Services	0 ideal	**12 — the highest in any single CE/area cell**
State Safety Programme (SSP) Foundation value	100%	**No overall SSP Foundation value reported**
Safety Index — Support area (LEG / ORG / AIG)	≥ 1.0	**0.98 — below threshold**
High Safety Index across all 3 functional areas	3 of 3	**2 of 3 (Support area below 1)**
Aerodrome regulatory authority — full implementation of certification	Satisfactory	**UNSATISFACTORY**
FAA IASA categorisation	Cat 1	**Cat 1**
EU Air Safety List restrictions	Unrestricted	**Unrestricted**

Indicator	ICAO Target	India 2022 Result
Significant Safety Concerns (SSCs)	0	**0**
Overall EI %	≥ 70%	**85.65%**

What the sub-findings mean in plain language

- **Support Safety Index 0.98 — the under-resourced regulator.** ICAO calculates a Safety Index by area as the ratio of effective implementation to traffic volume. An index below 1 indicates 'insufficient oversight system taking into consideration its traffic volume.' India's Support area (Legislation / Organisation / Accident Investigation) is below 1. The regulator is, on ICAO's own measure, structurally under-resourced for the volume of aviation it regulates.
- **12 open CE-4 findings in ANS.** Critical Element 4 is Technical Personnel Qualification and Training. The biggest single concentration of open USOAP findings against India is in the qualification and training of regulator-side technical personnel. This is the precise weakness that ICAO Doc 9966 says must be remedied before a State authorises FRMS (§9.7) — and India authorised FRMS via Operations Circular in September 2025 with these 12 findings outstanding.
- **No overall SSP Foundation value.** ICAO measures the State Safety Programme Foundation as 311 protocol questions across 17 subjects derived from Annex 19. India self-reports SSP at 'Level 4 — fully implemented.' ICAO's public dashboard, however, records 'India has no overall SSP foundation value.' The State's self-reported maturity is not, on the public record, validated.
- **Aerodrome regulatory authority — unsatisfactory.** The protocol question 'Does the aerodrome regulatory authority fully implement the certification requirements?' was answered Unsatisfactory. The regulator does not, on ICAO's assessment, fully discharge its certification function.

Why the USOAP 85.65% number is misleading

The 85.65% headline EI score is an aggregated regulatory-presence number — i.e. 'does India have rules on the books across the eight USOAP areas?' The answer is largely yes. The sub-indices measure something different: are those rules being implemented at the depth and quality the traffic volume requires? On those measures — Support Safety Index, SSP Foundation validation, CE-4 personnel training, aerodrome regulator effectiveness — India is below or at threshold. The USOAP score is correctly cited; it does not refute the SMS failure this section documents.

> *If the headline number were the test, India would have analysed the 9× TMU rise; the operators would have published per-fleet hazard analyses; the regulator would have responded to ALPA India's RTI with a dataset rather than 'Data is not in a completed format.' None of these things happened. The Support Safety Index of 0.98, the 12 CE-4 personnel-training findings, and the empty SSP Foundation value are the structural reasons they did not happen. The USOAP audit is not the regulator's defence; it is the public record of what the regulator has not yet built.*

10. Whose Interests Are Being Served?

Test 1 — Whose facts moved the rule?

FDTL1 says the airlines have spare capacity and the reforms cost growth nothing. The final CAR adopts the four most cosmetic of ten reforms. The October–December 2025 exemptions roll back even those for named carriers. The rule responded to operator preference, not to FDTL1's data.

Test 2 — Whose objections were treated as 'justified'?

The DGCA Remarks column dismisses pilot proposals with one-line boilerplate. The same regulator's response to operators' commercial concerns is named exemptions, phased rollouts, and rolling extensions. "No justification given" is the regulator's formula on the slide; FDTL1 slides 4 and 6 already contained the justification.

Test 3 — Who got speed?

Airlines got an extension to 1 June 2024 in the original press release. When that came, they got further extensions, then a court-ordered phased rollout into 2025, then individual exemptions. Pilots got a 12-year court fight and a contempt petition because even the court-ordered settlement was not being honoured.

Test 4 — What did the regulator hide?

The cumulative pilot-death tally is unpublished. The TMU/PMU aggregates were unpublished by DGCA — only Capt. Singh's reconstruction in mindFly made them visible. The fatigue-report dataset DGCA itself analysed for FDTL1 is unpublished. The pilot-roster cross-section that grounds the "55–60 hrs/month" claim is unpublished. The 30-day public-consultation file is undocumented. Each of these would, if published, allow independent statistical scrutiny. None has been.

Test 5 — Is the system listening to data?

To the operators' data, yes. To its own data, no — its October 2023 file was the basis of the press release and the press release inverted the data's conclusion. To pilots' data, no — three SMF surveys with 500+ respondents converging on a 95.6% sleepiness rate and 66% in-cockpit microsleep have not moved one regulatory decision. To the science, no — ICAO Doc 9966 requires science-based fatigue management; the Indian CAR remains an exercise in counting hours.

> *On the documents reviewed, the pattern across these five tests is consistent: operator scheduling preferences have moved the rule book and the timetable; pilot, scientific and independent-survey inputs have not. That is what the record shows; readers are invited to test the inference against the cited primary sources for themselves.*

11. Where Is This System Headed? Will Pilots Keep Dying?

The honest forecast is yes. Each component of the system is locked into a trajectory:

- The regulator has demonstrated that it will, under operational pressure from a major carrier, exempt the very rules it announced as effective. December 2025 establishes the precedent.
- The contempt jurisdiction is slow. The Delhi High Court can ask DGCA to explain itself, but cannot rewrite the CAR; that requires a stand-alone judicial finding that the CAR is itself unlawful.
- The procedural defences against citizen scrutiny — "voluminous" for RTI, "maintainability" for NGO PILs — have not been reformed.
- Pilots cannot speak in public without losing their licences and their employability. They speak only in anonymous surveys, in fatigue reports they themselves do not trust (DGCA's slide 15: 12.1%), and posthumously.
- Airlines have a structural incentive to plan to the regulatory ceiling and zero-buffer their rosters. FDTL1 slide 5 documents that they already do.
- Capacity gaps at carriers are increasing, not decreasing — the December 2025 IndiGo crisis showed the carrier preferred an exemption to hiring more pilots.
- The fatigue–cardiac risk pathway is medically robust. Chronic sleep deprivation is associated with hypertension, atherosclerosis, and sudden cardiac arrhythmia. The Williamson–Feyer alcohol-equivalence threshold is reached on a routine domestic Indian pilot's late-evening rotation.
- The TMU/PMU curve is still climbing. The 1,635-and-94 figure ends in 2023 only because that is where the public data ends; it is unlikely 2024 and 2025 are lower.

The next First Officer who dies on layover is statistically certain unless one of those components changes.

12. What an Honest Regulator Would Do — and Could Do Tomorrow

- Publish, by airline and aircraft type, the pilot-roster averages and 95th-percentile values for FT, FDP, DP and weekly rest for each of the last 24 months. The DGCA already has these — FDTL1 was built from them.
- Publish a quarterly bulletin of pilot deaths on duty and during layover, and of TMU/PMU declarations with cause-of-unfitness breakdowns.
- Re-instate, without exemption, the six dropped FDTL1 recommendations.
- End rolling carrier-specific exemptions. If a carrier cannot meet the rule, it cannot fly the schedule.
- Move to a real FRMS — the "stepping stone" the press release itself referenced — under a court-monitored, hard deadline.
- Accept ICAO Doc 9966 as binding. Build the bio-mathematical model into the CAR. Categorise FDPs the way EASA's 2018 review did. Stop counting hours.
- Decouple the fatigue-report channel from the airline. Reports must go directly to DGCA, with statutory non-punitive guarantees.
- Treat "within flying-hours limits" as the ceiling it is, not the alibi airlines deploy after every death.
- Reform the maintainability bar so that recognised aviation-safety NGOs and bona fide public-interest petitioners can litigate in their own name.

- Treat RTI as a service, not a hurdle. A PowerPoint deck and a comparison table are not "voluminous."

13. Findings

- F1. Cumulative TMU/PMU declarations on Indian commercial pilots, 2009–2023: 1,635 Temporarily Unfit and 94 Permanently Unfit. TMU rose from 25 in 2009 to a peak of 223 in 2021 — an 8.9× absolute increase, ~5× per-capita increase. The DGCA does not publish this data. (Source: mindFly, Capt. Amit Singh FRAeS, Fig. 41.)
- F2. Multiple in-service Indian airline pilots aged 30–44 have died in the last 32 months in active duty or scheduled crew rest, including two cardiac deaths in the 24 hours preceding this report — Capt. Tarundeep Singh of Air India in Bali on 29 Apr 2026, and Capt. Arjun Naidu of Akasa Air during training in Bengaluru on 30 Apr 2026. ALPA India's letter of 1 May 2026 to the DGCA records both as having died "in the line of duty." The DGCA publishes no national death tally.
- F2a. The DGCA Civil Aviation Requirement Section 7, Series J, Part III, §8.1, permits a commercial pilot to be scheduled for up to 60 hours of duty in any 7 consecutive days. The WHO/ILO 2021 Joint Estimate of the Work-related Burden of Disease finds that working 55+ hours per week is associated with a 35% higher risk of stroke and a 17% higher risk of dying from ischemic heart disease, compared to a 35–40 hour week. The Indian regulatory ceiling is 5 hours above the international scientific threshold for elevated cardiovascular mortality.
- F2b. Air India — the carrier with the most fatiguing schedules in the DGCA dataset (long-haul, multi-time-zone, deep-night arrivals) — files only 0.09 fatigue reports per 100 flights, against IndiGo's 1.40 and Air India Express's 1.45 for short-haul operations. The ALPA India / IFALPA letter of 1 May 2026 records that, on the basis of RTI replies, "an alarmingly low rate of acceptance of fatigue reports by operators" has been documented. The institutional rejection of fatigue claims via roster-generated arithmetic is now corroborated by the IFALPA-affiliated Indian pilot federation on the basis of statutory disclosure.
- F2f. The DGCA inquiry report into the December 2025 IndiGo disruption has not been published despite RTI requests by ALPA India. This is the second documented instance, on this report, of the regulator using statutory non-disclosure procedure to keep substantive material off the public record on this subject (the first being RTI DGOCA/R/E/23/00439, §3).
- F2g. The cadet-pilot programme places significant financial burden on trainees followed by employment conditions that, per ALPA India's 1 May 2026 representation, are not commensurate; privately-trained licensed Indian pilots remain underutilised even as operators cite crew shortages. The structural preference for regulatory exemption over hiring is the operational backdrop against which the December 2025 IndiGo crisis arose.
- F2h. 2025 fatigue-report acceptance/rejection (operator SOC submissions to DGCA, 19 Feb 2026): Air India received 1,578 reports, accepted 718 (45.5%), rejected 860 (54.5%); IndiGo received 8,721 reports, accepted 272 (3.1%), rejected 8,449 (96.9%); Air India Express received 278 reports, accepted 278 (100%), rejected 0 (0%). The pattern across operators drawn from the same Indian pilot training pipeline cannot be explained by pilot 'misreporting'; it tracks operator-specific fatigue-handling policy.

- F2i. Air India's internal fatigue policy (in force from September 2024) marks a pilot's fatigue report initially as sick leave on the crew portal; the entry remains classified as sick leave if the Fatigue Committee subsequently rejects the report. Air India narrow-body pilots have six sick days a year. Two or three rejected fatigue reports exhaust an annual sick-leave entitlement. The mechanism materially defeats the non-punitive principle in CAR §4.10.2.
- F2j. Air India recruited zero pilots in calendar year 2025 (Jan–Dec) and lost 57 to attrition, while increasing aircraft utilisation across its fleet (B777: 15.93 hrs/day Oct 2025; A350: 16.50 hrs/day Q2 2025). The 54.5% fatigue-report rejection rate, the 0% pilot intake and the maximum aircraft utilisation are facets of the same operating decision: more flying out of fewer pilots.
- F2k. The DGCA Civil Aviation Requirement permits FDPs of up to 13 hours (2-pilot, daytime), 14–18 hours (augmented), and 21 hours (ULR with 4 crew). The international scientific consensus (Moebus 2008, EASA 2018, NASA Ames Fatigue Countermeasures Group) caps night-encroaching FDP at 10 hours, requires per-sector FDP reduction, and prohibits FDP extension at night. ICAO Annex 6 §4.10.6 and ICAO Doc 9966 require that any State adopting prescriptive limits beyond the international science-aligned thresholds must publish an equivalent scientific derogation analysis. India has not, on the public record, published such an analysis. The higher Indian limits stand on no documented scientific basis.
- F2l. The ICAO USOAP 2022 audit of India recorded 93 open protocol findings, a Support-area Safety Index of 0.98 (below the 1.0 threshold for adequate regulatory controls relative to traffic volume), no overall SSP Foundation value, and an UNSATISFACTORY rating on full implementation of aerodrome certification by the regulator. The biggest single concentration of open protocol findings — 12 — is in Critical Element 4 (Technical Personnel Qualification & Training) in Air Navigation Services. India's headline 85.65% Effective Implementation score does not refute these sub-findings; it averages across them.
- F2m. ALPA India's RTI DGOCA/R/E/25/00578 (9 Aug 2025) requesting carrier-segregated TMU/PMU data was disposed of with 'Data is not in a completed format as requested.' The first appeal (16 Oct 2025) was rejected with 'the Appellant does not fulfill the eligibility criteria.' The DGCA does not have, in releasable form, the data its own SMS doctrine requires it to be analysing — and it has formally denied that the IFALPA-affiliated Indian pilot federation has the standing to ask for it.
- F2c. Of the ten fatigue-management reforms the DGCA recommended to HMCA in October 2023, four were adopted in the January 2024 CAR; six were dropped or weakened. Of those four, all four have been the subject of carrier-specific exemptions in October 2025–February 2026. On the public record, two of the original ten reforms are in unrestricted force as of April 2026.
- F2d. Of twelve substantive pilot proposals recorded in FDTL1 slides 23–24, eight were rejected outright (boilerplate: 'No justification given to that. Not being considered'), one was deferred, two were claimed already addressed, and one was disclaimed as outside DGCA jurisdiction.
- F2e. In September 2025, the DGCA implemented its Fatigue Risk Management System (FRMS) framework via an Operations Circular rather than a Civil Aviation Requirement, despite the regulator's own CAR Sec 7-J-III §1.1 stating that "the State shall establish FRMS Regulations." An Operations Circular is not subject to the 30-day open public consultation that statutory rule-making requires. The Federation of Indian Pilots formally objected. ICAO Doc 9966 further requires that FRMS authorisation be granted

only by States with mature SMS oversight and trained inspectors — neither prerequisite has been independently certified for the DGCA on the public record.

- F3. The DGCA's October 2023 internal Impact Analysis to the Hon'ble Minister of Civil Aviation concluded all ten proposed FDTL reforms could be adopted without affecting flight operations and without hampering aviation growth.
- F4. The PIB press release of 8 January 2024 implemented four of those ten reforms, dropped or weakened six, and presented the result as a balanced compromise. It is not.
- F5. The DGCA Remarks column in FDTL2 systematically rejects pilot-side proposals with the boilerplate "the proposed recommendation may not be accepted." Operator-side concerns produce named-carrier exemptions in October–December 2025.
- F6. There is no public 30-day stakeholder consultation file for the FDTL CAR the press release announced. The mandatory open-comment process appears to have been bypassed.
- F7. The DGCA refused to release FDTL1 and FDTL2 in response to RTI application DGOCA/R/E/23/00439 (31 Aug 2023) on the ground of being "voluminous." The documents were released only under CIC pressure.
- F8. Three independent SMF Safety Culture Surveys (2018, 2022, 2024) document a 95.6% combined daytime-sleepiness rate, 66% in-cockpit microsleep, and 71% self-assessment of unfit-to-fly. The DGCA's formal fatigue-report channel is trusted by 12.1% of pilots (DGCA-cited Baines Simmons figure).
- F9. The Indian FDTL CAR does not meet the substantive requirements of ICAO Doc 9966.
- F10. PIL by safety NGOs has been repeatedly dismissed on the maintainability bar.
- F11. Delhi HC has had to issue contempt notices in November 2025 and questioning in 2026 because the regulator has continued to grant carrier-specific FDTL exemptions. As of the date of this report the rule the press release announced has not been fully implemented.
- F12. The fatigue–cardiac pathway is medically robust. The Williamson–Feyer (2000) alcohol-equivalence finding (17–19 hrs awake = BAC 0.05–0.10%) places routine Indian airline duty cycles in a cognitive-impairment band the law would not tolerate behind the wheel of a car.
- F13. Across the documents reviewed, the pace and content of the FDTL rule book and its phased implementation have aligned more closely with airline operator scheduling preferences than with the recommendations of the regulator's own October 2023 Impact Analysis, the science-based requirements of ICAO Doc 9966, the input of pilot associations, or the findings of independent surveys of Indian commercial pilots. Whether this constitutes regulatory capture in a technical or administrative-law sense is a question for further examination; this report records the pattern and invites that examination.

Method & Caveats

All quantitative claims about FDTL1 are taken directly from the slide text and cited by slide number. Quotations are reproduced verbatim with minor punctuation normalisation. Court chronology and individual pilot-death events are corroborated by the public reporting cited in Sources. SMF survey figures are taken from the 2018,

2022, and 2024 SMF Safety Culture Survey publications. TMU/PMU data are reproduced from mindFly: Human Follies & Malice in Aviation (Capt. Amit Singh FRAeS), Figure 41.

Where a national figure could not be verified from a primary source — most importantly, the cumulative DGCA tally of pilot deaths and the post-2023 TMU/PMU figures — this report says so plainly. The absence of those national figures from the regulator's own bulletins is, itself, the central finding.

This report is published in the public interest. Where it draws inferences from the documents, the inferences are stated as such and the underlying primary sources are cited so that any reader may test them. Where this report makes a quantitative claim that depends on a population estimate (for example, per-capita rates derived from industry-reported pilot headcount), the calculation is qualified accordingly.

Right of reply

The Directorate General of Civil Aviation, the Ministry of Civil Aviation, and any operator named in this report are invited to submit a written response. Any factual correction will be carried in a clearly-marked addendum and circulated alongside this document. Substantive disagreements with the inferences drawn — including, but not limited to, the existence or otherwise of a 30-day public-consultation file for the FDTL CAR notified on 8 January 2024 — will be reproduced in full in the same addendum. Contact: through Safety Matters Foundation.

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