Morgan Stanley

MS Trajectory Cross (ATS-1) FIX Specification

May 1, 2023

Overview

Morgan Stanley & Co. LLC operates MS Trajectory Cross, a dark pool designed to provide matches over time intervals. MS Trajectory Cross executes at VWAP over the relevant time interval. MS Trajectory Cross accepts conditional indications from certain Morgan Stanley algorithms and from Subscribers directly. MS Trajectory Cross maintains two continuous conditional order books: one for Subscribers entering conditional orders directly into MS Trajectory Cross and conditional orders entered by certain Morgan Stanley algorithms (the "MSLC" order book) and one for conditional orders entered exclusively by the Morgan Stanley algorithms (the "MSTX" order book). ATS-1 MSTX order book is designed for conditional indications with a short duration trajectory whereas ATS-1 MSLC order book is designed for conditional indications with a long duration trajectory.

Hours of Operation

9:30 a.m. to 4:00 p.m.

MS Trajectory Cross operates on regular business days during normal trading hours (9:30 a.m. to 4:00 p.m. eastern time, unless delayed, shortened, or otherwise modified by an exchange), but does not initiate a crossing round in an NMS stock until that NMS stock has opened on the primary exchange.

Conditional Indications Functionality

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1 Executive Summary

This section specifies the means of accessing Morgan Stanley & Co. LLC ("Morgan Stanley") conditional indication functionality in MS Trajectory Cross via FIX protocol.

1.1 Definitions

A conditional indication represents a non-firm willingness to transact (each, a "**Conditional Indication**" or **"CI"**). A Conditional Indication that can interact with one or more eligible contra-side Conditional Indications will receive a firm-up request ("**Firm-Up Request**"). MS Trajectory Cross participants who send Conditional Indications receive Firm-Up Requests from MS Trajectory Cross when a Conditional Indication that matches with such participant's Conditional Indication is available in MS Trajectory Cross ("**Conditional Match**"). A firm-up order ("**Firm-Up Order**") is an order sent to MS Trajectory Cross in response to a Firm-Up Request.

2 General

Morgan Stanley supports Conditional Indications on FIX version 4.2. All FIX tags referenced in this document are expected on a FIX 4.2 session.

2.1 Cancel on Disconnect (COD)

Morgan Stanley provides cancel on disconnect service upon request on Firm-Up Orders but not on Conditional Indications.

2.2 Supported Securities

NMS stocks are generally eligible as Conditional Indications. Pink Sheets, Bulletin Board products, Options and Futures are not supported.

2.3 Time in Force

Conditional Indications must have a TimeInForce of Day, 59=0.

2.4 Odd Lots and Mixed Lots

MS Trajectory Cross does not accept odd-lot or mixed lot conditional indications.

2.5 Minimum Fill Quantity

Conditional Indications sent to MS Trajectory Cross can be designated with a minimum fill quantity instruction. MS Trajectory Cross does not aggregate multiple contra-side orders or Conditional Indications to satisfy a minimum fill quantity on a single Conditional Indication in MS Trajectory Cross.

2.6 Supported Symbologies

Morgan Stanley supports symbology identification as per the table below.

SYMBOLOGY	TAG VALUES
Exchange Symbol (CQS format)	48=ExchangeSymbol, 22=8
CUSIP	48=CUSIP, 22=1
SEDOL	48=SEDOL, 22=2
Bloomberg Symbol	48=BloombergSymbol,22=A

ISIN number	48=ISIN, 22=4, requires tag 207
RIC code	48=RIC, 22=5

Security Symbol should be specified using tag 55 (Symbol) in CQS format along with tag 65 (SymbolSfx) in CMS format. When using tag 48 (SecurityID) in ExchangeSymbol format, the symbol suffix is understood to be embedded in the field carrying the symbol (tag 48) in CMS format.

3 Supported Conditional Indication Messages

3.1 Conditional Indication

Morgan Stanley supports New Order Single messages (tag 35=D) for Conditional Indications.

TAG	FIELD NAME	REQ'D	COMMENTS
StandardHeader		Y	
57	TargetSubID	Y	Identifies MSLC as the destination. Expected Value: MSLC.
11	ClOrdID	Y	Unique identifier of CI as assigned by institution.
21	HandlInst	Y	Instructions for CI handling. Expected Value: 1
18	ExecInst	N	Execution instructions. Allowed value: 1
110	MinQty	N	Minimum quantity of CI to be matched/executed.
55	Symbol	Y	Security Symbol (CQS).
65	SymbolSfx	N	Additional information about the security.
48	SecurityID	N	Security identifier.
22	IDSource	N	Identifies class of SecurityID
54	Side	Y	Side of CI. Supported values: 1 – Buy 2 – Sell 5 – Sell Short 6 – Sell Short Exempt
60	TransactTime	Y	Time CI request was initiated/released by the trader or trading system. UTC time stamp.
38	OrderQty	Y	Quantity of CI.
40	OrdType	Y	Type of CI. Supported values: 1 – Market 2 – Limit
44	Price	N	Required when the order type is Limit.
47	Rule80A (Order Capacity)	N	Capacity of CI**.** Default is "A".

17597	CrossingDuration	N	One or more (comma-separated) desired crossing round durations. Durations are expressed in minutes. Supported values: 5 10 15 30 60 AD Examples of legal values: "5" "10" "15,30,60" If this tag is omitted, tag ConditionalDetails/16057 must be set.
6531	ConditionalIndicator	Y	Used to indicate that this is a Conditional Indication. Required value: 0
10302	ExecuteAsCapacity	N	A – Agency Only E – Either Agency or Principal Defaults to trading with both Agency and Principal flow (E).
16057	ConditionalDetails	N	One or more (comma-separated) key/value pairs specifying qty and round durations. The key must be either "tradable_qty", specifying an amount in shares, or "duration" specifying a duration in minutes. Format example: "duration=5m,tradable_qty=1100,duration=10m,tradable_qty=2300" The ConditionalDetails maximum tradable_qty should be equal to OrderQty/38. This is an *alternative* interface to CrossingDuration/17597. Tags CrossingDuration/17597 and ConditionalDetails/16057 cannot be used together.
StandardTrailer		Y	

3.2 Conditional Indication Cancel

The CI cancel request message (35=F) requests the cancelation of an existing Conditional Indication.

TAG	FIELD NAME	REQ'D	FIX SPEC COMMENTS
StandardHeader		Y	

41	OrigClOrdID	Y	ClOrdID of CI being canceled. If multiple replaces occurred, the latest CI ClOrdID should be referenced.
37	OrderID	N	Unique identifier of most recent CI as assigned by broker.
11	ClOrdID	Y	Unique ID of cancel request as assigned by the institution.
55	Symbol	Y	Security Symbol (CQS). Must match original CI.
65	SymbolSfx	N	Additional information about the security. Must match original CI.
48	SecurityID	N	Security identifier. Must match original CI.
22	IDSource	N	Identifies class of SecurityID. Must match original CI.
54	Side	Y	Side of CI. Supported values: 1 – Buy 2 – Sell 5 – Sell Short 6 – Sell Short Exempt
60	TransactTime	Y	Time CI request was initiated/released by the trader or trading system. UTC Time stamp.
38	OrderQty	N	Quantity of CI.
6531	ConditionalIndicator	N	Used to indicate that this is a Conditional Indication. Allowed value: 0
StandardTrailer		Y	

3.3 Conditional Indication Replace Request

The CI cancel/replace request (35=G) is used to change the parameters of an existing Conditional Indication. The only parameters allowed to change are quantity (tag 38), price (tag 44), order type (tag 40), minimum quantity (tag 110), CrossingDuration (tag 17597) and ConditionalDetails (tag 16057).

TAG	FIELD NAME	REQ'D	COMMENTS
StandardHeader		Y	
37	OrderID	N	Unique identifier of most recent CI as assigned by broker.
11	ClOrdID	Y	Unique identifier of replacement CI. Note that this identifier will be used in ClOrdID field of the Cancel Reject message if the replacement request is rejected.
41	OrigClOrdID	Y	ClOrdID of CI being replaced. If multiple replaces, the previous CI should be referenced.

21	HandlInst	Y	Instructions for CI handling. Must match original CI.
18	ExecInst	N	Execution instructions. Must match original CI.
110	MinQty	N	Minimum quantity of a CI to be executed.
55	Symbol	Y	Security Symbol (CQS). Must match original CI.
65	SymbolSfx	N	Additional information about the security. Must match original CI.
48	SecurityID	N	Security identifier. Must match original CI.
22	IDSource	N	Identifies class of SecurityID. Must match original CI.
54	Side	Y	Must match original side.
60	TransactTime	Y	Time this CI request was initiated/released by the trader or trading system. UTC Time stamp.
38	OrderQty	Y	Quantity of CI. Can be changed.
40	OrdType	Y	Type of CI. Allowed values: 2 - Limit
44	Price	Y	Price of CI. Can be changed.
47	Rule80A	N	Must match original CI.
17597	CrossingDuration	Y	One or more (comma-separated) desired crossing round durations. See *3.1 Conditional Indication* for details.
6531	ConditionalIndicator	N	Used to indicate that this is a Conditional Indication. Allowed value: 0
16057	ConditionalDetails	N	One or more (comma-separated) key/value pairs specifying qty and round durations. See *3.1 Conditional Indication* for details.
StandardTrailer		Y	

4 Responses to Conditional Indication Messages

4.1 Conditional Indication Acknowledgement, Reject, Replacement Confirmation, and Canceled Messages

An execution report message (35=8) is used to:

1. Confirm the receipt of a Conditional Indication (ACK).
2. Confirm changes to an existing Conditional Indication (i.e. accept replace requests).
3. Reject a Conditional Indication.
4. Acknowledge that a Conditional Indication has been canceled.

TAG	FIELD NAME	REQ'D	COMMENTS
StandardHeader		Y	

37	OrderID	Y	Unique identifier as assigned by broker.
11	ClOrdID	N	Unique identifier as assigned by institution.
76	ExecBroker	N	Used for broker identification. Will always be MSTX.
17	ExecID	Y	Will be unique for each Execution Report message.
20	ExecTransType	Y	Identifies transaction type.
150	ExecType	Y	Describes the type of execution report. Same values as OrdStatus.
39	OrdStatus	Y	Describes the current state of a CHAIN of indications, same scope as OrderQty, CumQty, LeavesQty, and AvgPx 0 – indicates a Conditional Indication has been acknowledged. 4 – indicates a Conditional Indication has been canceled. 5 – indicates the replacement of a Conditional Indication has been accepted. 8 – indicates that the request has been rejected. Note: only the first cancel request on a Conditional Indication will be acknowledged. Subsequent cancel requests will be rejected.
55	Symbol	Y	Reflected from Conditional Indication.
65	SymbolSfx	N	Reflected from Conditional Indication.
48	SecurityID	N	Reflected from Conditional Indication.
22	IDSource	N	Reflected from Conditional Indication.
54	Side	Y	Reflected from Conditional Indication.
38	OrderQty	Y	Reflected from Conditional Indication.
44	Price	Y	Reflected from Conditional Indication.
41	OrigClOrdID	N	Reflected from Conditional Indication.
47	Rule80A	N	Reflected from Conditional Indication.
59	TimeInForce	Y	Reflected from Conditional Indication.
110	MinQty	N	Reflected from Conditional Indication.
18	ExecInst	N	Reflected from Conditional Indication.
21	HandlInst	N	Reflected from Conditional Indication.

40	OrdType	Y	Reflected from Conditional Indication.
60	TransactTime	N	Time the transaction represented by this ExecutionReport occurred. UTC Time stamp.
31	LastPx	Y	Will always be zero.
32	LastShares	Y	Will always be zero.
14	CumQty	Y	Will always be zero.
6	AvgPx	Y	Will always be zero.
StandardTrailer		Y	

4.2 Firm-Up Request

When there is a Conditional Match, the Conditional Indication and the contra-side Conditional Indication enter into a firm-up period during which both the Conditional Indication and the contra-side Conditional Indication can only be matched in MS Trajectory Cross against each other. During the firm-up period, MS Trajectory Cross sends Firm-Up Request(s) in response to the Conditional Indication(s).

A Firm-Up Request (35=8) is indicated by an unsolicited cancelation of a Conditional Indication request. The Firm-Up Request will contain a Firm-Up ID which references the Conditional Indication in the Conditional Match, the matched crossing round duration, and quantity. The Firm-Up ID must be used when sending a Firm-Up Order; the Firm-Up Order side, type, price, and quantity must match the Firm-Up Request.

TAG	FIELD NAME	REQ'D	COMMENTS
StandardHeader		Y	
37	OrderID	Y	Unique identifier as assigned by broker.
11	ClOrdID	N	Unique identifier as assigned by institution.
17	ExecID	Y	Will be unique for each Execution Report message.
20	ExecTransType	Y	Identifies transaction type.
150	ExecType	Y	Describes the type of execution report. Will always be value: 4.
39	OrdStatus	Y	Used to describe the CI state. Value of 4 – Indicates that a Conditional Indication has been matched when a Firm-Up ID is placed into tag 14056.
55	Symbol	Y	Reflected from Conditional Indication.
65	SymbolSfx	N	Reflected from Conditional Indication.

48	SecurityID	N	Reflected from Conditional Indication.
22	IDSource	N	Reflected from Conditional Indication.
54	Side	Y	Reflected from Conditional Indication.
38	OrderQty	N	Reflected from Conditional Indication.
40	OrdType	N	Reflected from Conditional Indication.
44	Price	N	Reflected from Conditional Indication.
18	ExecInst	N	Reflected from Conditional Indication.
47	Rule80A	N	Reflected from Conditional Indication.
41	OrigClOrdID	N	Reflected from Conditional Indication.
59	TimeInForce	N	Reflected from Conditional Indication.
32	LastShares	Y	Will always be zero.
31	LastPx	Y	Will always be zero.
14	CumQty	Y	Will always be zero.
6	AvgPx	Y	Will always be zero.
60	TransactTime	N	Time the transaction represented by this ExecutionReport occurred. UTC Time stamp.
21	HandlInst	N	Reflected from Conditional Indication.
110	MinQty	N	Reflected from Conditional Indication.
12145	CrossQty	Y	The quantity to be matched in the crossing round. The Firm-Up Order must match this quantity in tag 38.
12146	CrossRoundDuration	Y	The duration of the matched crossing round, in minutes.
14054	OrderIdentifier	Y	Unique ID to be used for reference on the Firm-Up Order.
14056	Firm-Up ID	Y	Unqiue ID to be used for reference on the Firm-Up Order.
StandardTrailer		Y	

5 Responses to a Firm-Up Request

Firm-Up Orders can be routed to MS Trajectory Cross in response to a Firm-Up Request. Firm-Up Requests expire in 1,000 milliseconds.

5.1 Firm-Up Order Message

The Firm-Up Order message (35=D) must match all fields of the Firm-Up Request. The quantity of the Firm-Up Order must match the quantity in tag 12145 from the Firm-Up Request.

TAG	FIELD NAME	REQ'D	COMMENTS
StandardHeader		Y	
57	TargetSubID	Y	Identifies MSLC as the destination. Expected Value: MSLC.
11	ClOrdID	Y	Unique identifier for Firm-Up Order as assigned by institution.
21	HandlInst	Y	Instructions for order handling. Expected Values: 1 or 2
18	ExecInst	N	Execution instructions. Needs to match Conditional Indication.
110	MinQty	N	Minimum quantity of an order to be executed. If present must match or be lower than the MinQty from the Conditional Indication.
55	Symbol	Y	Security Symbol (CQS).
65	SymbolSfx	N	Additional information about the security.
48	SecurityID	N	Security identifier.
22	IDSource	N	Identifies class of SecurityID.
54	Side	Y	Side of order. Must match Conditional Indication. Supported values: 1 – Buy 2 – Sell 5 – Sell Short 6 – Sell Short Exempt
114	LocateReqd	N	Required for short sell orders. Must match Conditional Indication. Y = Indicates the broker is responsible for locating the stock N = Indicates the broker is not required to locate**.** **If locate with MS is not required then Tag 5700 needs to be populated with validate locate broker.**
60	TransactTime	Y	Time this order request was initiated/released by the trader or trading system. UTC time stamp.
38	OrderQty	Y	Quantity of this order. Must match the quantity in tag 12145 on the Firm-Up Request.

40	OrdType	Y	Order type of this order. Must match Conditional Indication. Supported Values: 1 – Market 2 – Limit
44	Price	N	Reflected from Conditional Indication.
59	TimeInForce	Y	Allowed value: 0 – Day
47	Rule80A (Order Capacity)	N	Capacity of the order**.** Must be same as on the Conditional Indication.
5700	Locate Broker	N	Conditionally required for short sell orders if tag 114 is N**.**
14054	OrderIndentifier	Y	Reflected from Firm-Up Request.
14056	Firm-Up ID	Y	Reflected from Firm-Up Request.
6531	ConditionalIndicator	N	Used to indicate that the order is response to a Firm-Up Request. Supported Value: 1
StandardTrailer		Y	

5.2 Firm-Up Request Decline (DK)

The Don't Know message (35=Q) is used to decline a Firm-Up Request.

TAG	FIELD NAME	REQ'D	COMMENTS
StandardHeader		Y	
37	OrderID	Y	Unique identifier as assigned by broker.
17	ExecID	Y	Must be unique for each Execution Report message
127	DKReason	Y	Text explaining the rejection of the Firm-Up Request
55	Symbol	Y	Security Symbol (CQS).
65	SymbolSfx	N	Additional information about the security.
48	SecurityID	N	Security identifier.
22	IDSource	N	Identifies class of SecurityID.
54	Side	Y	Side of order.
32	LastShares	N	Size of the Conditional Indication.

31	LastPx	N	Price of the Conditional Indication.
60	TransactTime	N	Time the transaction represented by this ExecutionReport occurred. UTC Time stamp
StandardTrailer		Y	

6 Responses to Firm-Up Order Messages

6.1 Execution Report

The execution report message (35=8) is used to:

1. Confirm the receipt of a Firm-Up Order (ACK)
2. Respond to requests for changes to an existing Firm-Up Order
3. Relay fill information on active Firm-Up Orders
4. Reject Firm-Up Orders

TAG	FIELD NAME	REQ'D	COMMENTS
StandardHeader		Y	
37	OrderID	Y	Unique identifier as assigned by broker.
11	ClOrdID	N	Unique identifier for Firm-Up Order as assigned by institution.
76	ExecBroker	N	Used for broker identification. Will always be MSTX.
17	ExecID	Y	Must be unique for each Execution Report message
20	ExecTransType	Y	Identifies transaction type.
19	ExecRefID	N	Required for Cancel and Correct ExecTransType messages.
150	ExecType	Y	Describes the type of execution report. Same values as OrdStatus.
39	OrdStatus	Y	Describes the current state of a CHAIN of orders, same scope as OrderQty, CumQty, LeavesQty, and AvgPx 0 – Indicates an order has been acknowledged. 1 – Partially filled 2 - Filled 4 – Indicates the order has been canceled. 8 – Indicates that the request has been rejected.
55	Symbol	Y	Security Symbol (CQS).
65	SymbolSfx	N	Additional information about the security.
48	SecurityID	N	Security identifier.

22	IDSource	N	Identifies class of SecurityID.
54	Side	Y	Side of order. Matches Firm-Up Order.
38	OrderQty	N	Quantity of the order. Matches Firm-Up Order.
40	OrdType	N	Type of the order. Matches Firm-Up Order.
44	Price	N	Matches Firm-Up Order.
59	TimeInForce	Y	Value = 0
18	ExecInst	N	Matches Firm-Up Order.
47	Rule80A	N	Matches Firm-Up Order.
32	LastShares	Y	Shares in this execution.
31	LastPx	N	Price in this execution.
29	LastCapacity	N	Capacity of this execution.
30	LastMkt	N	Market of execution for last fill. Value = MSLC.
14	CumQty	Y	Cumulative quantity of all executions against this order.
6	AvgPx	Y	Average price of all executions against this order.
60	TransactTime	N	Time the transaction represented by this ExecutionReport occurred. UTC Time stamp.
21	HandlInst	Y	Matches Firm-Up Order.
110	MinQty	N	Matches Firm-Up Order.
StandardTrailer		Y	

6.2 Order Cancel Request

The Firm-Up cancel request message (35=F) requests the cancelation of an existing Firm-Up Order.

TAG	FIELD NAME	REQ'D	FIX SPEC COMMENTS
StandardHeader		Y	
41	OrigClOrdID	Y	ClOrdID of Firm-Up Order being canceled.
37	OrderID	N	Unique identifier of most recent Firm-Up Order as assigned by broker.
11	ClOrdID	Y	Unique ID of cancel request as assigned by the institution.

55	Symbol	Y	Security Symbol (CQS). Must match original Firm-Up Order.
65	SymbolSfx	N	Additional information about the security. Must match original Firm-Up Order.
48	SecurityID	N	Security identifier. Must match original Firm-Up Order.
22	IDSource	N	Identifies class of SecurityID. Must match original Firm-Up Order.
54	Side	Y	Side of Firm-Up Order. Supported values: 1 – Buy 2 – Sell 5 – Sell Short 6 – Sell Short Exempt
60	TransactTime	Y	Time Firm-Up Order request was initiated/released by the trader or trading system. UTC Time stamp.
38	OrderQty	N	Quantity of Firm-Up Order.
StandardTrailer		Y	

6.3 Order Replace Reject

Firm-Up Orders cannot be changed. If a replace message is sent for a Firm-Up Order it will be rejected with an order replace reject message (35=9).

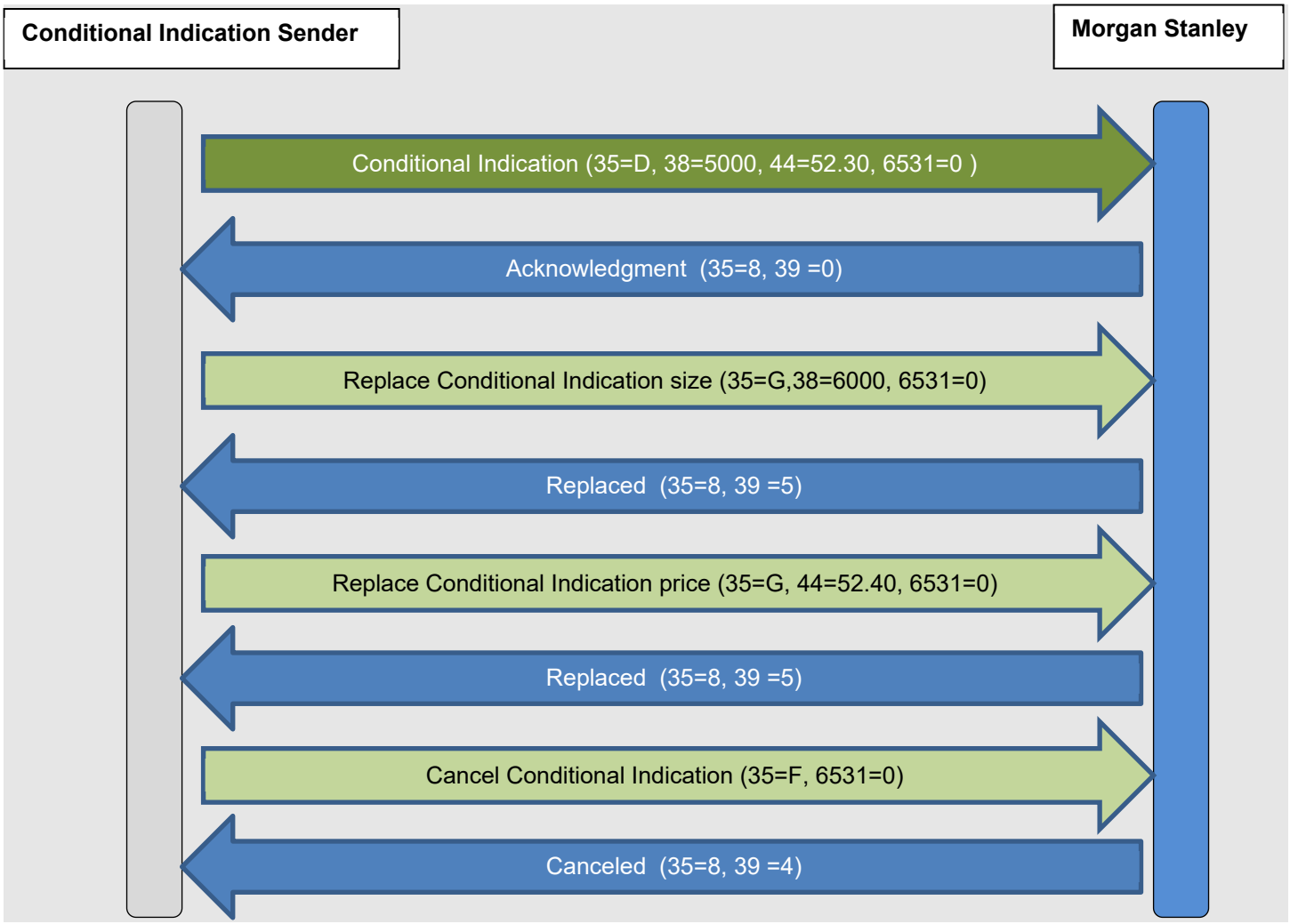
TAG	FIELD NAME	REQ'D	COMMENTS
StandardHeader		Y	
37	OrderID	Y	Unique identifier as assigned by broker.
11	ClOrdID	Y	Unique identifier for Firm-Up Order as assigned by institution.
41	OrigClOrdID	Y	ClOrdID which could not be replaced.
39	OrdStatus	Y	Describes the current state of a CHAIN of orders, same scope as OrderQty, CumQty, LeavesQty, and AvgPx
60	TransactTime	N	Time the transaction represented by this ExecutionReport occurred. UTC Time stamp.
58	Text	N	Free format text string.
434	CxlRejResponseTo	Y	Identifies the type of request that the Replace Reject responds to.
StandardTrailer		Y	

7 Message Sequences

7.1 Conditional Indication Entry

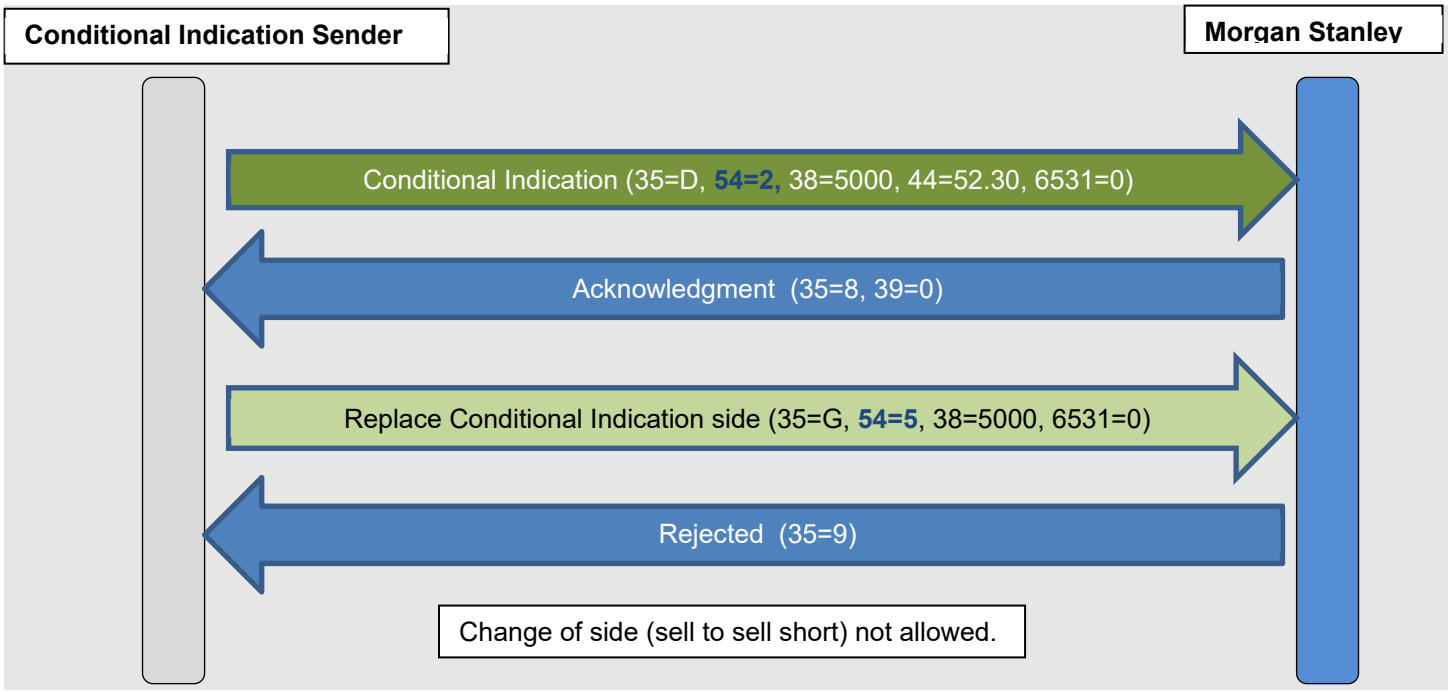
7.1.1 New Conditional Indication, Replacement and Cancel

New Conditional Indications will be acknowledged. Below are examples of what can be changed on a Conditional Indication and the messaging on cancelation.



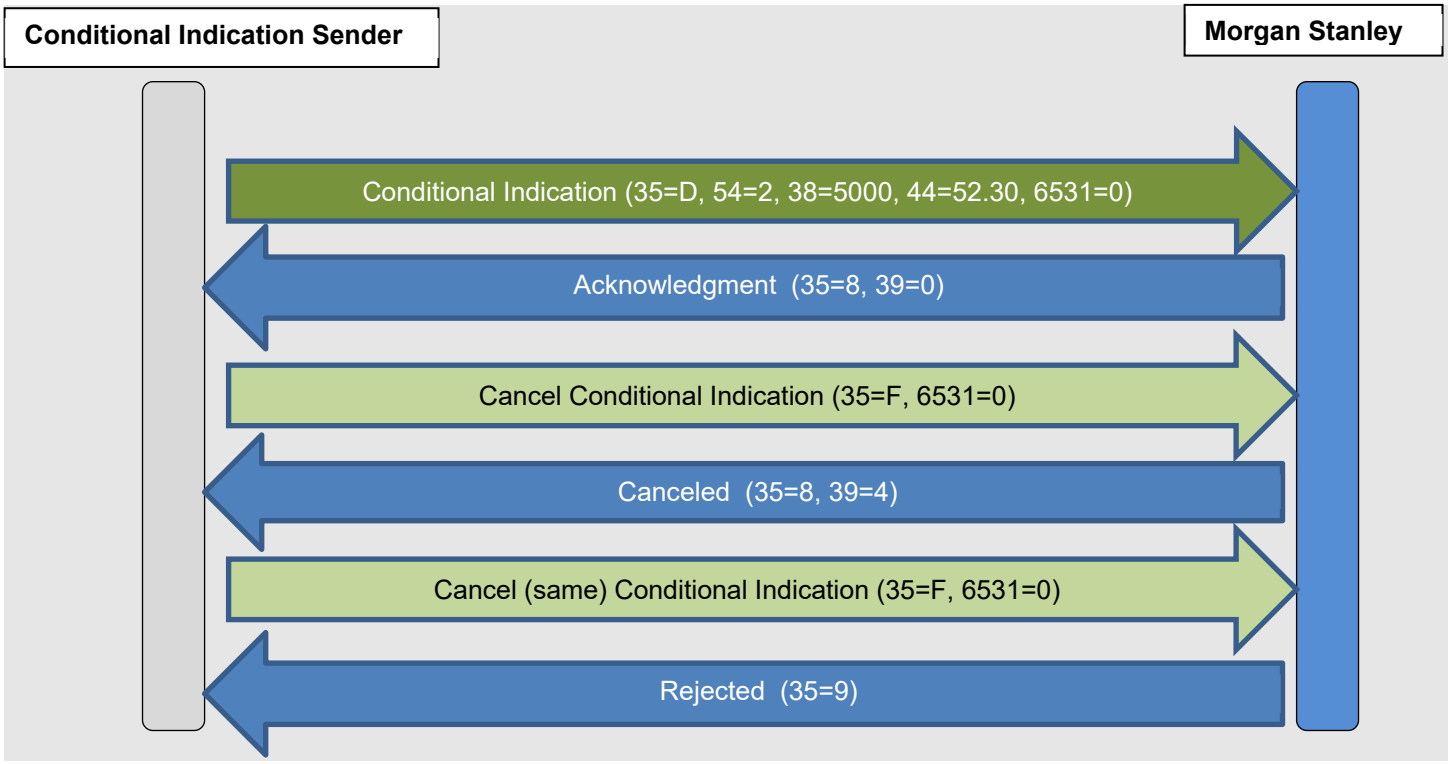
7.1.2 Reject Conditional Indication Replace Request

Conditional Indications that fail validation will be rejected. Below are some reasons why a Conditional Indication or replacement might be rejected.



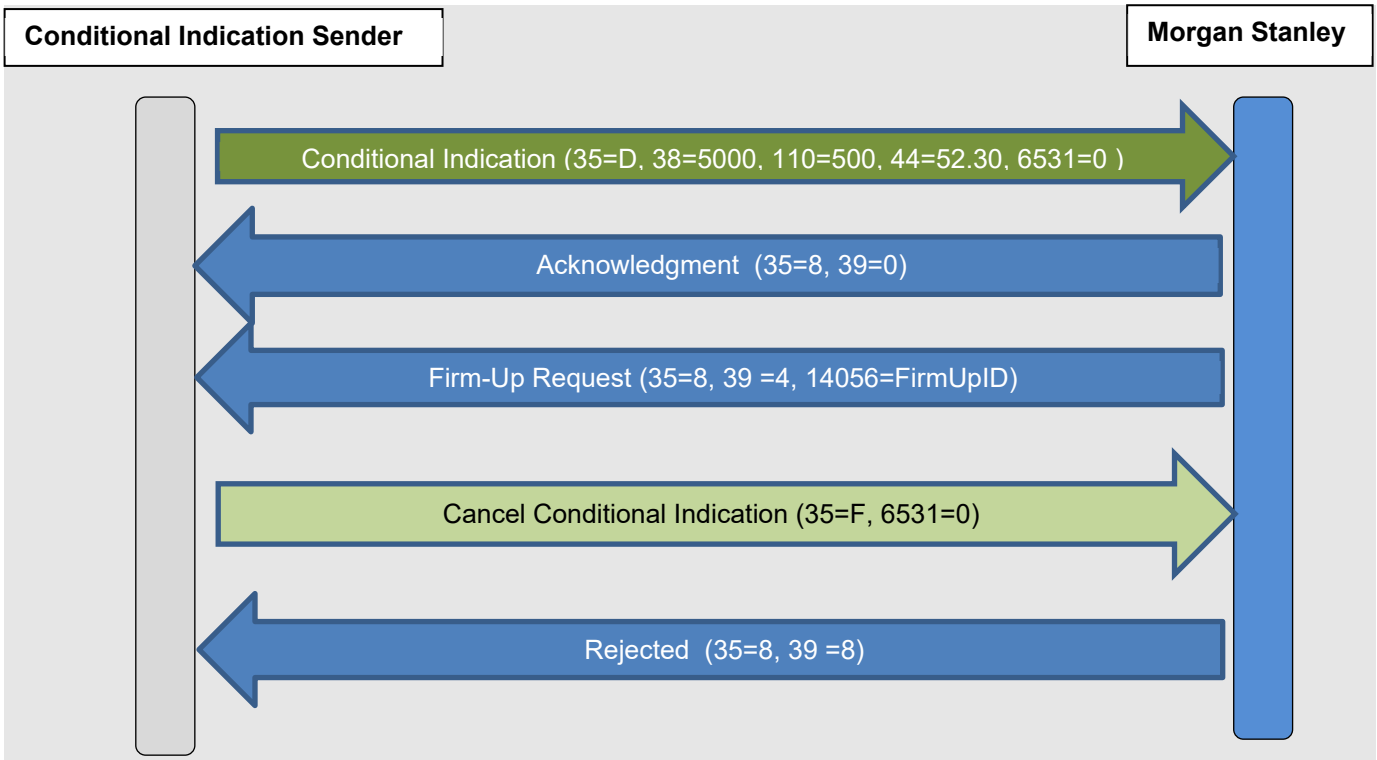
7.1.3 Reject Conditional Indication Cancel Request

Only the first cancel request on a Conditional Indication will be acknowledged. Subsequent cancel requests will be rejected.



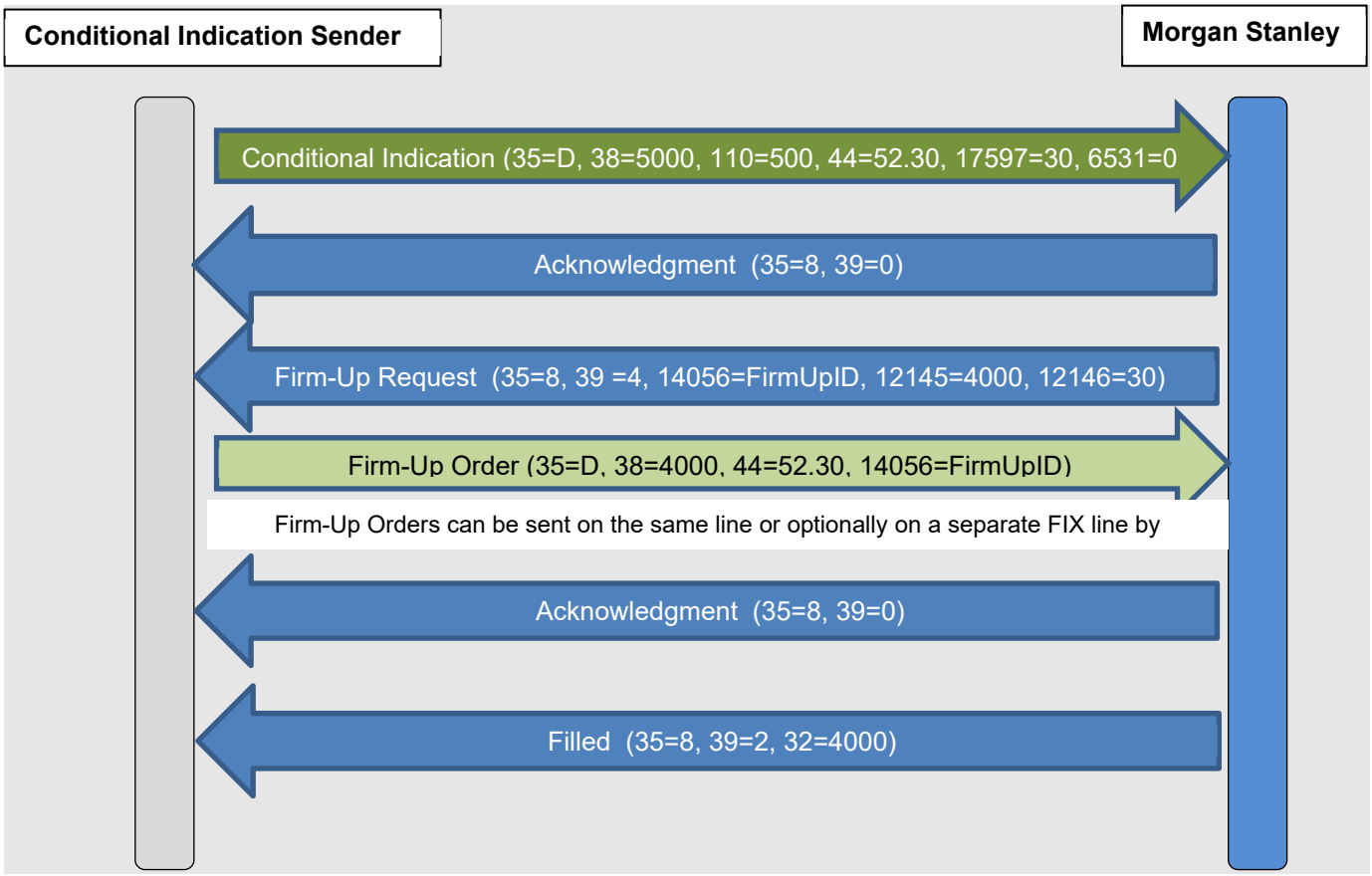
7.1.4 Cancel Request after Firm-Up Request

Any secondary request on a Conditional Indication will be rejected once a Firm-Up Request is issued.



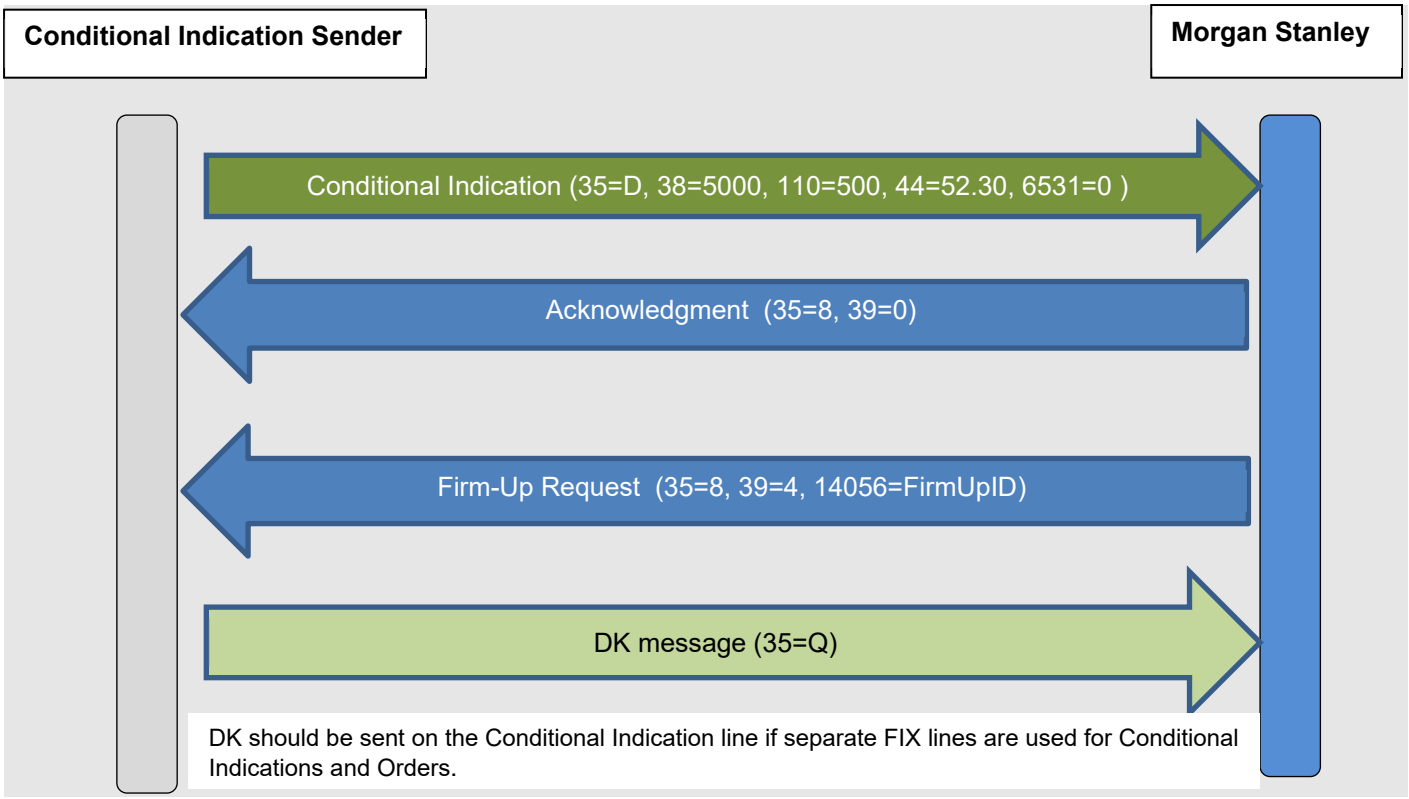
7.2 Firm-Up Order Sequence

7.2.1 Successful Conditional Indication and Firm-Up Request sequence with executions



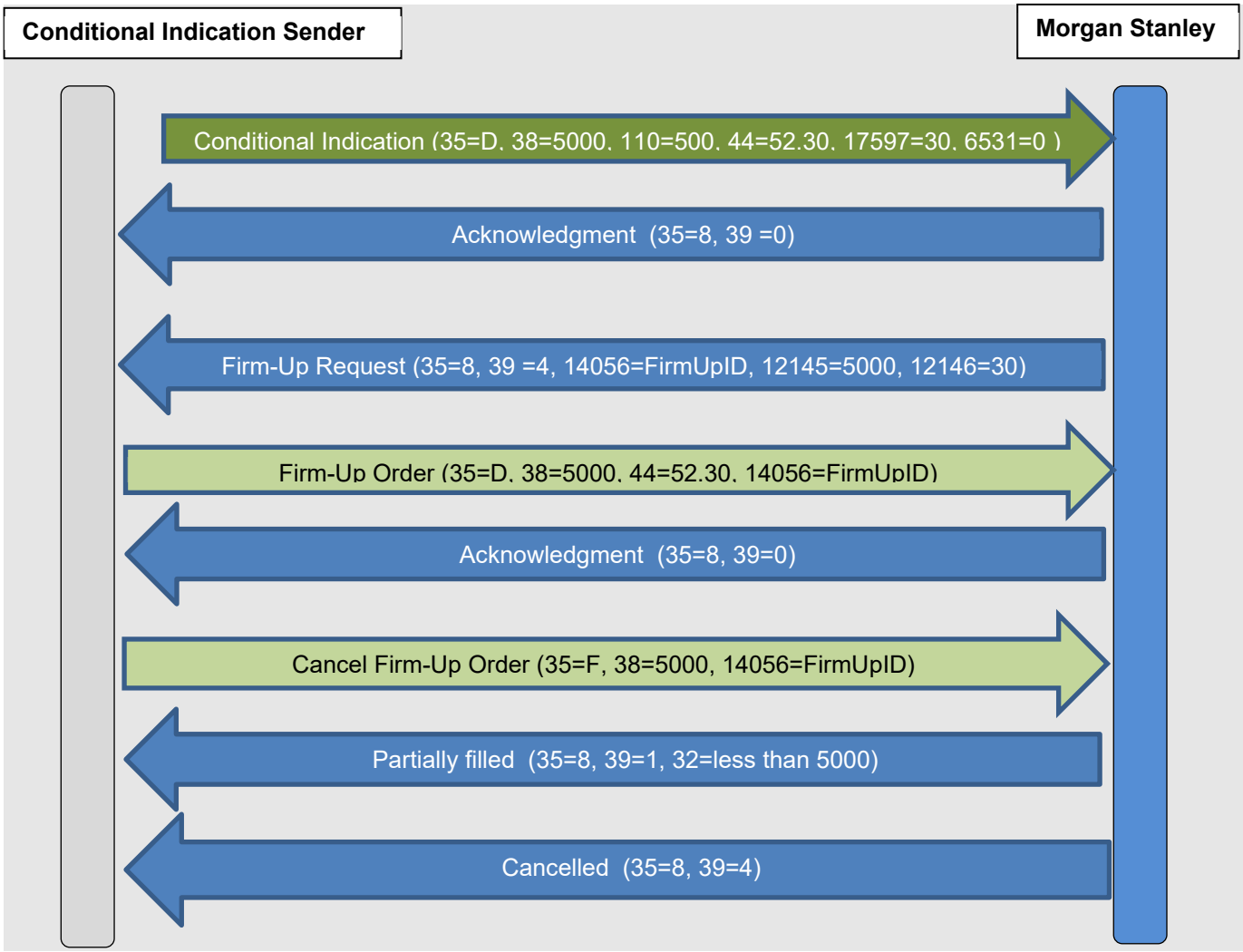
7.2.2 Decline of Firm-Up Request

Message sequence when Conditional Indication sender does not want to accept the Firm-Up Request. The Firm-Up Request will expire in 1,000 milliseconds, but it is recommended that the Conditional Indication Sender explicitly decline the Firm-Up Request if possible. Only one decline will be accepted. Further messages with the same FirmUpID will be rejected.



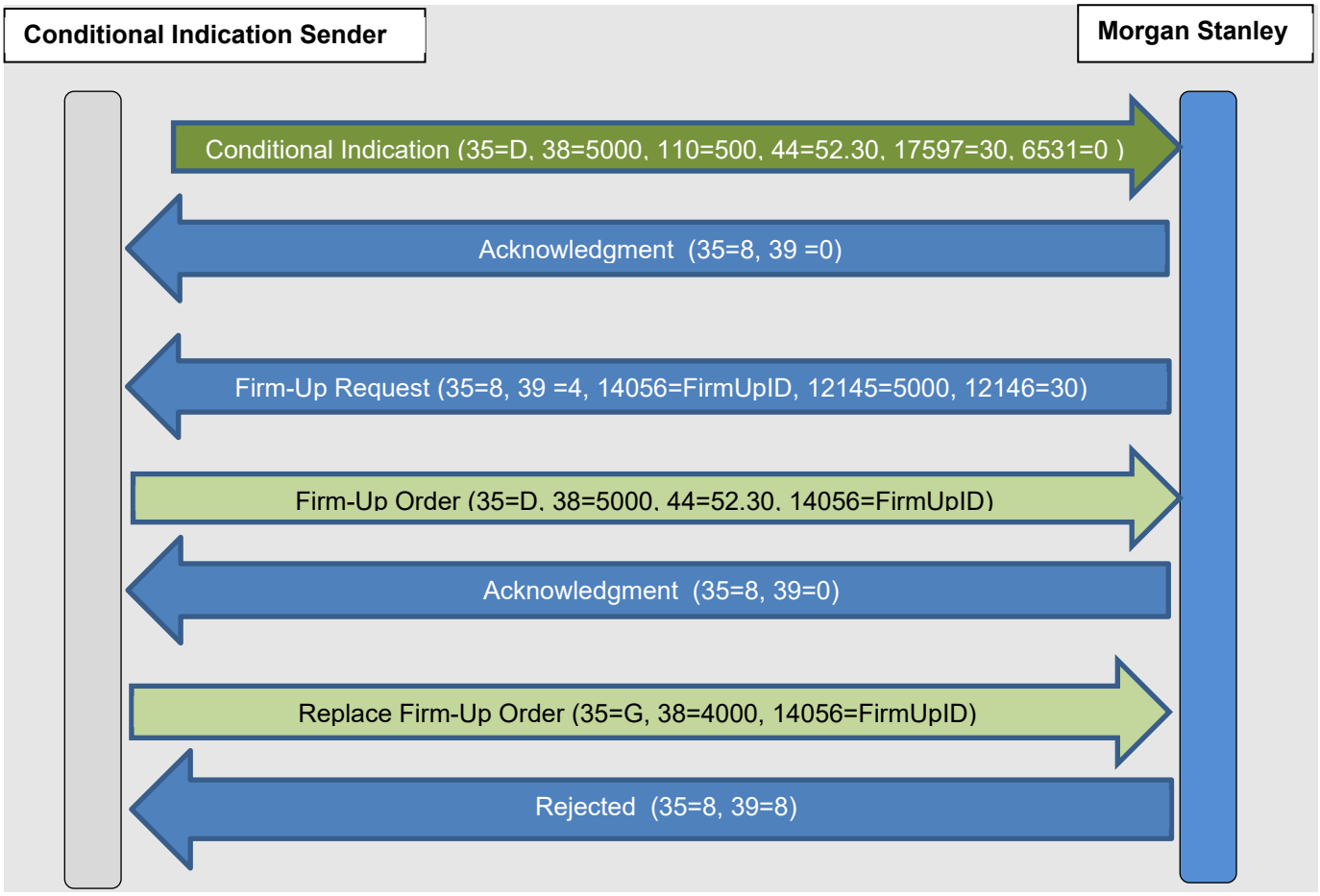
7.2.3 Cancellation of Firm-Up Order

Cancellation of a Firm-Up Order is permissible. It may result in a partial execution prior to acknowledgement.



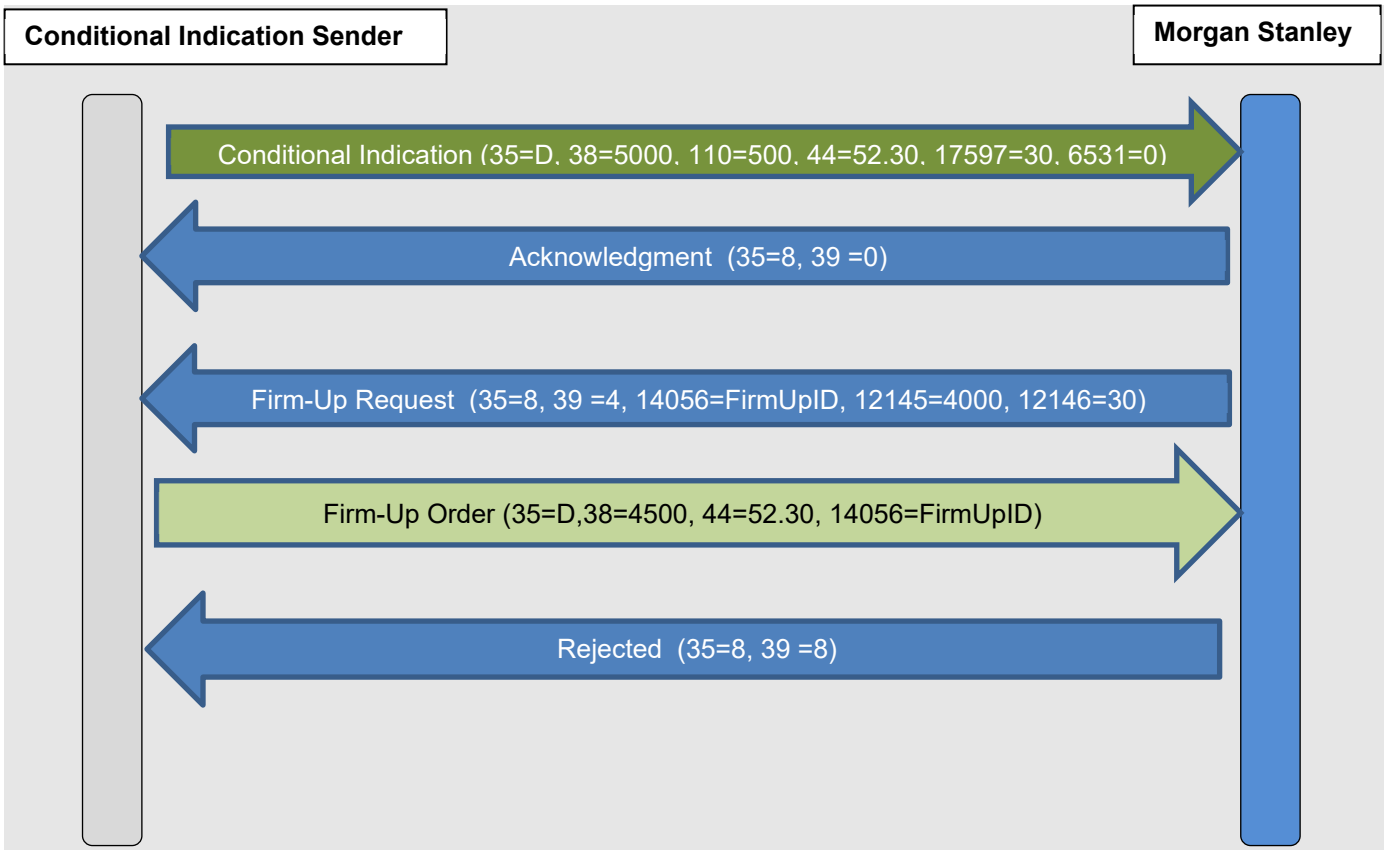
7.2.4 Rejected Firm-Up Order sequences

Requests to Replace a Firm-Up Order will be rejected.



7.2.5 Rejected Firm-Up Order sequences

Firm-Up Orders that change certain details from the indication or don't match the FirmUpID or quantity instruction from the FirmUp Request, such as limit price or side, will be rejected.



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