GLASS HULL
Jet Fyul Dynamics LLC

PROOF POSIT

Robinhood Chain failed transactions

Nearly One in Five User Transactions Fails on Robinhood Chain, and Still Pays - second edition

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The pages that follow are the full text of this document's exact source, set as readable pages. The SHA-256 printed in every footer is the fingerprint of that source. The seal of this document — its ledger event, both hardware witnesses and its Bitcoin anchor — is recorded at the verification address above, not in these pages.
Jet Fyul Dynamics LLC · contact@jetfyul.com

PROOF POSIT PP-006

MASTHEAD

Field	Value
Proof Posit	PP-006
Subject	Robinhood Chain (chain ID 4663)
Title	Nearly One in Five User Transactions Fails on Robinhood Chain, and Still Pays: 1,551.08 ETH in Fees from 119,984,049 Failed Transactions
Date	2026-09-29
Measurement window	Genesis (block 0) to block 62,471,946 (2026-09-14 03:00:01 UTC)
Pinned at	Block 62,471,946 · hash `0x6be6970fbf6ebda579ae87bad4df04a3b7dd14486a40508a747d079fbef462eb`
Chain	Robinhood Chain, chain ID 4663 (an Arbitrum Orbit chain settling to Ethereum)
Surface	Index: Glass Hull's own full-history index (A1), whose population is proven identical to our archive extraction. No third-party endpoint was used.
Method hash	`f31bcd7662a6be6f2bd64c96db297e343c7c9ca0b0d29edcf0b7f27e181631a1` (Glass Hull ledger, kind-3 3147512) · Method frozen 2026-09-25 14:27:04Z after exploratory measurement; the sealed figures are the re-run under the frozen method.
Re-run hash	Five ranges: `3a8a1838fdb4a0e5ffd0bb491b596a50234998944307004bbf4637edca122003` · `9bb7065fc9a3151dd8d0baa4994a9b236858d451a1638aaf0ba1338bb5a2d1e6` · `c20040b9050994bc02dc6ada4a5ca6244d22f63694d3647824a8a7f7d4ffe705` · `afe1cfc145f1b79a7ebcfee8243de57bd3ed8a79ae320e09260cca150a66db98` · `669cfdf23a9c7418bec2fd84a70f28f0434e192fb171fc7c56d70373c589c74e` · refute: `02dd95e4d55ef659ec1d49d5c06a788993ef3899a983d43d959b00278edf84c3`
Supersedes / Corrects	Updates the earlier public count through block 55,927,945 (105,012,844 failed), which covered a shorter window
Subject notice	Subject not contacted
How to cite	Glass Hull, Proof Posit PP-006, "Nearly One in Five User Transactions Fails on Robinhood Chain, and Still Pays," Jet Fyul Dynamics LLC (2026), gh.jetfyul.com/posits/PP-006/

I. SUMMARY

From its first block to 14 September 2026, Robinhood Chain processed **653,008,422 user transactions.** Of these, **119,984,049 failed, or 18.374%.** The chain also recorded 62,710,451 system transactions of its own; none failed, and none used gas.

A failed transaction still pays for the computation it used. Together, the failed transactions paid **1,551,080,321,319,255,460,000 wei, about 1,551.08 ETH,** in fees.

Two independent measurements agree on all three figures exactly: the user-transaction count, the failed count, and the fees to the wei.

II. METRIC OBJECTIVE

What we measured. Over the chain's whole history to the pinned block:

- how many transactions failed
- what fees those failed transactions paid

Why it matters. Failed transactions are a cost borne by users and a source of fee revenue for the network. That cost appears in no published figure we could find.

Definitions. A **user transaction** is any transaction other than the chain's own system transactions (receipt type 106). A transaction has **failed** when its receipt records failure (status 0). The **fee** is the gas the transaction used multiplied by the effective price it paid per unit of gas, summed exactly in wei.

III. FINDINGS

Measure	Value
User transactions, genesis to block 62,471,946	653,008,422
Failed user transactions	**119,984,049 (18.374%)**
System transactions (chain-internal)	62,710,451 (none failed; zero gas)
All transactions, for reference	715,718,873 (failed share 16.764%)
Fees paid by failed transactions	**1,551,080,321,319,255,460,000 wei ≈ 1,551.08 ETH**

By block range (failed count · fees in wei):

Block range	Failed	Fees (wei)
0 – 19,999,999	32,594,667	212,060,710,844,437,370,000
20,000,000 – 34,999,999	38,719,737	178,878,750,922,993,954,000
35,000,000 – 43,999,999	13,524,416	45,585,008,478,580,212,000
44,000,000 – 52,999,999	16,117,253	356,169,485,660,238,432,000

Block range	Failed	Fees (wei)
53,000,000 – 62,471,946	19,027,976	758,386,365,413,005,492,000

How the fees break down under the chain's revenue split. Every settlement to the Arbitrum Expansion Program that we measured split exactly 90% to the network and 10% to Arbitrum's ecosystem (Proof Posit PP-003). We state no allocation beyond what that sealed record shows.

III.i PROOFS (ABRIDGED)

Pass arm. Failed transactions and their fees were summed in five block ranges covering the whole window. Each range carries its own re-run record.

- Blocks 0 – 19,999,999: re-run `3a8a1838fdb4a0e5ffd0bb491b596a50234998944307004bbf4637edca122003`
- Blocks 20,000,000 – 34,999,999: re-run `9bb7065fc9a3151dd8d0baa4994a9b236858d451a1638aaf0ba1338bb5a2d1e6`
- Blocks 35,000,000 – 43,999,999: re-run `c20040b9050994bc02dc6ada4a5ca6244d22f63694d3647824a8a7f7d4ffe705`
- Blocks 44,000,000 – 52,999,999: re-run `afe1cfc145f1b79a7ebcfee8243de57bd3ed8a79ae320e09260cca150a66db98`
- Blocks 53,000,000 – 62,471,946: re-run `669cfdf23a9c7418bec2fd84a70f28f0434e192fb171fc7c56d70373c589c74e`
- User and system split: re-run `91c1eaf41047134087c1ef1d434e926197df8c5e27c2d1e54f3e1561333fdba3`

Refute arm. An independent tally of every transaction in every block, minus the successful ones, gives **119,984,049** failed: identical to the pass arm. The fee computation was also checked at a sample block against the chain's recorded per-block fees, and matched exactly.

Second route. A separate measurement by a different route reached the same fee total to the wei (Glass Hull record 3121915).

Population. Every block from genesis to 62,471,946, with coverage proven continuous and no missing range.

IV. LIMITS OF OBSERVATION

1. **Why a transaction failed is not measured here.** Causes include slippage limits, expired quotes, competing transactions and contract rules. This finding counts outcomes, not causes.
2. **ETH is stated at 18 decimals, rounded for display.** The exact figure in wei governs. No dollar value is stated.
3. **Some users paid nothing themselves.** Robinhood's promotion covers network fees on eligible Robinhood Wallet swaps, and sponsors (paymasters) cover gas for some programmable accounts. The fees counted here were paid to the network regardless of who funded them.
4. **The window ends at the pinned block.** Later activity is not included.

V. CONCLUSION

Nearly one user transaction in five on Robinhood Chain fails (18.374%). Failure is not free: failed transactions have paid about 1,551.08 ETH in fees over the chain's life to 14 September 2026, exactly counted and independently confirmed.

This finding measures outcomes. It draws no conclusion about any party's systems or intentions.

VI. GLOSSARY AND DEFINITIONS

- **Failed transaction.** A transaction whose receipt records failure (status 0). It is still included in a block and still pays for gas used.
- **Fee.** Gas used × effective gas price, in wei. 10^{18} wei = 1 ETH.
- **Pinned height.** The last block included, identified by number *and* hash.
- **Both arms.** The pass arm shows the result. The refute arm shows the same method would have returned the opposite result had it been true.
- **Re-run hash.** Confirms a result obtained with the method; the method is in The Full Proof.

VII. ADDITIONAL RESOURCES

If you would like to read more of our series, Proof Posits, you may go here. And if you would like to test yourself against a locked call, our prediction series — The Hull Against the Machine — seals each prediction before the event and reveals it on a timer. Our latest are here. Full readings are published as Full Proofs: some free, others licensed. The Full Proof for this finding, with the complete method, is free here.

SEAL AND VALIDATION

Seal record: this document's seal — its ledger event, both hardware witnesses and its Bitcoin anchor — is recorded on its verification page, https://gh.jetfyul.com/v/JFD-20260929-PP-00003, and in its certificate of authenticity, JFD-20260929-CERT-00003, not in these pages.

To validate:

1. Compute the SHA-256 of this document.
2. Look up the ledger event.
3. Verify both hardware signatures.
4. Verify the Bitcoin anchor.
5. If you prefer, verify on Robinhood Chain itself (P-256 at `0x100`, RIP-7212).
6. Reproduce with the method in The Full Proof, which is free for this finding.

If your bytes differ from ours, kindly let us know publicly or privately. A difference is still a finding.

END OF DOCUMENT · JFD-20260929-PP-00003

NOTE ON THIS DOCUMENT

The pages above reproduce the sealed document. The sealed record is a file.

What the Notary authorised, what both hardware witnesses signed and what the ledger event records is the file `JFD-20260929-PP-00003.pdf` - 300213 bytes, SHA-256 `6df0e2655a2a3fca1c8a71007b973379ab8a6d418053b5abe5cd177cc2cf4f16`.

The sealed document `JFD-20260929-PP-00003.pdf` (300213 bytes, SHA-256 `6df0e2655a2a3fca1c8a71007b973379ab8a6d418053b5abe5cd177cc2cf4f16`) is embedded in this PDF as a file attachment.

Its exact source, whose fingerprint the document prints, `PP-006-ED2-source.md` (8583 bytes, SHA-256 `85a2271cb2d78b2638208f9878e97855132f04ead354a5098f66556a97c14090`) is embedded in this PDF as a file attachment.

The anchor proof as stamped at sealing `JFD-20260929-PP-00003.pdf.ots` (821 bytes, SHA-256 `2926dfd273fb01df93922470236967710a9eb712f0a35e372525859c3c1f5e6a`) is embedded in this PDF as a file attachment.

The seal record from which the certificate is built `seal-record-JFD-20260929-PP-00003.json` (7375 bytes, SHA-256 `5752e373f6f7c0d1dcdc3f7f1b0988133933c6542fa9189b26967a244ab5f601`) is embedded in this PDF as a file attachment.

The complete anchor proof, carrying the Bitcoin attestation, `JFD-20260929-PP-00003.pdf.anchored.ots` (3895 bytes, SHA-256 `f59f7e9d2036be791f9af04548f07868aec02a427ab28c4d111724e4083ecc48`) is embedded in this PDF as a file attachment.

The anchor confirmation from which the certificate's Bitcoin block is taken `anchor-confirmation-JFD-20260929-PP-00003.json` (2580 bytes, SHA-256 `227181bd72f208bd68059c6d54e02501707ec02535b834675a373c4ffd0012ce`) is embedded in this PDF as a file attachment.

Open the attachments pane of your PDF reader to extract them, and hash each file as stored.

What follows, in order

The seal page, carrying the seal record's values: fingerprint, ledger event, both witnesses and the anchor. After it, the Certificate of Authenticity on the Smoking Gun plate, built from the same seal record and signed; then the page "How to verify this without the Issuer, in six steps", which carries the record, both witnesses and the anchor in full, and the steps that verify all of it without the Issuer.

SEAL PAGE — MATCHSTICK TRIBUNAL · MT-CC-SEALDOC-002

K. L. Phillips, a man
Principal, Jet Fyul Dynamics LLC · The author stands behind every word.

BLOCK 2 — ISSUER

```
ISSUER      Jet Fyul Dynamics LLC · Wyoming
RAIL        Matchstick Tribunal
CUSTODY     both witness keys held by the issuer, in silicon, on separate hosts; never exported
```

BLOCK 4 — WHO SIGNED IT

Two independent hardware witnesses. Conforming tests of a defined procedure — not a primary and a backup.

	WITNESS 1	WITNESS 2
chip identity	a9-atecc608b-slot0	a10-atecc608b-slot0
serial	0123ADA0711D8597EE	0123DC797ACC1195EE
curve	ECDSA-P256 (secp256r1)	ECDSA-P256 (secp256r1)
public key	d62d03f8dc3813fb5b74f2b64339d185…	853e69fc700990303abfe61358bfa456…
signature over artifact hash	→ ledger event 3225516	→ ledger event 3225516
signed (UTC)	→ event 3225516	→ event 3225516
federation peer	a10-atecc608b-slot0	a9-atecc608b-slot0
host · custody	A9 · Jet Fyul Dynamics LLC	A10 · Jet Fyul Dynamics LLC
certifies in accordance with	Fed. R. Evid. 902(13), 902(14)	Fed. R. Evid. 902(13), 902(14)
verified offline	→ event 3225516	→ event 3225516

Each signature verifies on its own, against its own public key, without the other and without anything of ours.
One signature is not a seal: if either witness is unreachable, no seal is produced. Both chips are the same make and model,
provisioned and owned by the issuer — independent in custody and location, not in supply chain or ownership.

Full public keys, signatures, and the Rule 902(11) certification of a qualified person: ledger event → event 3225516 · https://gh.jetfyul.com/v/JFD-20260929-PP-00003

Blocks 1-3 are inside these bytes; Block 4 live cells, Block 5 (Ed25519 a1-ledger) and Block 6 (Bitcoin anchor) live on the ledger and at https://gh.jetfyul.com/v/JFD-20260929-PP-00003

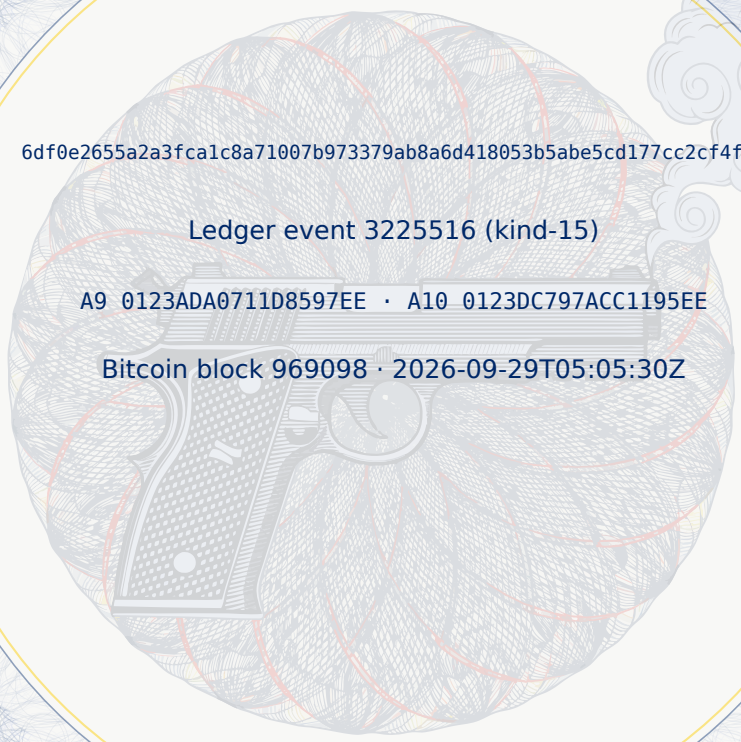
GLASS HULL

CERTIFICATE OF AUTHENTICITY · JFD-20260929-PP-00003

JFD-20260929-PP-00003.pdf · 300213 bytes · sealed 2026-09-29T03:31:50Z

Robinhood Chain failed transactions

Certificate JFD-20260929-CERT-00003



6df0e2655a2a3fca1c8a71007b973379ab8a6d418053b5abe5cd177cc2cf4f16

Ledger event 3225516 (kind-15)

A9 0123ADA0711D8597EE · A10 0123DC797ACC1195EE

Bitcoin block 969098 · 2026-09-29T05:05:30Z

K. L. Phillips

Chief Executive Officer

6df0e2655a2a3fca · ANCHORED · https://gh.jetfyul.com/v/JFD-20260929-PP-00003

How to verify this without the Issuer, in six steps

Robinhood Chain failed transactions - JFD-20260929-PP-00003

The record

Document control number: JFD-20260929-PP-00003

Fingerprint (SHA-256 of the sealed file, raw bytes as stored):
`6df0e2655a2a3fca1c8a71007b973379ab8a6d418053b5abe5cd177cc2cf4f16`

Sealed file: `JFD-20260929-PP-00003.pdf`, 300213 bytes

Source fingerprint printed inside the document:
`85a2271cb2d78b2638208f9878e97855132f04ead354a5098f66556a97c14090`

Ledger event (kind-15): 3225516, event hash
`60e8a60567f0a61638cd15e49c9deab10edf85474e5963be54bcceb22a3fc3de`

Notary authorisation (kind-3): 3225514

Seal request signed by both witnesses: SHA-256
`4c46f9728527efee7d270ec069f40f9c1698e61928ffa0ed9b13a84d6edd980d`

Anchor: OpenTimestamps, **ATTESTED in Bitcoin block 969098** - block hash `00000000000000000001d0fb87b8cd242dbfd9f037ba7f2a8e7668ea05d98ce`, block time 2026-09-29T05:05:30Z.

Calendars that attested: https://btc.calendar.catallaxy.com (block 969098); https://bob.btc.calendar.opentimestamps.org (block 969100); https://alice.btc.calendar.opentimestamps.org (block 969098). The earliest attested block is the anchor.

Anchor check: the committed value equals block 969098's merkle root `c6962e925ec2a46c00b30263d55a4a5b26da4e3af5f0fb3056a254f688a81149`, and mempool.space and blockstream.info agree on that merkle root and on the block hash (checked 2026-09-29T06:42:26Z).

Proofs: the proof as stamped at sealing, `JFD-20260929-PP-00003.pdf.ots` and the complete proof `JFD-20260929-PP-00003.pdf.anchored.ots`, which carries the Bitcoin attestation itself.

Verification address: https://gh.jetfyul.com/v/JFD-20260929-PP-00003

The two hardware witnesses

Witness 1 - host A9, a9-atecc608b-slot0, serial 0123ADA0711D8597EE, curve ECDSA-P256 (secp256r1), signed 2026-09-29T03:31:47.548906+00:00

Public key: `d62d03f8dc3813fb5b74f2b64339d185742aabcae1bdcfd2f7a7ad59f1dd3c5d50e57effa4a3c888f58c3eca9d274bd7f0b8d263fa38bbf0bc6fbff6035c2411`

Signature: `429de9fa148c89088eea4b1128c8b957a98ffba69fb8b5bbc80e9759477c2df6c2325923367e19a1302d382965b08a27263f531f836179aeff14fde460d01eac`

Witness 2 - host A10, a10-atecc608b-slot0, serial 0123DC797ACC1195EE, curve ECDSA-P256 (secp256r1), signed 2026-09-29T03:31:49.819980+00:00

Public key: `853e69fc700990303abfe61358bfa456160eaae1529dbc74805d1639cfc88e78497bbe060e7ae5d54466b2ce0a2753e14204a21eed4a132a61ace3294f9beba1`

Signature: `5636d0c59b5bf976e99338dadd634386b0676b76c34927b00c78a9590b5ec48425a9f6a2816e8ba8953f8f8b4d110e9179550f7ad993135c93efa482638d309b`

The six steps

(1) Extract `JFD-20260929-PP-00003.pdf` from this PDF's attachments and hash it as stored, with no normalisation. Its SHA-256 must equal the fingerprint above.

(2) Read ledger event 3225516 by its id. Its payload must carry that fingerprint as `doc_sha256` and JFD-20260929-PP-00003 as `dcn`.

(3) Verify witness 1's signature as ECDSA over P-256, with the public key above, over the seal request bytes whose SHA-256 is `4c46f9728527efee7d270ec069f40f9c1698e61928ffa0ed9b13a84d6edd980d`.

(4) Verify witness 2's signature the same way. Each signature must verify under its own key and fail under the other's.

(5) Read the OpenTimestamps proof against the same fingerprint. It must carry a Bitcoin block-header attestation at block 969098; ask any block explorer for that block and compare its merkle root with the value the proof commits to.

(6) Open https://gh.jetfyul.com/v/JFD-20260929-PP-00003 and confirm it shows the same fingerprint, ledger event, witnesses and anchor.

This certificate goes to what the record is and that it has not been altered. It is not a sworn declaration and does not assert the truth of anything the document says.