

OVERVIEW

LOOP V4HOOK Suspension System

Product Mechanism and Engineering Implementation Proposal / 2026-10-10. Complete English translation of the Chinese original.

Using dynamic selling costs and buyer rewards to explore a buffer against concentrated short-term declines and panic trading.

The LOOP V4HOOK Suspension System is intended for trading pools configured with the designated Hook. After a completed 5-minute candle closes down strictly more than 10%, suspension begins with the next candle. While suspension is active, the extra sell tax rate varies continuously with the decline from the current candle's own opening price. Actual extra tax collected funds amount-weighted rewards for eligible buyers in the same reward period.

Core assessment

The rules can now be stated clearly, and Uniswap v4 provides the extension mechanisms needed for an implementation. The appropriate next steps are a contract prototype, transaction-level accounting and behavioral experiments. The present evidence does not establish mainnet readiness or prove protection against price declines.

5 minutes	>10%	1:1
Primary rule interval	Closing-decline trigger threshold	Decline to extra tax rate

Reading guide

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Proposal date: 10 October 2026. Intended readers: product, engineering, risk and community collaborators. In this document, 'tax' means an additional transaction fee within the mechanism, not a government tax. Neither prices nor rewards constitute a promise of returns.

PRODUCT POSITIONING

01 / Product goals and intended mechanism

Allow ordinary price fluctuations while focusing on concentrated, rapid declines over short periods.

The suspension system is designed to add a decline-dependent cost to concentrated panic selling and transfer the additional fees actually received to eligible addresses buying in the same period. By changing how traders assess net execution proceeds and rewards, it seeks to moderate concentrated selling and attract additional buying demand. Whether these behavioral changes occur must be tested in subsequent experiments.

The trading habits the design seeks to encourage

The mechanism seeks to encourage participants to consider selling during rises and buying during pullbacks, reducing the impulse to sell together during sharp declines. This is an incentive objective, not market-timing advice, and it does not imply that buying a decline must be profitable. Ordinary declines and pullbacks that do not meet the trigger conditions continue through the normal trading path.

Stage	Mechanism
01 / Detect a sharp decline	A completed candle closes down >10%.
02 / Increase urgent-selling costs	A dynamic additional fee applies from the next candle.
03 / Form a real reward pool	Collect the additional fees actually received.
04 / Observe behavioral change	Measure changes in selling and genuinely additional buying.

What suspension means

Item	Definition and boundary
Trading state	An additional fee and reward rule set is enabled. Trading is not halted and selling is not prohibited.
Price constraint	No price floor is promised. Exit does not require a return to the price before the sharp decline.
Scope	Only trades within a pool configured with this Hook are affected. Other DEXs, other pools and CEXs are not automatically controlled.
Funding	Rewards come from actual extra sell tax collected, without an external subsidy or capital-protection promise.

Two effects must be distinguished

If the same full quantity of tokens is still sold into the AMM and the additional fee is merely deducted from the seller's proceeds, the trade's direct impact on the pool price still occurs. Any buffering effect depends on selling being delayed or reduced and on genuinely additional buying demand.

CONFIRMED RULES

02 / Complete rules and decision boundaries

Completed candles determine the state; the current price during suspension determines the tax rate. These are handled separately so an intrabar recovery is not mistaken for an exit.

Rule	Confirmed definition
Observation interval	Use consecutive 5-minute candles. The trigger compares that candle's opening price O with its closing price C.
Trigger	If (O-C)/O is strictly greater than 10%, suspension begins in the next candle. Exactly 10% does not trigger; an intrabar low more than 10% below open is insufficient.
Trigger candle	When previously inactive, the trigger candle itself is not retroactively charged extra tax.
Real-time rate	While active, the current price P's decline from the current candle's O maps 1:1 to the extra sell tax rate. There is no 50% cap.
Price rebound	If the decline narrows from 3% to 1%, the extra rate falls from 3% to 1%. Sideways trading below open retains the corresponding rate.
Temporary zero	When $P \geq O$, the extra rate is zero but suspension remains active. If P falls below O again within the candle, the live decline-based rate resumes.
New candle	Each new candle resets its opening reference. The dynamic rate is zero at that opening reference point, while suspension may continue.
Exit	Exit occurs only when a completed candle closes bullish, $C > O$. A small bearish candle or doji continues suspension.
Retrigger	After exit, return to waiting. A new completed candle must close down strictly more than 10% to trigger again.

Active: $d = \max(0, 1 - P / O)$ Inactive: $d = 0$

O is the current candle's opening reference; P is the price used for fee calculation at that time; d is the extra sell tax rate. The exact price source, sampling time and quotation currency remain to be finalized. The formula assumes a valid $O > 0$ and $P \geq 0$.

Zero tax and exit are different events

The rate may become zero and resume repeatedly within one candle. Exit happens only after a bullish candle is completed. Exit does not require recovery to the price before the triggering decline.

STATE EXAMPLE

03 / One complete sequence from trigger to exit

The following is a rule illustration, not historical execution data. Each candle's opening reference is set as shown. All times are UTC.

12:00-12:05	12:05-12:10	12:10-12:15
Inactive / closes down 12%	Active / intrabar rate follows price	Active / exit after bullish close

Interval	Example prices and state	Decision
12:00-12:05	O=100; C=88; previously inactive.	Closes down 12%. Active from 12:05; no retroactive tax on this candle.
12:05-12:10	O=88; P=85.36 -> 87.12 -> 88.44 -> 87.56.	Rates: 3% -> 1% -> 0% -> 0.5%. The candle closes bearish; suspension continues.
12:10-12:15	New O=87.56; C=88.00.	Opening reference resets; rate uses the new O. Exit after the bullish candle completes at 12:15.
After 12:15	Price may still be below the earlier 100.	Return to waiting for a new trigger. Recovery to 100 is not required.

The same price movement can have different meanings

During suspension, recovery from below the current opening price back to that opening price only makes the extra rate temporarily zero. If price then falls and the candle finally closes bearish, the next candle remains suspended. Conversely, even a very small bullish candle meets the exit rule once it is completed with $C > O$.

Continuity and reset

Suspension can persist across multiple candles. The tax reference does not retain the high before the original plunge and does not accumulate earlier candles' declines. Each candle is compared with its own opening reference.

In implementation, reaching a time boundary does not make a contract execute automatically. One approach is to roll the previous period's state forward before processing the next trade. This approach still needs to cover empty periods and other boundaries; see source page 08.

FEE ACCOUNTING

04 / Sell fees and net proceeds

Deduct the base fee first, then apply the extra sell tax to the remaining execution amount.

Let G be gross sell execution proceeds, b the base fee rate and d the extra sell tax rate. All amounts below use the same quote-currency unit. This order is the mechanism's accounting definition. The actual contract must still define how G maps to native AMM fees so fees are not deducted twice.

Base fee = $G \times b$

Extra tax = $G \times (1 - b) \times d$

Net sell proceeds = $G \times (1 - b) \times (1 - d)$

Numerical examples

For calculation only, assume G=1,000 and b=1%. The 1% value does not mean the proposal has finalized its base fee configuration.

Extra rate d	Base fee	Extra tax	Net proceeds
12%	10.00	118.80	871.20
80%	10.00	792.00	198.00
99.5%	10.00	985.05	4.95

Allocation for G=1,000, b=1%, d=12%: base fee 10.00; extra tax 118.80; seller net proceeds 871.20.

What having no 50% cap means

The extra rate continues to follow the decline in a valid price and is not truncated at 50%. In an extreme decline, net sell proceeds may become very low. This design is retained as a confirmed rule and requires stress testing for insufficient depth, price jumps, slippage and near-zero net proceeds.

A quote must show the net result directly

The selling interface should show expected gross execution proceeds, the base fee, extra tax and expected net proceeds, and identify the state and price behind the quote. Showing only a percentage leaves users to infer what they actually receive.

The examples exclude gas, other routing costs and undefined fees. A real trade must disclose all applicable costs. Actual proceeds also depend on execution prices and slippage constraints.

BUYER REWARDS

05 / Reward funding and buy-side participation

All extra sell tax actually collected enters the corresponding reward pool and is distributed by eligible buyers' purchase-amount weights within the same period. The base fee is accounted for separately and is not counted again as the same reward funding.

Buyer i reward = $R \times B_i / \text{sum}(B_j)$

R is actual extra tax collected for the reward period. B_i is buyer i's eligible purchase amount under the final definition. This formula can be applied directly only when the denominator is greater than zero.

Eligible buyer	Included buy amount	Weight	Reward
A	1,000	10%	100
B	3,000	30%	300
C	6,000	60%	600
Total	10,000	100%	1,000

The example assumes all three purchases are eligible, R=1,000, and buy and reward amounts use the same unit. It verifies proportional allocation only; it does not predetermine eligibility, settlement currency or claim method.

What a buyer should be able to see

Stage	Required information
Before trading	Current suspension state, reward period, whether the purchase is eligible, and the amount and definition used for its weight.
After trading	Execution record, beneficiary address, cumulative valid purchase amount and a verifiable reward ledger.
At settlement	Actual tax collected, total eligible-purchase denominator, personal share, rounding result and claim status.

A reward is not an investment return

Rewards only redistribute funds actually collected. Subsequent price declines, slippage and trading costs can exceed the reward received. Buyer profit is not guaranteed.

Still undecided: whether 'same period' means one 5-minute candle or a full suspension episode; whether buys during active suspension at a zero rate qualify; whether buy amounts are recorded gross or net; and how funds are handled when no buyer qualifies. No holding snapshot, holding-duration rule, lockup or whale-weight cap is implicitly added by this proposal.

V4 ARCHITECTURE

06 / Uniswap v4 implementation structure

Prototype direction: a pool-level Hook with independent fee accounting and a reward ledger.

Uniswap v4 Hooks can intervene in pool behavior before and after a swap. Custom accounting and independent Hook fees provide a technical foundation for adjusting settlement and allocating funds. [1][2] The following is an engineering proposal, not a completed or audited contract.

Trade interface -> PoolManager -> LOOP Hook
Independent reward ledger: actual extra fees / eligible buy weights / unallocated and claimed balances

Trade interface: sells, buys and quotes. PoolManager: swaps and balance settlement. LOOP Hook: state and additional accounting.

Module	Primary responsibility
Period and state	Store each pool's period ID, opening reference, completed close and suspension state; execute deterministic roll-forward across periods.
Trade identification	Recognize buy/sell direction, actual swapped currencies and credited beneficiary; handle the difference between router and end-user identity.
Dynamic fees	Calculate tax using the confirmed formula; separate base fee, extra tax and user net amount; reconcile actual token inflows and outflows.
Reward ledger	Record each period's actual additional fees and eligible buy weights, prevent duplicate claims and retain reproducible events.
Frontend and indexing	Show state, net quotes, reward progress and history. An index does not replace onchain fund constraints.

Ordinary dynamic LP fees are not a direct substitute

Ordinary pool fees and independent Hook fees follow different accounting paths. Merely changing a dynamic LP fee does not automatically transfer its proceeds to same-period buyers. LOOP must separately validate the collection, custody, aggregation, share calculation and payment of the additional fee.

The pool-level boundary must be explicit
The Hook is determined when a pool is created. A non-Hook pool cannot be retrofitted in place; a new pool or migration plan is required. Other markets for the same token are outside its control, and frontend or aggregator routing to the pool is not guaranteed.

References [1] Uniswap v4 Hooks and [2] Custom Accounting were checked on 2026-10-10. Specific callbacks, permission flags and currency direction must be validated individually against the target implementation version.

TRADE EXECUTION

07 / Execution and interfaces that must be fixed

A clear state machine does not mean execution definitions are complete. Price sampling, fee currency and routing directly change user deductions. A reproducible trade specification must be defined first.

Suggested processing order for one trade

Step	Processing
01 / Roll the period	At trade entry, first detect whether a 5-minute boundary was crossed; update state from the last completed period, then establish the new period's reference.
02 / Identify and quote	Determine buy/sell direction, input/output currencies and actual participant address. Calculate the current state and quote using the selected sampling rule.
03 / Execute and allocate	Calculate base fee and extra tax from actual execution, complete the relevant PoolManager balance settlement, and record reward funds or buy weights.
04 / Update and reconcile	Record prices, fee and reward events needed for the period; reconcile the ledger to real funds. The frontend reflects final net proceeds.

Engineering questions that cannot be left to defaults

Question	Why it changes the result
Pre-trade or post-trade sampling	The sell itself can change the pool price. A different sampling time changes that trade's extra tax.
Open, close and currency	The historical replay uses USD OHLC. An onchain quote currency or USD conversion creates a different price definition.
Exact input / exact output	Deducting a fee from actual output is different from guaranteeing a fixed output. Both paths require separate validation, not a copied example.
Empty periods / abnormal data	Contracts do not execute automatically without trades. No trades, multiple crossed periods and invalid prices need explicit treatment.
Precision / partial fills	Token decimals, integer rounding, price limits and partial fills may affect deductions and reward weights.

Recommended time-advance approach

Conceptually, the state takes effect at a period boundary. Onchain, the previous period can be lazily rolled forward before the next trade is processed. This must neither levy tax retroactively nor apply an ended period's old state directly to a new trade. Empty-period definitions still require a separate decision.

HISTORICAL REPLAY

08 / Seven days of real-market observations

The evidence supports reproducible rules, not proof of economic effectiveness.

The historical window is 2026-10-03 15:50 to 2026-10-10 15:50 UTC, excluding the right endpoint. A fixed-price-path replay uses two Solana PumpSwap pools. LOOP was not actually deployed, and this was not a Uniswap v4 integration test. [3]

Sample	Circulating market cap (approx.)	Selected pool 24h trades	24h volume (approx.)	Liquidity (approx.)
JEANPHIL	\$9.99M	17,408	\$2.26M	\$497.6K
MANIFEST	\$8.40M	8,858	\$673.95K	\$463.5K

Selection target: approximately \$10 million circulating market cap and >5,000 trades in the selected pool over the preceding 24 hours. These asynchronous snapshots were taken on 10 October, 15:00-15:07 UTC. This is retrospective selection and does not show that the criteria held on every historical day. MANIFEST's GeckoTerminal market cap over the same period was approximately \$7.84M. [4]-[7]

8 triggers	45 minutes	5.3882%
JEANPHIL, 5-minute rule	Total confirmed suspension	Highest low-price-based tax signal

5-minute rule result	JEANPHIL	MANIFEST
Original complete candles / theoretical clock slots	2,014 / 2,016	2,011 / 2,016
Strict >10% close triggers	8	0
Confirmed suspended candles	9	0
Complete suspension episodes	8	0
Longest complete episode	10 minutes	Not applicable

Of JEANPHIL's 8 episodes, 7 lasted 5 minutes and 1 lasted 10 minutes. The 5.3882% figure is inferred from the lows of known suspended candles. It is only a price signal, not an actually collected tax rate. The sample did not test the economic consequences of extra rates above 50%.

What the study can establish

There are no transaction-level buy/sell directions, amounts, beneficiaries or tax payments, and no buyer rewards or profit/loss measurements. The replay can answer when the rule triggers and exits, and the corresponding price boundaries. A fixed historical path cannot establish what prices would do after introducing the mechanism.

HISTORICAL CASES

09 / Two real excerpts show the rule trade-offs

Case A / A small bearish candle continues until a bullish close

JEANPHIL, 4 October 2026, UTC. Open-to-close changes are relative to each candle's own opening price. Displayed figures are rounded; rule decisions use the original precision.

Candle interval	Open-close change	State during candle	Boundary result
16:50-16:55	-10.4389%	Previously inactive	Next candle activates at 16:55.
16:55-17:00	-0.6078%	Suspended	Small bearish candle; continue.
17:00-17:05	+13.2268%	Suspended	Bullish candle completes at 17:05; exit.

Suspension spans two candles, totaling 10 minutes. The 17:00 candle's low was 5.3882% below its own open, and it ultimately closed bullish. This low-price signal does not prove that a sell executed at exactly that tax rate, nor that the rebound was caused by LOOP.

Case B / An intrabar plunge after exit does not retrigger

Candle interval	Observed price change	State result
10-09 07:20-07:25	Close down 13.5665%	Activate at 07:25.
10-09 07:25-07:30	Close up 3.6078%	Exit at 07:30.
10-09 07:30-07:35	Intrabar low -14.1853%; close down 5.2658%	Close decline is not >10%; do not retrigger.

A deliberate close-based filter

While inactive, even an intrabar decline greater than 10% does not trigger unless a completed candle closes down strictly more than 10%. Case B follows the rule. It is neither a boundary-programming error nor evidence of an effect caused by LOOP.

After-exit window	Complete events	Deepest low decline	Mean deepest low decline	Still down at window end
15 minutes	8	14.19%	6.82%	7 / 8
30 minutes	8	14.19%	7.47%	3 / 8

The baseline is the closing price of the exit candle; the following 3 or 6 complete 5-minute candles are observed. These figures describe subsequent historical prices, not measured selling pressure or a counterfactual stabilization effect. [3]

SENSITIVITY AND VERIFICATION

10 / Interval comparison and data boundaries

Keeping 'one candle closes down >10%' and 'exit after a bullish close' unchanged, complete aggregated 15- and 30-minute candles are also compared. These are independent rules with changed intervals, not the confirmed 5-minute primary specification.

JEANPHIL interval	Triggers	Total confirmed suspension	Longest complete episode
5 minutes	8	45 minutes	10 minutes
15 minutes	12	360 minutes	90 minutes
30 minutes	15	780 minutes	120 minutes

JEANPHIL: total confirmed suspension (minutes)



Longer intervals accumulate more price movement and delay the bullish-close decision. Intervention time increases markedly in this sample, but longer suspension cannot be interpreted as stronger protection. MANIFEST has no confirmable triggers at any of the three intervals.

Verification work completed

- Seven missing 5-minute periods were separately verified as having no trades. In an independent version, they were filled as flat-price, zero-volume clock slots, producing 2,016 slots per token. Key trigger and episode metrics were unchanged. The original gap version retains unknown-state handling.
- JEANPHIL's deduplicated 1-minute data contains 4,240 records, forming 690 complete overlapping 5-minute groups. Of these, 94 OHLC candles are affected and 106 fields differ. The target events' 8 triggers, exits and 45-minute suspension total agree.
- All 44 prototype unit tests passed a rerun. Conversion of the original native OHLC to tables showed no numerical discrepancies. These are not Solidity tests, a security audit or proof of fund safety.

The original primary table uses the data provider's OHLC opening price. A variant using the previous close as the next period's reference gives the same main trigger and suspension metrics but a different number of unknown states. A data-provider open does not automatically equal an executable first onchain trade price. JEANPHIL's 1-minute coverage is not the full seven days or a random sample. No 1-minute data was obtained for MANIFEST. [3]

ECONOMICS AND RISK

11 / Feasibility assessment and economic boundaries

Dimension	Current assessment	Evidence still required
Rule consistency	Trigger, tax and exit can be stated separately and replayed as states.	Complete price specification; empty-period and abnormal-state handling.
Technical foundation	V4 Hooks and custom accounting provide implementation foundations.	Actual contract integration, fund conservation, routing and security verification.
Behavioral effect	The design changes the incentives around net proceeds.	Whether participants reduce or delay selling and whether additional buying results.
Market performance	Existing fixed historical paths can test timing.	Volatility, depth, execution and net user profit/loss in controlled comparisons.

Risks to investigate first

- Coverage of the first decline is limited. A completed close is required; the trigger candle's immediate price impact cannot be changed retroactively.
- Predictable tax-rate resets may delay selling or concentrate sell orders near candle boundaries. Direction and scale are unproven; this should not be presented as an already demonstrated profitable attack.
- High rates sharply reduce net proceeds and may discourage trading in the pool or move traffic to other markets. Having no 50% cap needs extreme-execution stress research.
- Buyer rewards are diluted by other buys. Price losses and trading costs may exceed rewards; redistribution alone creates no guaranteed return.
- Transaction ordering, reference-price influence, router identity, duplicate claims and ledger solvency are priorities for combined contract and market tests.

Attack analysis must include the complete cost cycle

Selling to pay tax and then claiming part of the reward through one's own addresses is not inherently profitable. Price impact, base fee, extra tax, reward share, gas and exit costs must be evaluated within the same closed cycle; reward income alone is insufficient.

Conclusion at this stage

Retain the confirmed 5-minute interval and uncapped rule for prototyping. External communication may explain the mechanism's objectives, calculations and completed replay scope. Without onchain fund validation and controlled behavioral comparisons, do not promise to 'prevent crashes', 'guarantee buying support' or make 'buying guaranteed profitable'.

DECISIONS AND ROADMAP

12 / Final decisions and validation roadmap

Definitions to settle before contract development

Open decision	Explicit answer required
Price definition	Pre-trade or post-trade; how opens and closes are formed; quote-currency prices or USD values.
Reward period / eligibility	Each 5-minute candle or full suspension episode; whether buys during active suspension at a zero rate qualify.
Buy weights	Gross or net amounts, which currency, cross-currency conversion and rounding.
Identity / settlement	How the end buyer is identified through routers; settlement and claim methods; replay and duplicate-claim prevention.
Abnormal cases / residual funds	No eligible buyer, empty periods, data failures, rounding residues and an uncomputable tax rate.
Base fee mapping	Base rate and destination, definition of G, and correspondence between native pool fees and the proposal's base fee without double deduction.

Progress in evidence-based stages

Stage	Work and validation
1 / Freeze specification and test vectors	Turn each unresolved definition into explicit inputs, outputs and ledger assertions. Retain boundary cases such as exactly 10%, doji candles, intrabar zero rates and cross-candle transitions.
2 / Complete the V4 fund prototype	Run both directions, trade modes and routers in an isolated test environment. Reconcile extra tax collected, reward liabilities and actual balances; verify duplicate-claim protection.
3 / Transaction-level and controlled experiments	Include transaction directions, amounts, wallets and liquidity paths. Compare a no-mechanism baseline with mechanism-enabled behavior, including gas, slippage and net returns.
4 / Decide on a pilot after security review	Conduct boundary, fuzz and economic stress tests and an independent audit. Decide whether to proceed with a controlled pilot from the defects and behavioral evidence.

Evidence is the gate for a launch decision

First prove reproducible fee accounting, payable reward liabilities and no duplicate distributions, then test whether the behavioral objectives hold. Pilot scope, risk-control powers and acceptance thresholds require separate review and are not assumed to be approved.

SOURCES AND TERMINOLOGY

13 / References and key terms

Technical foundations

- [1] Uniswap v4 Hooks. Pool-level Hooks and lifecycle interfaces including beforeSwap and afterSwap. Checked 2026-10-10.
- [2] Uniswap v4 Custom Accounting. Foundations for independent Hook fees, custom accounting and output-side fees. Checked 2026-10-10.

Historical research and sample sources

- [3] LOOP Suspension Mechanism v3: Real-Market Rule Replay, 2026-10-10. Verification includes original OHLC, candle-by-candle states, suspension episodes, post-exit price statistics and independent review results. Here v3 refers to the replay version, not the product name used in this proposal.
- [4] CoinGecko JEANPHIL. Circulating market cap and token information; selection snapshot 2026-10-10.
- [5] CoinGecko MANIFEST. Circulating market cap and token information; selection snapshot 2026-10-10.
- [6] GeckoTerminal JEANPHIL Solana pool. Pool address: 4R8CiMnJWDNoes3fQi1ccPFJygPXazaHaWpHrN3rZeNj.
- [7] GeckoTerminal MANIFEST Solana pool. Pool address: 2DVbU5h8JCd37gaXAJUZ4t77HsjJW22LLduTZk7GSa43.

Four distinctions to keep when reading this proposal

Term	Precise meaning
Suspension state	Whether the additional rule set is active; the current tax rate need not be greater than zero.
Low-price tax signal	A ratio inferred from an OHLC low, not an actual paid tax rate or amount.
Reward pool	Actual extra tax collected, without double-counting the same base fee.
Feasibility	Existing rule and technical foundations, not proven security, economic effectiveness or mainnet readiness.

All times are UTC; amounts follow the units indicated in each table. Historical data, illustrative calculations and engineering recommendations are identified separately so that historical price replay is not mistaken for actual taxation or validated returns.

English edition note: a complete page-corresponding translation of the Chinese source dated 2026-10-10. Translation does not constitute independent approval, a new audit or evidence that the described contracts have been deployed.