



# Financial Information eXchange

## **FIX Business Design Guide** **for BOX**

***Confidential***

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## Document History

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VERSION	DATE	CHANGE DESCRIPTION
2.4.1	2008-05-16	Conversion to FrameMaker
2.4.2	2008-05-28	<p>Impacts of Options Symbology Initiative.</p> <p>New field No. 205 is added to specify the maturity day of instrument. The MaturityDay field is mandatory for the new OSI and optional for the old format.</p> <p>Sections impacted are listed below:</p> <ul style="list-style-type: none"> <li>• Section 4.6.2: next to [MaturityMonthYear 200] added [MaturityDay 205]</li> <li>• Section 4.7.2: next to [MaturityMonthYear 200] added [MaturityDay 205]</li> </ul>
2.4.3	2008-05-29	<p>Symbology updates approved</p> <p>Changed MMTP/SLE or SLE to SAIL</p> <p>Removed all reference to Strategy Trading:</p> <ul style="list-style-type: none"> <li>• Section 4.12 Strategy Trading</li> <li>• Section 7.1.2 HSVF Message Codes</li> <li>• Section 7.2 Message Sequences</li> <li>• Section 7.2.7 Strategy Processing, Figures 23 &amp; 24</li> </ul>
		<p>Removed all reference to HSVF and updated all Message illustrations</p>
2.5	2009-02-18	<p>Changed Doc. ID. to FIX-BX-001E</p> <p>Document approved and placed on the Intranet</p>
2.6	2010-08-18	<ul style="list-style-type: none"> <li>• Remove section 2.2 on ATR.</li> <li>• Add Session Orders duration type.</li> <li>• Add MIP functionality.</li> <li>• Modification of DO/RO sections.</li> <li>• Add ISO order.</li> <li>• Update connection schedule.</li> <li>• Remove message allocation throughput.</li> <li>• Update the number of listed instrument in Queries section.</li> </ul>
2.7	2012-03-07	Added sections 7.2.10 to 7.2.15 for Complex Order messaging.

VERSION	DATE	CHANGE DESCRIPTION
2.8	2012-06-15	<ul style="list-style-type: none"> <li>Reformatted text in section 4.5.2 and deleted existing sections 4.5.5 and 4.5.6</li> <li>Added section 4.11 for Complex Order resulting in Clearing Information moving to section 4.12.</li> <li>Updated section 4.12.3 to include Complex Order.</li> <li>Updated section 6.2.</li> </ul>
2.9	2013-09-25	<p>4.5.1 - Supported Types of Orders:  Removed BOX-TOP order  Market-on-Opening: May trade at multiple different prices for Complex Order.  Renamed U.S Style Market Order to Market Order.</p> <p>4.10.1: Modified allowable time to match or improve the contra side of a 'Must Be Filled' order from 3 seconds to 'n' milliseconds.</p> <p>4.11.2: Complex Order: Removed BOX-TOP order type.</p> <p>4.11.3: Exposure Functionality: New section added.</p> <p>4.12 - Solicitation and Facilitation Auctions: New section added.</p> <p>4.13 - Customer Cross Order: New section added.</p> <p>Section 4.12 renamed 4.14.</p> <p>4.14.3 - BOX Controls Against the NBBO Market: Removed value '4' in 7906-CombinedOrdType tag.</p> <p>6.1 - Order Mass Status: Updated what orders are returned.</p> <p>6.2 - Security Definition Request: Updated possible number of instruments returned.</p> <p>7.2.7 - Improvement Phase Processing: Renamed 'PIP Initial Order' message for 'Auction Initial Order'</p> <p>7.2.10 - Complex Order Instrument Creation and Order Entry Processing:  Figure 50, Execution Reports for the legs are sent before the Execution Report for the Complex Order  Figures 44, 45, 48, 49, 50, and 51(added Exposure feature)  Figure 46; Updated to include only 1 Execution Report</p> <p>7.2.11: - Complex Order Modification Processing:  Figures 52 &amp; 54 (added Exposure feature)</p> <p>7.2.16 &amp; 7.2.17: New diagrams added on Solicitation, Facilitation and Customer Cross Order.</p>

VERSION	DATE	CHANGE DESCRIPTION
3.0	2015-05-15	4.5.3 Supported Special Price Terms Add Directed Order Add Preferred Order 7.2.9 Directed/Router Order Add [RoutingInst 9303=O] to Figure 35, 36, 37, 38, 39: correct table heading Remove [ExecutingParticipant=XYZ] from table 37 7.2.15 Directed Complex Order Add [RoutingInst 9303=O] to Figure 63, 64 7.2.18 Preferred Order Processing Add [RoutingInst 9303=P] to Figure 68, 69: correct table heading
3.1	2016-06-10	Added Section 4 – Validation Tools Section 5 – Order Management was extracted from Section 3-BOX Features for clarity Section 8- Added Section 8.19 Lock-Out Due to Exceeded Limit or By Trader Table 2: Added messages (BE - User Request, BF- User Response, CB- User Notification)
3.2	2016-11-14	Added Floor Trade Order to 5.1.1 Added Section 8.17 Floor Trade Entry

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# Section 1 Introduction

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The FIX Business Design Guide for BOX, was developed by the Information Technology (IT) division of the Montréal Exchange Inc. (MX), a member of the TMX Group Inc.

## 1.1 Objective

The main objective of the FIX Business Design Guide is to provide information to prospective Boston Options Exchange (BOX) participant or Independent Software Vendors (ISV), in the functional design of their application intended to interface with the MX trading engine via Fix protocol interface. The BOX FIX gateway is based on FIX version 4.2.

## 1.2 Scope

The FIX Business Design Guide includes a trading overview, and the detail message flow during the connection and trading phases.

## 1.3 Audience

The target audience for the FIX Business Guide is staff at either the business or IT level of an organization interested in the functional design of the BOX trading platform.

- For Business Analysts and Project Managers: a high-level view of BOX trading features and requirements.
- For Software developers: connectivity and message flow between the BOX trading platform and BOX participants.

## 1.4 Services Definitions

The FIX interface provides BOX Participants with the functionality required to interact with the BOX market. Services provided are classified into two distinct groups as shown below:

### 1.4.1 Solicited

- Order entry, modification, and cancellation
- Request for quote
- Auction initiation and participation
- Order Mass request
- Security Definition Request

## 1.4.2 Unsolicited

- Market Operations Center (MOC) action notification (order elimination, trade cancellation, etc.)
- Order elimination
- Trade cancellation

For detailed explanations of these features, refer to [Section 5, Order Management](#).

## Section 2 Trading Overview

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Trading has been grouped into three general categories:

- Market Making
- Agency
- Proprietary

**Note:** Participants who are not involved in Market Making on BOX may also be referred to as Order Flow Providers (OFP).

### Market Making

Market Makers are participants who have applied as a Market Maker on BOX and have been allocated one or more market making appointments by BOX (i.e., assigned the rights and responsibilities for making markets on one or more option classes).

The FIX interface does not provide functions related to market making.

**Note:** Participants who intend to be Market Makers on BOX must use the **SAIL** protocol.

### Agency Trading

A BOX Participant (and the computer application they use for connection) is viewed to be supporting agency trading if it is executing orders on behalf of customer accounts, including orders for the accounts of other broker/dealers (acting themselves on behalf of their customer accounts or their own proprietary accounts).

### Proprietary Trading

A BOX Participant (and the computer application they use for connection) is viewed to be supporting proprietary trading if it is executing orders on behalf of proprietary accounts of the BOX Participant.

## Section 3 BOX Features

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BOX is a fully automated equity options Exchange. All orders are 'live' and available to all participants.

BOX does not provide or endorse any front-end trading application or platform. However, every application (either developed in-house by a participant or by an ISV) that will interface with the SOLA Trading Engine is certified by BOX.

### 3.1 Market Model

There are multiple Market Makers in each class of option contracts with none having priority over the others. All orders and quotes are handled on a strict price/time priority without any participant controlling the price.

### 3.2 Trading Phases Overview

#### 3.2.1 Consultation Start

This phase is reserved for the Market Operation Center (MOC). The MOC can act on instruments for the forthcoming trading day (e.g., reserve instruments). No order entries coming from Participants or the MOC can be accepted during this phase. However, the MOC can perform order deletions for a specific instrument or global deletions of a specific Participant's orders.

#### 3.2.2 Pre-opening

This phase allows Participants to enter, modify, and cancel orders. Orders introduced during this period contribute to the calculation of the Theoretical Opening Price (TOP) but are not traded.

#### 3.2.3 Opening

At the scheduled Opening time, orders are matched and trades are generated at the last calculated TOP. An optimization algorithm maximizes the number of trades and reduces the remaining imbalance. FIFO time priority at each price is used to allocate the trades at the TOP. The automatic phase transition for a group, following an Opening, is Continuous Trading, also known as the Trading Session. For more information on TOP, refer to **BOX Rules**.

#### 3.2.4 Trading Session

This phase is triggered as soon as the Opening phase ends. The switch to the Trading Session phase marks the end of the opening processes. Orders introduced are executed, entered in the Order Book, or eliminated in real time.

### 3.2.5 Market Operation Center Intervention

This is a period during which the MOC can perform all the modifications necessary to regulate the market and correct errors (deletion of orders for a specific instrument, cancellation of trades, etc.). During this period, neither Participants nor the MOC can place orders. Participants may receive messages during this phase, e.g., Group or Instrument State change notices.

### 3.2.6 Consultation End

This phase is reserved for the MOC, during which it can only consult the market. During this period, neither Participants nor the MOC can place orders. Participants will not receive any messages during this phase.

### 3.2.7 Mini-Batch

The Mini-Batch period occurs when a group switches to next trading day. Orders whose validity date has expired are deleted and statistics for the instruments are reset (high, low, volume). Participants cannot enter orders on any instrument during this phase.

## 3.3 Instrument Groups

An instrument group is a set of investment instruments or financial instruments governed by the same trading rules. BOX uses the concept of instrument groups in its functioning and dialogue with Participant Firms' Clients.

An individual options series is referred to as an instrument. It is BOX policy to have all option series related to the same underlying instrument (i.e. options class) belonging to a unique instrument group.

## 3.4 Behaviour of an Instrument Independently of its Group

The normal behaviour of an instrument is to follow the rules of its group according to the group status. This section describes certain cases where the instrument behaves independently of its group.

### 3.4.1 Reservation, Suspension, Opening of an Instrument

The reservation of an instrument is instigated by the MOC when the instrument undergoes a financial operation. Reservation, triggered manually by the MOC or automatically at Opening, is aimed at controlling the market by limiting the gap between prices.

The impact which the suspension or reservation of an instrument has on the processing of orders related to that instrument varies according to the phase in which the group is situated.

## Pre-opening

Market Operation Center can suspend an instrument to prevent it from trading when the market opens. If the Market Operation Center removes the suspension prior to the opening of the group, the rules governing the instruments group are then reapplied to the instrument, and the instrument opens at the same time as the other instruments in the group, if the Theoretical Opening Price (TOP) for this instrument is within the authorized range.

## Opening

If the instrument is suspended, and it remains in this state during opening, the instrument will not open with the rest of the instruments within the group. Until further intervention by Market Operation Center, all orders entered on this instrument will be processed in the same way as orders placed during the pre-opening phase.

If the instrument is reserved at the moment of opening:

- If the indicated opening price is once again within the authorized interval, opening will take place automatically and the reservation will be lifted,
- If the indicated opening price is outside the authorized interval, the instrument will remain reserved until further intervention by Market Operation Center. All orders entered on this instrument will be processed like pre-opening orders. If Market Operation Center opens the instrument, the latter will remain reserved or will open, depending on whether the thresholds of the indicated opening price have been exceeded or not.

## Continuous Session

Market Operation Center can suspend or reserve an instrument: the instrument is then set apart from the group and its trading rules. Orders entered are processed like pre-opening orders.

Market Operation Center can lift the suspension or the reservation on an instrument by Opening the instrument which is then considered open and follows the trading rules governing its group.

## Section 4 Validation Tools

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### 4.1 Overview

BOX Trading System supports various protection mechanisms allowing the configuration of various limits and implementing controls on trading activity.

When a limit is reached, new orders or quotes can be rejected and booked orders cancelled. In addition, notification messages are sent, informing Participants of their status (active or locked).

For this purpose, BOX Trading System maintains counters, cumulating the values over a set period of time.

#### Limits

There is no hierarchy among overlapping Limits, and all configured Limits are always considered simultaneously, the most restricting one being applied.

#### Trader Teams

Limits are configured by Trader Teams. A Trader Team is defined as a grouping of Traders, and is identified by a Trader ID referred to as the 'Team Lead'.

A Trader is member of one and only Trader Team. By default, a Trader that is not explicitly configured as part of a Team is considered to be the sole member of the Team of which he is also the Team Lead.

### 4.2 Order-Entry Related Protection

#### Maximum Order Quantity (fat finger) for Incoming Orders

This trading validation mechanism is used to prevent creating risk exposure with a single order.

Order creation messages (D or AB) or modification messages (G or AC) are validated against the configured Limits before being accepted. If a message is rejected, the rejection message contains an Error Code value indicating which Limit caused the rejection.

BOX defines the Maximum Order Quantity for the exchange. Participants can also call the MOC to configure customized values for this limit at the Trader Teams level for orders including Customer Cross orders and Improvement orders as well as for auctions.



## 4.3 Trade-Related Protection

### 4.3.1 Traded Order Protection

A mechanism based on the following Protection Counters is implemented for all participant trades resulting from orders. The Traded Order Protection limits are controlled by Trader Team/Group. These limits are Time Interval related.

Maximum Number of Trades = Count (Trades)

Maximum Traded Volume =  $\sum$  Traded Volume

Maximum Traded Value =  $\sum$  (Trade Volume x Trade Price x Contract Size x Tick Value)

Delta Max Volume = Absolute  $\{\sum ((\text{Buy Call Traded Volume} + \text{Sell Put Traded Volume}) - (\text{Sell Call Traded Volume} + \text{Buy Put Traded Volume}))\}$

Delta Max Value = Absolute  $\{\sum ((\text{Buy Call Traded Volume} \times \text{Trade Price} \times \text{Contract Size} \times \text{Tick Value} + \text{Sell Put Traded Volume} \times \text{Trade Price} \times \text{Contract Size} \times \text{Tick Value}) - (\text{Sell Call Traded Volume} \times \text{Trade Price} \times \text{Contract Size} \times \text{Tick Value} + \text{Buy Put Traded Volume} \times \text{Trade Price} \times \text{Contract Size} \times \text{Tick Value}))\}$

BOX defines default protections for the exchange. Participants can call the MOC to configure customized values for these limits at the Trader Teams level.

### 4.3.2 Traded Activity Protection

The Traded Activity Protection (same counters as Traded Order Protection limits) is an additional mechanism that controls the traded activity resulting from orders and quotes. Traded Activity Protection limits are controlled by Trade Team across all names.

Following each trade, the Traded Activity counters set are incremented for each side of the trade, regardless if the side is related to an order or a quote. These limits are also Time Interval related.

When a Traded Activity counter is triggered, all orders and quotes on both sides of the market for the Trader Team are cancelled on all groups, even for instruments that are not in a trading state. Order Cancellation Notice messages return the cancellation reason (due to Traded Activity protection). If configured, these protections can result in a lock-out of the system.

BOX defines default protections for the exchange. Participants can call the MOC to configure customized values for these limits at the Trader Teams level.

### 4.3.3 Maximum Triggers Protection

The Maximum Triggers Protection mechanism limits the total position and credit risk a specific team of traders may engage, when a number of their trade related triggers occur within a set period of time. Maximum Triggers Protection limits are controlled by Trade Team, across all names.

When the total amount of triggers (Traded Order Protection or Traded Activity Protection) for a Trader Team exceeds the configured Maximum Triggers limit within the set time-interval:

- The team's orders and quotes across all names are cancelled.
- If so configured, the team is put in a lock-out, i.e., is prohibited from entering new orders and quotes until the MOC' intervention.

BOX defines default protections for the exchange. Participants can request from the MOC to configure customized values for these limits at the Trader Teams level.

## 4.4 Kill Switch Protection

BOX trading platform includes the following "Kill Switch Protection" risk control measures.

### 4.4.1 Cancel Participants' Orders

Cancel-On-Disconnect: If the participant disconnects from the exchange, all orders are canceled.

Cancel When No Heartbeat: If no heartbeat is detected, the participant is deemed to be disconnected and all orders are canceled.

### 4.4.2 Cancel All Orders with a Single Message (BE Message Type)

Participants have the ability to cancel all orders and/or quotes or to request a lock-out with a single message sent to the exchange.

The Global Cancellation message (BE message type) is available to cancel all orders or to request a lock-out for a specified trader.

### 4.4.3 Lock-Out of a Trader

Participants can also call the MOC to request orders cancellation or a lock-out of the trader.

While the Trader is locked-out, the following entry types are prevented:

- New or modified orders of all types (Regular orders, ISO, Customer Cross, PO, DO, Improvement orders, etc.), whether on a single option instrument or on a strategy instrument
- New or modified Quotes
- All requests for starting a PIP (direct request or via DO Acceptance)
- All requests for starting a Solicitation or Facilitation auction
- All new or modified (solicitation-facilitation) improvement orders on a PIP, solicitation or facilitation

#### **4.4.4 Restrict Automated Re-Entry to Trading after Lock-Out**

Upon requesting a lock-out, the trader is restricted from re-entry to trading until MOC's intervention. The MOC is responsible for re-establishing order/quote entry for the trader.

## Section 5 Order Management

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### 5.1 Order Entry

Order entry allows Clients to enter orders to be traded on BOX.

#### 5.1.1 Supported Types of Orders

BOX supports the following Order types:

##### Limit Orders

Limit Orders entered into the BOX Book are executed at the price stated or better. Any residual volume left after part of a Limit Order has traded is retained in the BOX Book until it is withdrawn or traded (unless designated as Fill and Kill). All Limit Orders (unless designated as GTC) are automatically withdrawn by the BOX at market close. A Limit Order is submitted by setting tag [OrdType 40=2].

##### Market-on-Opening Order

Market-on-Opening Orders entered into the BOX Book are executed on the market opening at the best price available in the market until all available volume on the opposite side of the market has been traded. Any residual volume left after part of a Market-on-Opening Order has been executed is automatically converted to a Limit Order at the price at which the original Market-on-Opening Order was executed. Market-on-Opening Orders have priority over Limit Orders. A Market-on-Opening order is submitted by setting tag [OrdType 40=O]. This type of order is available only in the pre-opening market phase (see [section 4.2.2, Pre-Opening](#)).

For Complex Order instrument, they may trade at multiple different prices at the opening.

##### Market Orders

Market Orders are executed at the best price available in the market for the total quantity available from any contra bid (offer). This type of order should always be used in conjunction with either the OLA Routing or NBBO Filtering option ([CombinedOrdType 7906] described later in this document). According to the option selected, any residual volume left after part of a Market Order has been executed is either automatically sent through the IML (Inter Market Linkage) network for execution at another exchange or cancelled. A Market Order is submitted by setting tag [OrdType 40=1].

##### Floor Trade Orders

A floor trade order mimics the trading floor model and adapts it to an existing electronic marketplace to allow for regulatory compliance. This order type enables BOX Participants to enter trades that have been agreed upon into the electronic platform. These electronic floor trades must respect the market rules.

A floor trade is an agreement between two counterparties, the Must-Be-Filled (MBF) side and the non-MBF side (Inito), to execute a trade on a given product and at a given price.

## 5.1.2 Supported Order Qualifiers

When submitting an order to BOX, Clients must provide one of the duration types below.

### Day

Orders designated as 'Day' will remain in the BOX Book until the order:

- Trades
- Is withdrawn by the relevant responsible trader or BOX at the Options Participant's request
- Is automatically cancelled by BOX at the end of the current trading day

A 'Day' order is submitted by setting tag [TimeInForce 59=0].

### Good Till Date (GTD)

Orders designated as 'Good Till Date' will remain in the BOX Book until the order:

- Trades
- Is withdrawn by the relevant responsible trader or BOX at the Options Participant's request
- Is automatically cancelled by BOX at the end of the day specified in the Date field

A GTD order is submitted by setting tag TimeInForce 59=6].

### Good Till Cancelled (GTC)

Orders designated as 'Good Till Cancelled' will remain in the BOX Book until the order:

- Trades
- Is withdrawn by the relevant responsible trader or BOX at the Options Participant's request
- Is automatically cancelled by BOX on expiration of the contract month to which the order is related

A GTC order is submitted by setting tag [TimeInForce 59=1].

### Fill and Kill (FAK)

Orders designated as 'FAK', also referred to as Immediate or Cancel (IOC), are processed as follows:

- Participants receive an Execution Report ([OrdStatus 39=0]) message indicating that the order has been accepted.
- The order is immediately executed against any existing orders at the specified price or better, up to the volume of the FAK order.

- At the opening of the instrument, the Participant will receive an Execution Report ([OrdStatus 39=4]) message if the order is not totally filled.
  - Then one (or several) Execution Report ([OrdStatus 39=1 or 2]) messages will be sent. In each of the reports, the [LeavesQty 141] field specifies whether a part of the order remains (or not) to be traded.
  - In the last Execution Report message, the [LeavesQty 141] is set to 0, and any residual volume left after part of the FAK order has traded will be automatically cancelled by the BOX.

A FAK order is submitted by setting tag [TimeInForce 59=3].

### Session Orders

Session Orders will remain in the BOX Book until the order:

- Trades,
- Is withdrawn by the relevant responsible trader or BOX at the Options Participant's request,
- Is automatically cancelled by BOX at the end of the current trading day,
- The participant's application loses or terminates its connection to the BOX trading system. Orders that are exposed, being processed by an away exchanges after routed by BOX and Directed Orders not acknowledged by the executing participant are not cancelled in this case.

A Session order is submitted by setting tag [TimeInForce 59=W].

## 5.1.3 Supported Special Price Terms

BOX supports the following Special Price Terms.

### Directed Order

The Directed Order is directed/routed to the Executing Participant specified on the order for potential price improvement. See "Directed Orders in Support of PIP" for a detailed description of the Directed Order.

### Preferred Order

A Preferred Order allows participants to designate a Market Maker (PO-MM) who is entitled to a guaranteed percentage of the order, as long as this Market Maker is quoting at NBBO.

## 5.1.4 Processing Timetable

This paragraph sets out the processing timetable that follows the entry of an order. For a given event, it describes the processing carried out by BOX as well as the order of the messages sent. The events in question are:

- Entry of a buy or sell order in general (order rejected or accepted)
- Entry of an accepted Fill and Kill order, partially filled when it is introduced

### 5.1.5 General Processing (Buy or Sell Order)

To enter an order, the Client sends a New Order Single message. For the specifications of these messages, refer to the FIX access to BOX guide.

BOX performs various validations on the parameters of the Order Entry (Message Type OE) message received.

If one of these validations fails, BOX sends an Error Message (Message Type ER or TE) rejecting the message received, and indicating the code for the first error detected and the message type for the message generating the error along with its User Sequence ID.

BOX carries out various validations on the parameters of the message received. If one of these parameters is invalid, BOX sends an Execution Report - Reject rejecting the message received and indicating the error for the first error detected.

If all the validations are accepted, BOX accepts the message received and attributes an [OrderId 37] to the order entered.

An Execution Report message received immediately after an order entry can indicate that it has been:

- Entered in the order book (a part of the order having possibly been executed),
- Eliminated,
- Exposed for NBBO matching and eliminated,
- Executed partially or in full.

If a part or all of the order was executed, the FIX interface receives, immediately after the Execution Report ([OrdStatus 39=0]) message, one or several Execution Report ([OrdStatus 39=1 or 2]) messages providing more information about the trade that took place.

If the order has been entered in the order book, the Participant will automatically later receive one of the following messages:

- One (or several) Execution Report ([OrdStatus 39=1 or 2]) messages,
- An Execution Report ([OrdStatus 39=4]) message if the order is eliminated.

**Note:** The maximum validity duration set when instrument default validity is 'M'.

The default date is thirty (30) days after the expiration date. Currently it is three (3) days.

## 5.2 Modifying an Order

Order modification allows Traders to modify orders that are currently booked.

### 5.2.1 Functions Available when Modifying an Order

A Trader may amend all booked orders, either self-entered, or by the BOX MOC on their behalf. A Trader cannot modify an order that has not been booked. That is, a Trader cannot modify an order if it has been fully executed, cancelled, or eliminated.

A Trader cannot modify the instrument ID, or the side of the order. With the exception of a quantity reduction, or the modification of the client account number, in which case the order retains price/time priority. A modified order is eliminated from the Order Book and replaced by a new one.

### 5.2.2 General Processing

To modify an order, the Participant sends an Order Cancel/Replace Request message. In this message, the Participant specifies the following elements allowing BOX to locate the order:

- The instrument affected by the modification [Symbol 55], [SecurityType 167], [PuOrCall 201], [StrikePrice 202], [MaturityMonthYear 200], and [MaturityDay 205]
- The [OrigClOrdID 41]
- The side of the order [Side 54]
- The date-time of the order [TransactTime 60]

All the parameters of the order can then be modified in the Order Cancel/Replace Request message. Certain rules governing modification must nevertheless be respected, outlined in the 'FIX access to BOX' Guide.

BOX carries out various validations on the validity of the parameters received.

If the message is not valid, BOX sends a Cancel Reject message specifying the error code for the first error detected. If no parameters have been modified, BOX sends a Cancel Reject specifying 'No modification of the order'.

If the message is valid, BOX eliminates the old order from the order book and replaces it by the new one, to which it attributes a new [OrderId 37]. It sends the acknowledgement of the modification in the form of an Execution Report message. This message contains the new [OrderId 37] attributed to the modified order by BOX and the revised characteristics of the modified order. The modified order can be:

- Entered in the book: the order has been modified and at least a part of the order has been entered in the order book,
- Eliminated: the order has been modified and immediately eliminated,
- Exposed for NBBO matching then rejected,
- Executed partially or in full: the order has been modified and immediately executed in full.



## 5.3 Cancellation of an Order

Order cancellation allows Traders to cancel orders that are currently booked.

### 5.3.1 Functions Available when Cancelling an Order

Once the Participant has placed an order, it can request to cancel it. This cancellation will only be taken into consideration if the order, or a part of the order, is in the order book in the central system. A Participant can also cancel an order entered on its account by the BOX Market Operation Center.

### 5.3.2 Processing Timetable

To cancel an order, the Participant sends a Cancel Request message. This message specifies all the parameters allowing BOX to locate the order:

- The instrument affected by the modification [Symbol 55], [SecurityType 167], [PuOrCall 201], [StrikePrice 202], [MaturityMonthYear 200], and [MaturityDay 205]
- The [OrigClOrdID 41]
- The side of the order [Side 54]
- The date-time of the order [TransactTime 60]

BOX carries out various validations on the validity of the parameters received:

- If the Cancel Request is not valid, BOX sends a Cancel Reject message indicating the error code for the first error detected.
- If the Cancel Request is valid, BOX sends the acknowledgement of the cancellation in the form of an Execution Report ([OrdStatus 39=4]) message specifying the outcome reserved for the order.

## 5.4 Entry of a Request for Quote

Request for Quote entry allows participants to broadcast a Request for Quote to the market.

### 5.4.1 Functions Available when Entering a Request for Quote

The Quote Request message contains the symbol and may also contain a Quantity.

### 5.4.2 Processing Timetable

The Participant enters a Quote Request message. BOX validates the message. If the Quote Request message is not valid, BOX sends a Quote Acknowledgement message with [QuoteAckStatus 297=5]. If the message is valid, the Participant a Quote Acknowledgement message with [QuoteAckStatus 297=0].

## 5.5 Unsolicited Services

### 5.5.1 Entry, Modification, Cancellation of an Order by Market Operation Center

The BOX Market Operation Center can either, at the request of a Participant, or on its own initiative, enter, modify and cancel an order in the order book for the account of a Participant.

The modification and cancellation can concern orders entered by Market Operation Center for the account of the Participant, as well as orders entered by the Participant itself.

This action can take place:

- During pre-opening,
- During the continuous trading session

In the case of an order entry by Market Operation Center, the Participant receives an Execution Report [OrdStatus 39=0] message. It will also receive all the messages linked to this order.

In the case of a modification or a cancellation placed by Market Operation Center, the Participant that owns the initial order receives the Execution Report [OrdStatus 39=4 or 5] message corresponding to the modification or the cancellation. In the case of a modification, it will also receive all the messages linked to the modifying order.

### 5.5.2 Elimination of an Order

This section describes all the cases of order elimination by the system or by MOC that do not occur as the result of the transmission of an order cancellation message from the Participant.

**Table 1: Order Elimination**

REASON FOR ELIMINATION	BOX
Cancellation of an order by Market Operation Center	Possible during: Pre-opening, Opening, Continuous Session, Market Operation Center Intervention, Consultation End of Day and Group Interruption. Execution Report [OrdStatus 39=4] message sent to the Participant who initially entered the order which is the object of the cancellation
Elimination of all the orders relating to an instrument by Market Operation Center	Possible during: Consultation Beginning of day, Pre-opening, continuous trading session, Market Operation Center Intervention, Consultation End of Day and Group Interruption. The Execution Report [OrdStatus 39=4] messages are sent to the Participant.

REASON FOR ELIMINATION	BOX
Global Cancellation of all of a Participant or Participant's orders by Market Operation Center	<p>Global Cancellation of all of a Participant or Participant's orders</p> <p>Option to select by instrument or instruments group, side, order account type, type of order....</p> <p>Possible during: Consultation Beginning of day, Pre-opening, continuous trading session, Market Operation Center Intervention, Consultation End of Day and Group Interruption/Forbidden.</p> <p>As many Execution Report [OrdStatus 39=4] messages are sent to the Participant as there are orders eliminated</p>
Cancellation of all the orders in the order book for a Participant during post-session (requested by Market Operation Center)	<p>Must be requested by MOC before post-session</p> <p>Carried out during post-session</p> <p>The Execution Report [OrdStatus 39=4] messages are sent to the Participant.</p>
Elimination because the Instrument has expired or is updated or is deleted	<p>Carried out during mini-batch or post-session</p> <p>The Execution Report [OrdStatus 39=4] messages are sent to the Participant.</p> <p>In case of instrument updates, the modification of the instrument name will not trigger purge of orders.</p> <p>If the Tick Increment for prices is modified, all prices that do not respect the new Tick Increment are purged. The others remain in BOX book.</p>
Elimination of Fill and Kill orders partially filled or not filled at opening	<p>Carried out on the opening of the instrument.</p>
Elimination because the validity of the order is reached	<p>Carried out at the end of each trading day:</p> <p>During the week just before Mini-batch or during Mini-batch</p> <p>At the end of the week (last trading day of the weekly session) just before Post-session.</p>
<p>Eliminated Due to Trade Limit Exceeded</p> <p>Eliminated Due to Trade Activity Limit Exceeded</p> <p>Eliminated Due to Maximum Nb Triggers Limit Exceeded</p> <p>Eliminated Due to Drill Through Protection</p> <p>Eliminated Out of Limits</p>	<p>Protection mechanisms</p>

### 5.5.3 Cancellation of a Trade by Market Operation Center

Market Operation Center orders the central system to cancel a trade that took place during the day. This cancellation can be initiated according to BOX rules.

This can take place:

- During Pre-opening,
- During the Continuous Trading Session,
- During Market Operation Center Intervention,
- During Consultation end,
- On an Interrupted group.

BOX sends the two Participants concerned an Execution Report ([ExecTransType 20=1]) message. This message specifies all the parameters relating to the cancelled trade.

## 5.6 Price Improvement Period

The Price Improvement Period (PIP) is a mini auction phase in which a single order (the “Must Be Filled” order or MBF) is exposed to the BOX market in order to trade at a price better than the current NBBO (National Best Bid and Offer). The PIP allows authorized participants to compete by posting prices in penny increments.

### 5.6.1 PIP Initiation and Participation

All orders designated for price improvement must be submitted to the BOX market along with a contra order (the improvement order). An MBF order along with its Auction Order is submitted to the market using an Auction Order Entry (Message Type OA) message. If this message is successful, a PIP will begin. To be accepted, all Improvement orders must fulfil the following conditions:

- Be on the opposite side of the MBF order,
- From the MBF order perspective, provide a price better than the current NBBO (National Best Bid and Offer).

Participants (including the participant who has started the PIP) may match or improve the contra side of this order during a period of n seconds after which the MBF order will be executed against the best contra prices available from the PIP.

Participants may enter PIP Improvement orders by using the Improvement Order Entry (Message Type OI) messages to compete against the original contra order. Each participant may only have one PIP Improvement order live for any given improvement process. Any change to a previously submitted order cancels the former and modifications may only be made to improve the price. Upon such improvement though, quantity may be adjusted up or down; cancellations are permitted during the PIP. Quantity on Improvement orders must not be greater than the quantity of the MBF order.

In order to secure its share of the MBF order, the initiator of the PIP (or dealer side) may improve the contra side of their Auction Order by modifying its price in reaction to other participants' Improvement orders. The initiator of the PIP improves his price using the Improvement Order Entry (Message Type OI) messages containing the improved price and referencing the auction ID of the ongoing PIP.

## 5.6.2 Maximum Improvement Price (MIP)

In addition to the auction start price, the MIP functionality allows the PIP initiator to specify a maximum improvement price up to which the participant is willing to match the price and quantity of any competing improvement orders. The BOX Trading system will automatically match the price of the dealer side of the auction order each time an improvement orders is received at a better price.

Key features of MIP are:

- MIP can be entered directly in a PIP or through a Directed Order (DO).
- The maximum improvement price can be a limit or market (match all improvements) order.
- The dealer side will “auto match” at all better price levels, including the maximum improvement price.
- The dealer side will “auto match” for the entire quantity at each improved price level, except the level where the MBF will be completely filled.
- The dealer side will have the lowest priority at each improved price level.
- No dissemination of “auto improvements” by the dealer side to the market.
- Any Improvement Order entered by the dealer side while a MIP is in progress will be rejected.

## 5.6.3 Market Conditions Required for PIP Initiation

Refer to BOX Rules 7150.

## 5.6.4 PIP Information Broadcast

Active participation in the PIP requires processing of the PIP messages contained in BOX's Market Data Feed (HSVF). For Clients connecting to HSVF only for PIP interaction, the HSVF connection message (type RS) allows participants to receive only messages related to the PIP.

**Note:** For information regarding the processing of PIP messages within BOX HSVF, please refer to HSVF-BX-01E SOLA HSVF Specifications Guide for BOX.

## 5.6.5 End of the PIP

At the completion of the PIP and following execution of all PIP related orders, any unfilled order balance of all PIP related orders are purged. The Confirmation and Notice of Cancellation of Initial and Improvement Order (Message Type KI) messages are sent to the appropriate Clients for PIP related orders that have not received an Execution Notice (Message Type NT) message.

## 5.6.6 Trade Matching Process

Refer to BOX Rules 7150.

### 5.6.7 Directed Orders in Support of PIP

Any BOX Participant may route orders to other BOX Participants for potential price improvement (typically, this occurs between a participant acting in their capacity as an order flow provider and a Market Making Participant.) Participants will be able to submit orders (the “directed order” or “DO” and the “routed order” or “RO”) to any other BOX Participant of their choice (the “Executing Participant” or “EP”) in order for the EP to originate a price improvement period (PIP) (see “Normal Course” below). This is in the case where the Participant is not able or does not wish to provide price improvement via the PIP himself. The EP must process immediately the DO or RO upon receipt.

Order routing as described in this section may take one of three forms:

- The Directed Order (DO) where the Executing Participant (“EP”) is a BOX Market Maker on the class to where the instrument included in the DO belongs and the Market Maker **does not** have a quote at NBBO that could trade with the DO or
- The Directed Order or DO where the Executing Participant (“EP”) is a BOX Market Maker on the class to where the instrument included in the DO belongs and the Market Maker **does** have a quote at NBBO that could trade with the DO, this is known as a Guaranteed Directed Order or GDO, or
- The Routed Order or RO where the EP is NOT a BOX Market Maker on the instrument in the RO from the originating BOX Participant's point of view.

#### Normal Course DO and RO

A Participant places an Order Entry (Message Type OE) message specifying it is to be considered for PIP and identifying the specific EP to whom to submit the directed order. The Trading Engine sends a Directed Order Notice (Message Type ND) to the EP. The EP accepts the proposition and originates a Directed Order Acceptation (Message Type OD). In The Directed Order Acceptation the EP indicates the Auction (PIP) starting Price and the clearing data. The Auction starting Price must meet price checks vs. NBBO and must always be equal to or better than the price appearing in the DO/RO.

As soon as PIP is started by the trading engine, the DO/RO ceases to exist. Therefore, at this point the DO/RO can neither be modified nor cancelled. Once the PIP is originated, all regular messages and message sequences of the PIP apply (i.e. between BOX and the submitting Participant for the MBF order and between BOX and the EP for the contra order). The participant who submitted the DO/RO receives a confirmation only for the MBF side and the trade will be cleared in his OCC account.

**Note:** The sequence number assigned to the PIP initial order has no relation to the sequence number of the DO/RO.

#### Alternate Course: Rejection When the EP Is not Registered (Identical for DO and RO)

If the EP to whom the DO/RO is directed is not registered at the time the order is sent, the DO/RO will be transformed into a regular order and submitted to BOX. In this event, the participant will only receive the standard Execution Report message

(MsgType 35=8) indicating that the order was entered on BOX. An Execution Report message (MsgType 35=8) will NOT be sent indicating that the order was accepted as a directed/routed order.

#### **Alternate Course: Rejection or Timeout by the Registered EP (DO)**

If the EP is a BOX MM who has received a DO declines to offer price improvement (or does not respond), he may refuse the DO and send it back to the BOX trading engine for submission to the BOX order book and eventual execution as a regular order. In this case, all related messages (acknowledgements as well as order executions and any subsequent modifications or cancellations) are sent to the submitting Participant.

Upon receipt of the rejected DO, the BOX trading engine will book the DO as a regular order.

#### **Alternate Course: Rejection of PIP Initiation by the Registered EP for a Routed Order (RO)**

In the case of a Routed Order for which the EP is NOT a BOX Market Maker and who declines to offer price improvement via the PIP, the BOX trading engine will automatically, upon receipt of the rejection from the EP, process the Routed Order as a normal order according to its original terms.

Prior to rejecting the RO back to the BOX trading engine, the EP should ensure that any proprietary orders he may already have on the BOX order book which could execute against the RO when it is booked on the BOX order book are cancelled. However, this requirement to cancel is NOT applicable where the time stamp of the EP's order is more than n seconds prior to the receipt of the RO.

When the EP does not respond to the RO (i.e. does not respond within the configured delay with either a PIP or a reject), the RO is booked as a regular order.

#### **Alternate Course: Modification or Cancellation**

With one exception, the submitting Participant may modify or cancel this DO/RO order by placing either an Order Modification (MsgType 35=G) message or an Order Cancellation (MsgType 35=F) message referring to the Client Order ID (ClOrdID 11) of the order.

Exception: If the DO/RO is handled as per the normal course description and the PIP Initial Order has already been sent to the trading engine, the modification or cancel request will be rejected.

## **5.7 Complex Order**

Complex Order also known as multi-leg option order or Strategy order allows participants to simultaneously buy or sell a number of different options (from 2 to 4) that normally could only be achieved by placing separate orders

## 5.7.1 Instrument Creation

Complex Order instrument, as opposed to regular option instrument, must be created on Participant's request before they can trade, unless another Participant has already created it. Participants can choose between two different methods to trade Complex Order on BOX.

The first method is to create the Complex Order instrument (Msgtype=c), wait for the response (creation request accepted or rejected) and send the order on that instrument (Msgtype=D). This method is conform to Fix 4.2. If the instrument already exists, no Message Type 'c' is required.

The second method is to send the Complex Order instrument creation request and the order at the same time within the same Fix message (Msgtype=AB). This method is conform to Fix 4.4. If the instrument already exists, the instrument definition must still be provided.

Complex Order instruments are created by the participants during the normal trading session by sending a 'Security Definition Request' message type (Msgtype=c) or a 'New Multi-Leg Order - Single' (Msgtype=AB). They are created only if there is no instrument with the same definition that exists. The rules for Complex Order instrument creation request are:

1. The number of legs must be between 2 and 4.
2. All legs must be for the same underlying.
3. The maximum leg ratio for each leg is 99.
4. The maximum leg ratio percentage between the lowest and the highest leg ratio is 300% (or 3 times).
5. After they are created, the Instruments are available for trading for the current day only. They expire at the end of their creation day. The next day, if required, the instrument must be recreated using the same procedure.
6. Leg ratios provided are reduced to the smallest ratio unit possible. Participants must adjust their order quantity and price accordingly. This will result in the creation of a Complex Order instrument with modifications from the original definition provided by the Participant although the trading strategy will remain unchanged.
7. A Complex Order instrument may already exist but in reverse order. In this case the creation request does not create a new instrument. Participants must adjust their order verb and price accordingly. This will result in the creation of a Complex Order instrument with modifications from the original definition provided by the Participant although the trading strategy will remain unchanged.
8. Similar to the previous rule, if the Complex Order instrument request is for an instrument for which all legs are negative (to Sell), then all legs of the instrument created are reversed. Participants must adjust their order verb and price accordingly. This will result in the creation of a Complex Order instrument with modifications from the original definition provided by the Participant although the trading strategy will remain unchanged.
9. The position of each leg of the Complex Order instrument created uses the following sort criteria (in priority). This might result in the creation of a Complex Order instrument with modifications from the original definition provided by the Participant although the trading strategy will remain unchanged.
10. Ascending expiration date (nearest to farthest date)
11. Ascending strike price (from lowest to highest price)
12. Call, Put



13. Ascending leg ratio (from lowest to highest ratio number)

14. Alphabetical SAIL Instrument ID

**Examples:** The following examples are using the format  $S = A + B + C - D$  where:

- 'S' is the Complex Order instrument
- 'A', 'B', 'C' and 'D' are the individual legs
- The signs '+' and '-' are the verb for each leg:
  - '+' = Buying the leg
  - '-' = Selling the leg

COMPLEX ORDER INSTRUMENT REQUEST	RESULT (INSTRUMENT CREATED)	RULE TO REFERENCE
<b>S = A + 3B</b>	<b>S = A + 3B</b> created if it does not already exist	1.
<b>S = A + B + C</b>	<b>S = A + B + C</b> created if it does not already exist	1.
<b>S = A + B + C + D</b>	<b>S = A + B + C + D</b> created if it does not already exist	1.
<b>S = 90A - 100B</b>	Request invalid Ratio of 100 is invalid (greater than 99)	3.
<b>S = 90A - 99B</b>	<b>S = 90 A - 99B</b> created if it does not already exist	3.
<b>S = 16A - 50B</b>	Request invalid 50/16=3.125 which is greater than 3	4.
<b>S = 15A - 44B</b>	<b>S = 15A - 44B</b> created if it does not already exist 44/15=2.93, which is less than 3	4.
<b>S = 10A - 20B</b>	<b>S = A - 2B</b> created if it does not already exist If a participant wants to Buy 5@20.00 of (10A - 20B), then he needs now to Buy 50@2.00 of (A -2B)	6.
<b>S = A - B</b>	No new instrument is created if <b>S = B - A</b> exists If a participant wants to Buy 5@1.50 of (A - B), then he needs now to Sell 5@-1.50	7.
<b>S = - A - B</b>	<b>S = A + B</b> created if it does not already exist If a participant wants to buy 5@1.00 of (- A - B), then he needs now to sell 5@-1.00 of (A + B)	8.

## 5.7.2 Order Management

The following order types are accepted for Complex Order instrument:

- Market
- Limit Day
- Immediate or Cancel (IOC)
- Session.

The orders on Complex Order instrument are managed on a separate book but are actively interacting with the leg book. See section 1.1.8, Implied / Legging Orders for more details.

As with regular option instrument, cancellation and modification of Complex Orders are allowed. The mechanisms used are the same as for orders on option instruments.

The following order types are accepted for Complex Order (CO) instruments:

- Market
- Limit Day
- Immediate or Cancel (IOC)
- Session

### Cancelling/Modifying Complex Orders

As with regular option instruments, the cancellation and modification of Complex Orders are allowed. The mechanism to use depends on how the original order was entered. The following rules apply:

**Table 1: Rules for Cancelling/Modifying Complex Orders**

ORIGINAL ORDER ENTERED USING MSG.	TO CANCEL ORDER USE MSG.	TO MODIFY ORDER USE MSG.	EXECUTION REPORT RETURNED
D	F <sup>1</sup>	G1	1 for the CO
AB	F <sup>2,3</sup>	AC2:3	1 for the CO 1 for each individual leg (2 - 4 messages)

<sup>1</sup>Without the leg repeating block

<sup>2</sup>With leg repeating block (Tag 600 series)

<sup>3</sup>The information included in the repeating block may or may not match what was sent in the original AB message type.

### 5.7.3 Exposure Functionality

This feature gives Participants the ability to expose their Complex Orders to the BOX Market in order to solicit liquidity before being booked or cancelled.

For each Complex Order sent to BOX, Participants can specify if they want it exposed or not. If the Participant elects not to have the Complex Order exposed, the order is following standard processing, the order being traded, booked or cancelled without the current exposure process.

If no specific instruction is provided on the order, the default behaviour for Complex Orders is to expose, if possible. The instruction not to expose is provided with the tag [CombinedOrdType 7906=6].

This exposure enhancement only applies to Complex Orders. The NBBO exposure period for standard option instruments under BOX Rule 7130 remains unchanged.

An incoming Complex Order requesting to be exposed trades immediately what it can and any remaining quantity, if any, is exposed.

The exposure period is set at 100 milliseconds.

At the end of the exposure period, any remaining quantity of the Complex Order is booked, if possible, or cancelled ([TimeInForce 59=3]).

A Complex Order may be cancelled at the end of the exposure period based on the Participant's initial instruction.

Complex Orders being exposed are broadcast through the BOX HSVF Market Data Feed.

Complex Orders are exposed at the following prices:

COMPLEX ORDER TYPE	ORIGINAL COMPLEX ORDER PRICE	EXPOSED PRICE
Limit	Outside same side CNBBO <sup>1</sup>	Never expose
Limit	Outside opposite side CNBBO or equal to opposite side CNBBO	Opposite side CNBBO
Limit	Inside CNBBO	Original Order Price
Market	n/a	Opposite side CNBBO

1. CNBBO means the best net bid and offer price for a Complex Order Strategy based on the NBBO of the individual options instruments of such Strategy.

### 5.7.4 Auctions

The following auction types are accepted for Complex Order instrument:

- PIP
- Solicitation
- Facilitation

- Customer Cross Order.

The Directed Order mechanism for PIP is also supported although the GDO procedure does not apply. The different auction rules for regular option instrument apply for Complex Order instrument.

### 5.7.5 Trading

A Complex Order instrument can start trading as soon as all its legs are opened for trading. No orders are allowed in pre-opening on Complex Order instruments. When two Complex Orders trade together, trades for each individual leg are calculated. Trades involving a Complex Order instrument are always controlled against the NBBO market (at or better than the NBBO).

When a Complex Order instrument trades, the Participant receives 1 trade for the Complex Order instrument that includes the net price, and 1 trade for each individual leg.

### 5.7.6 Market Data

The Implieds / Legging Orders are included in the BOX proprietary HSFV Market Data feed. In the 'H-Option Market Depth / HS-Complex Order Market Depth' message types, they are included in a separate level identified with and 'A'.

The best limit broadcasts to OPRA may contain Legging Orders (see 1.1.8, Implied / Legging Orders) should they be part of the best limit of BOX.

Limits on Complex Order instruments are not broadcast to OPRA.

### 5.7.7 Post-Trading

Only the leg trades are cleared at OCC, included in TMS and in the ATR feed. The Complex Order instrument trades are not processed by the BOX post-trading system.

In TMS, leg trades related to a specific Complex Order trade can be traced by using the column TradeSymbol which contains the symbol of the Complex Order instrument and the MatchNumber value which is a unique identifier linking all the leg trades of a specific Complex Order trade. The AllocationSymbol contains the symbol of the leg.

### 5.7.8 Implied / Legging Orders

Implied Orders are orders on the Complex Order book that are derived or calculated from the option leg book market. The following table indicates Implied Orders (shown in yellow).

COMPLEX ORDER A+B		LEG A		LEG B	
BID	ASK	BID	ASK	BID	ASK
3.00	3.05	1.00	1.10	2.00	2.20
2.90	3.10	0.90	1.20	1.95	2.40
2.80	3.30				

Legging Orders are orders on the option leg book that are derived or calculated from the Complex Order book market. The following table indicates Legging Orders (shown in yellow).

COMPLEX ORDER A+B		LEG A		LEG B	
BID	ASK	BID	ASK	BID	ASK
2.90	3.05	1.00	1.05	2.00	2.05
2.80	3.10	0.90	1.10	1.95	2.20
		0.70	1.20	1.80	2.40

Implied and Legging Orders are calculated continuously in real time as the Complex Order and Option Leg books are updating.

Continuous real time Implied/Legging calculation is only applicable on a two-legged Complex Order instrument with a ratio of 1:1.

Implied and Legging Orders are calculated using real orders only. Implied/Legging orders cannot be calculated using another Implied/Legging order. Implied Order calculation is only performed by using real orders that are at NBBO.

Legging Order calculation is performed when an incoming order is booked on the Complex Order book at the best limit. When a match occurs, the option leg book has always priority over the Complex Order book. It means that:

- At the same price, Implied Orders have always priority over regular order on the Complex Order book.
- At the same price, real orders have always priority over Legging Orders on the option leg book.

In the PIP mechanism, Implied/Legging Orders are processed as regular unrelated orders.

## 5.8 Solicitation and Facilitation Auctions

The Facilitation Auction allows Order Flow Providers ("OFPs") to enter two-sided transactions of 50 contracts or more when the OFP represents an order on one side as agent ("Agency Order") and is trading against the Agency Order as Principal, and/or has solicited an order on the opposite side of the Agency Order. The

Facilitation Auction provides an Agency Order an opportunity for price improvement, with the Initiating Participant providing a guaranteed execution of the Agency Order through the submission of the contra side Facilitation Order. The Facilitation Auction also provides the Initiating Participant a participation guarantee of 40% of the Agency Order, but only after the Agency Order first trades against better priced orders and Public Customers on BOX.

The Solicitation Auction provides additional execution capabilities for large blocks (trades of 500 or more contracts). The Solicitation Auction is a process where an Initiating Participant enters a two-sided order - one side it has solicited and the opposite side an Agency Order. Each Agency Order entered into the Solicitation Auction shall be designated as all-or-none.

To enhance the possibility of executions, the Initiating Participant may specify a number of contracts he is willing to surrender ("Surrender Quantity") to the BOX Book. Use of the Surrender Quantity function allows block-size Solicitation Auction trades in certain instances in which there would otherwise be no execution.

The main shared features for these types of auction are:

- Solicitation and Facilitation Auctions initialization are available in both FIX and SAIL protocols.
- Account type of Initiating Participant cannot be Public Customer.
- Orders can be entered at any initial price and can be penny increments.
- The execution price can be outside the NBBO if the Solicitation/Facilitation Auction is flagged as being 'Contingent'. Otherwise, the execution price must be at or between the NBBO. In all cases, the execution price cannot trade outside the BOX Market, or ahead of a Public Customer booked order.
- The Initiating Participant cannot improve its initial price.
- The Initiating Participant can cancel its Solicitation/Facilitation Auction.
- Improvement Orders are not broadcast in the HSVF Market Data Feed.
- Improvement Orders can be cancelled or reduced in price or size prior to execution.
- Cannot be initiated upon receipt of a Directed Order (DO).

The differences are:

SOLICITATION	FACILITATION
Minimum size of 500 contracts.	Minimum size of 50 contracts.
The Initiating Participant can specify a number of contracts willing to be surrendered (Surrender Quantity) to the BOX Book.	No Surrender Quantity.
No guarantee that the Initiating Participant will participate in the execution of the Agency Order.	Initiating Participant is guaranteed execution against 40% of the Agency Order after better priced orders and after Public Customer orders at the same price.

For more details about the allocation for both auction types, refer [BOX Rules 7270](#).

In FIX, a Solicitation auction is entered using a [MsgType 35=PI] (Auction Initial Order with the tag [AuctionType 9383=B]). A Facilitation auction is entered using a [MsgType 35=PI] (Auction Initial Order with the tag [AuctionType 9383=C]). Execution Report messages [MsgType 35=8] are returned with the tags [SpecialTradeInd 9459=g] and [ContingentOrder 7388=2] when the auction is of type 'Contingent', and with [AuctionType 9383=B] for Solicitation and [AuctionType 9383=C] for Facilitation.

Message type [MsgType 35=F] (Order Cancel Request) is used to cancel a Solicitation and Facilitation auction.

## 5.9 Customer Cross Order

A Customer Cross Order is comprised of a non-Professional, Public Customer to buy and a non-Professional, Public Customer to sell at the same price and for the same quantity.

They are automatically executed upon entry provided the execution is between the best bid and offer on BOX and will not trade through the NBBO market.

They are automatically rejected if they cannot be executed.

They may only be entered in the regular trading increments applicable to the options classes.

Customer Cross Orders are not accepted on an option instrument while there is an auction in progress or while an order is being exposed for the same option instrument.

Customer Cross Orders are only accepted during Continuous Trading.

In FIX, a Customer Cross Order is entered using a [MsgType 35=PI] (Auction Initial Order with the tag [AuctionType 9383=X]). Execution Report messages [MsgType 35=8] are returned with the tag [SpecialTradeInd 9459=D]..

## 5.10 Clearing Information

Participants are offered two alternatives to affect clearing assignment of their BOX trades to the clearing brokers of their choice.

### 5.10.1 Pre-Trade

At order entry, Participants can flag an order for CMTA transfer by setting the [ClearingFirm 439] to the OCC member ID and account of the targeted broker-dealer. Participants can also flag an order for Give-Up by setting the [ExecBroker 76] to the OCC member ID that will receive the trade for clearing. Give-Ups will only be allowed between Firms having a Give-Up agreement registered and configured in BOX. If a participant attempts to do a Give-Up for which there is no agreement with the destination firm, the participant default clearing information is used.

'New Order Single' and 'Order Cancel/Replace Request' can set one Give-Up, one CMTA, or both. 'Auction Initial Order' can set one Give-Up or one CMTA but not both at the same time.

BOX will not validate the use of these fields any further. Consequently, improper identification of CMTA target by a Participant will be treated by the OCC according to their applicable policy.

## 5.10.2 Post-Trade

BOX provides application software - called Trade Management Software (TMS) - that is designed to handle post-trade CMTA assignments, perform Give-up and allocation of trades. Multiple trade allocations (and trade allocation changes or corrections) are also possible post-trade, as well as the specification of another OCC Clearing Member who will clear the trade.

Some features of TMS are:

- Post-trade CMTA process
- Post-trade Give-up process
- Management of post-trade allocations
- Breakdown of strategy trades into separate legs
- Flexibility to generate personalized reports

TMS also provides access to historical information. This option permits users to view and print trades from previous trading day(s).

The TMS User Guide, TMS Reference Guide, and TMS Installation Guide are separate documents available from BOX.

## 5.11 BOX Controls against the NBBO Market

Participants can control how their orders are validated against the NBBO market using the [CombinedOrdType 7906] field in FIX. The valid values for this field are described.

**1: NBBO Filtering and IML Routing** - The incoming order to BOX is controlled against the NBBO and may be routed to an away exchange. If the order is executable at the NBBO and BOX is not at the NBBO, the order will be exposed on BOX at the NBBO price in an attempt to fill it. If it is not traded at the end of the 'n-second exposition phase, the order will be routed through the Inter Market Linkage (IML) to the away exchange posting the NBBO. This is the normal setting for public customer orders.

**2: No NBBO Filtering** - The incoming order to BOX is neither controlled against the NBBO nor routed to an away exchange. The order will be sent directly into the BOX order book where it will book or trade.

**3: NBBO Filtering and no IML Routing** - The incoming order to BOX is controlled against the NBBO but not routed to an away exchange. If the order is executable at the NBBO and BOX is not at the NBBO, the order will be exposed on BOX at the NBBO price in an attempt to fill it. If the order is not traded at the end of the 'n-second' exposition phase, it will be rejected and sent back to the originator. This is the normal setting for PIP Initial and Proprietary orders, other than those noted under '2' above.



**Inbound ISO order** - The incoming order to BOX, known as an Intermarket Sweep Order (ISO), is not controlled against the NBBO and not routed to an away Exchange. The order can trade in BOX through the NBBO market. The trade is reported to OPRA with a trade through identifier.

An ISO order is a limit IOC order priced to trade against a Protected Quote. The participant submitting the ISO must simultaneously send ISOs to sweep all better priced markets. BOX accepts ISOs to sweep BOX's displayed price and executes ISOs irrespective of the NBBO.

ISO orders are identified with tag [ExecInst 18=f]. Participants should not send tag [ExecInst 18] and [CombinedOrdType 7906] together in the same order. Orders with both tags present are rejected.

**Note:** **Directed Orders:** The Combined Order Type on a Directed Order should be set to the value required on the order if it is rejected by the EP for initiation of a PIP and changed to a normal order for BOX. Regardless of the Combined Order Type on the Directed Order, BOX will automatically set the Combined Order Type to '3' on the PIP Initial Order if the EP accepts the Directed Order to start a PIP.

The [CombinedOrdType 7906] field is used in conjunction with the field [Rule80A 47]. Please refer to the 'FIX Access to BOX' document to get all the possible combinations based on message type. If this field is not provided, the default value used is '3'.

## Section 6 Connection Management

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In order to establish a FIX session, follow these guidelines:

- Clients can establish FIX sessions between 7:00 am and 6:00 pm on each trading day.
- BOX CompID is 'BOX1'.
- No encryption technique is supported.
- For Resend Request, BOX will always request all messages subsequent to the last received ([BeginSeqNo 7=first message of range], [EndSeqNo 16=0]). Any new messages received before the reception of the last requested message will be discarded.
- As BOX does not support 24-hour connectivity, new sessions must be re-established each morning.
- BOX allows having only one participant per FIX session (or per CompID). ISVs offering a service bureau need to have a separate CompID, and therefore a separate FIX session, for each of their clients.
- For message traffic efficiency, BOX does not allow clients to send a Heartbeat message at intervals of less than 30 seconds. Consequently, Logon messages with a value less than 30 seconds, or not equal to 0 (meaning no Heartbeat will be sent) in the [HeartBtInt 108] field are rejected.
- If a Participant does not send any message within 2 Heartbeat periods, BOX will send a Test Request message and wait for a response from the Participant. If the Participant does not respond to the Test Request within the Heartbeat period, the session will be disconnected. To summarize, if a Participant does not send any message within 3 Heartbeat periods, connection is dropped, and the Participant will need to re-connect.

## Section 7 Queries

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In order to help Participants manage and synchronize their trading database, BOX offers two types of queries: Order Mass Status and Security Definition.

### 7.1 Order Mass Status

This query returns all orders that were entered during the day and all open orders from previous days for the Participant. One Execution Report [ExecTransType 20=3] is returned for each order that has been subject to an Execution Report in the current day.

The maximum number of request is limited to 5 per participant per day.

### 7.2 Security Definition Request

When using the message type “35=c” with the “SecurityRequestType = 2”, the query returns all listed instruments on BOX. This request is generating one message per instrument. Consequently, in order to receive the complete list of instruments, the client should expect to receive from 400000 to 500000 messages.

The maximum number of request (SecurityRequestType=2) is limited to 3 per participant per day and they are only allowed before the market opening.

## Section 8 Messaging

This section details the message sequencing for the FIX Protocol.

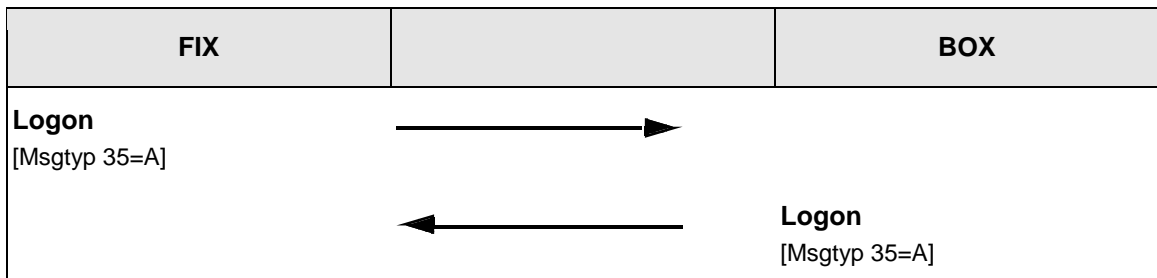
**Table 2: Message Codes and Names**

MESSAGE NAME	MSGTYPE
New Single/Complex Order	D
Cancel/Replace Single/Complex Order Request	G
Order Single/Complex Cancel Request	F
Quote Request	R
Execution Report	8
Order Single/Complex Cancel Reject	9
Quote Acknowledgement	b
Security Definition Request	c
Security Definition	d
Order Mass Status Request	AF
PIP Initial Order	PI
New Multi-Leg Order - Single	AB
Cancel/Replace Multi-Leg Order	AC
User Request	BE
User Response	BF
User Notification	CB
Business Message Reject	j
Logon	A
Heartbeat	0
Test Request	1
Resend Request	2
Reject	3

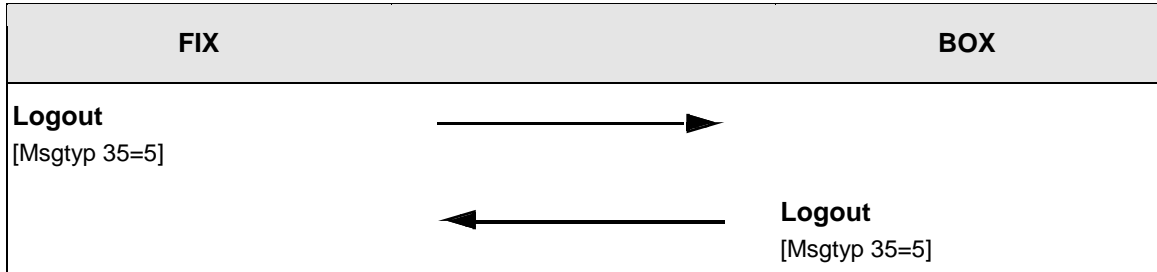
MESSAGE NAME	MSGTYPE
Sequence Reset	4
Logout	5

## 8.1 Connection

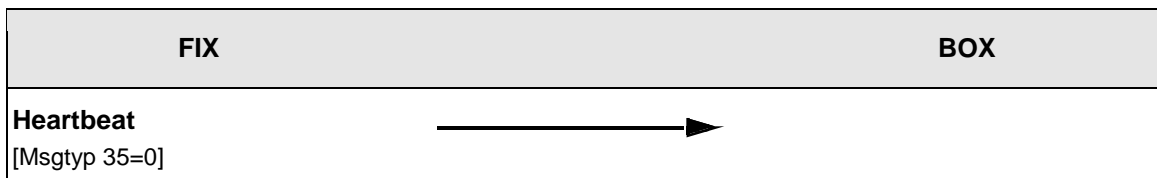
### Initializing a FIX Connection



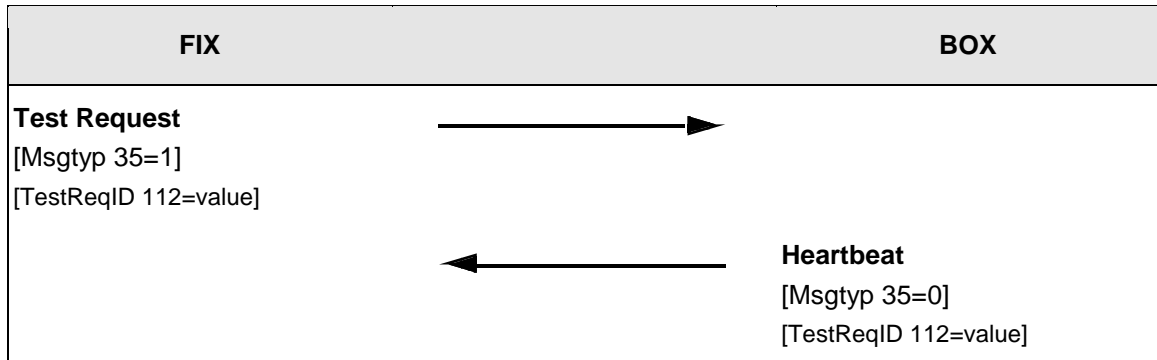
### Terminating a FIX Connection



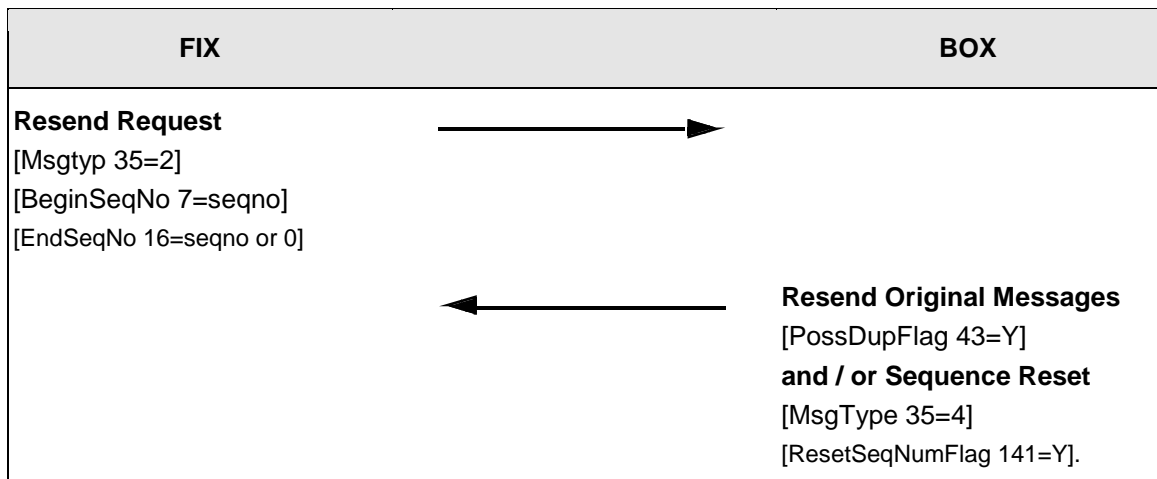
### Sending a Heartbeat



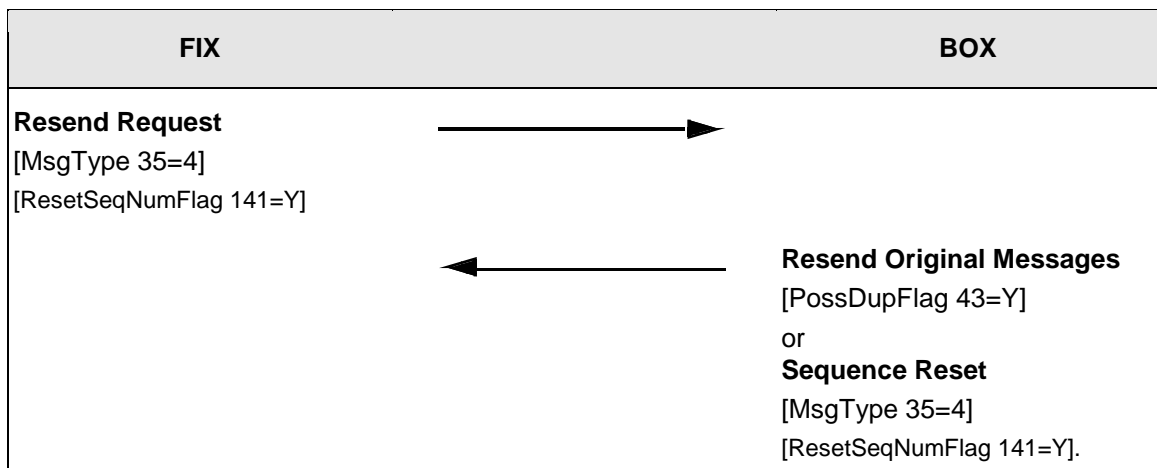
### Initializing a Test Connection



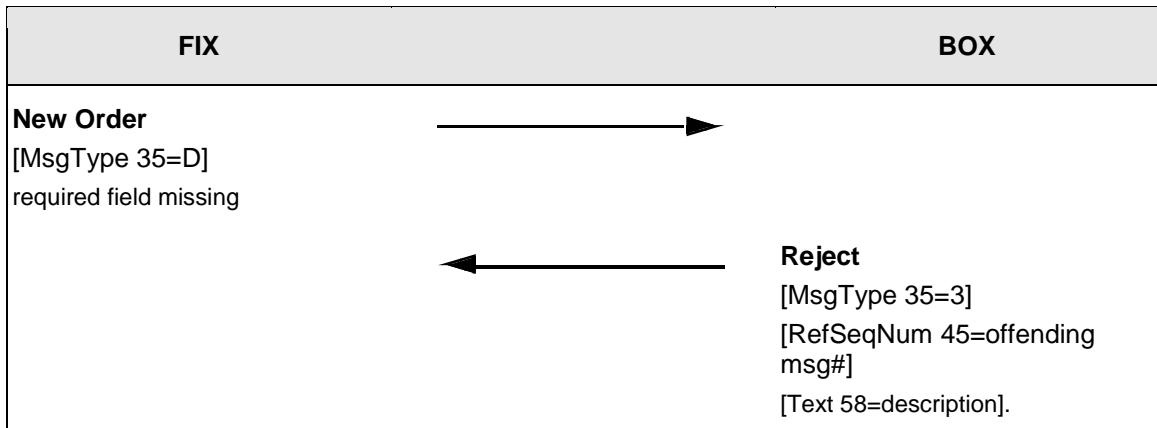
### Sending a Resent Request



### Sending a Sequence Reset

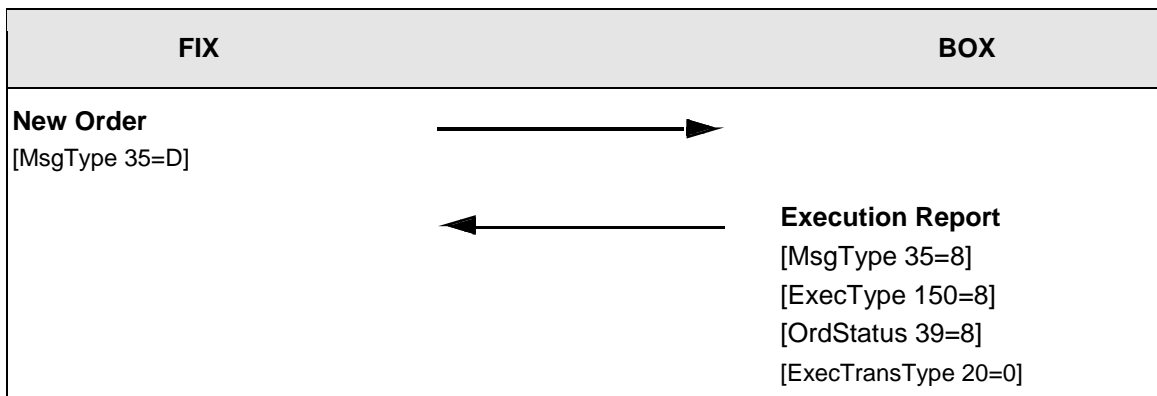


### Receiving a Session Level Reject

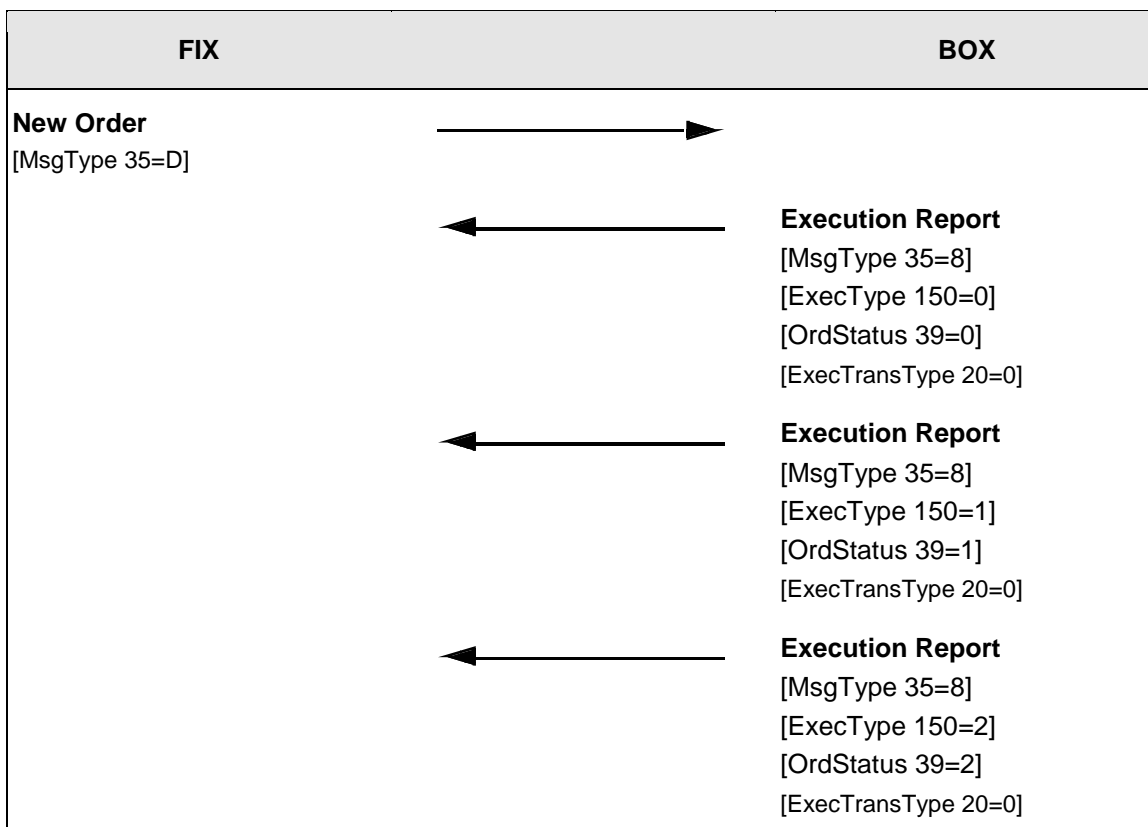


## 8.2 Order Processing

### The Order is Rejected

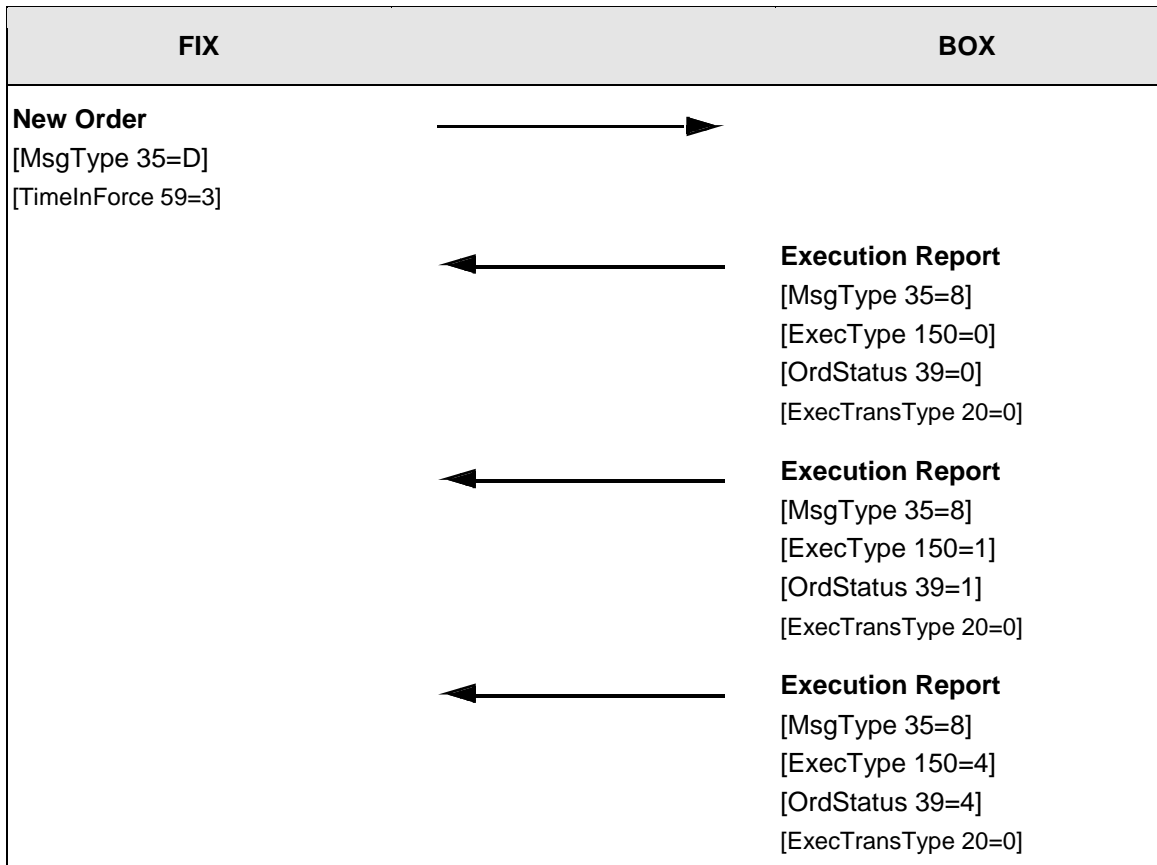


**The Order is Accepted and Fully Executed**

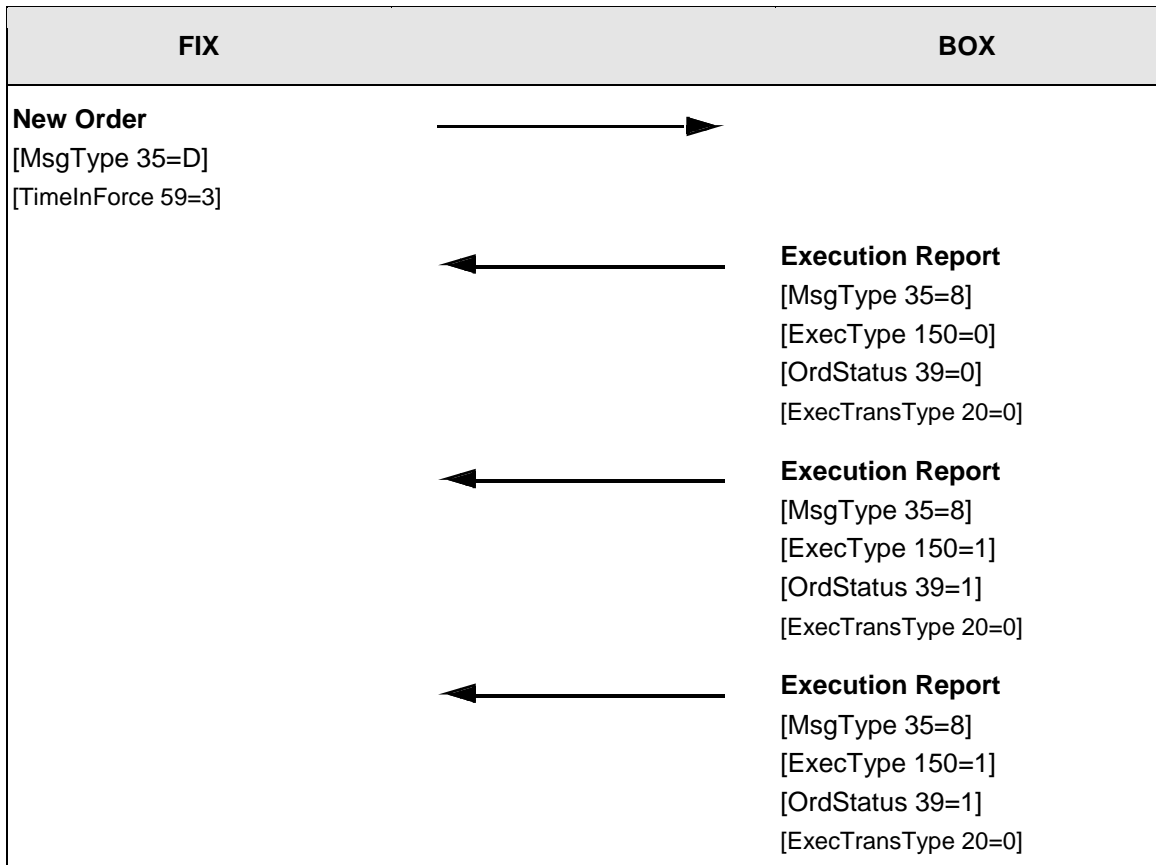




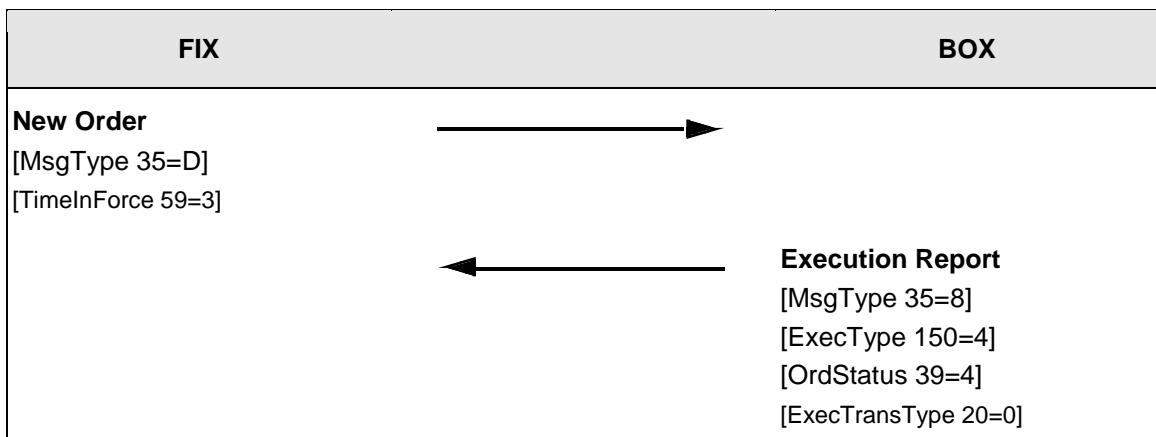
**An immediate or Cancel Order is Partially Filled at Opening**



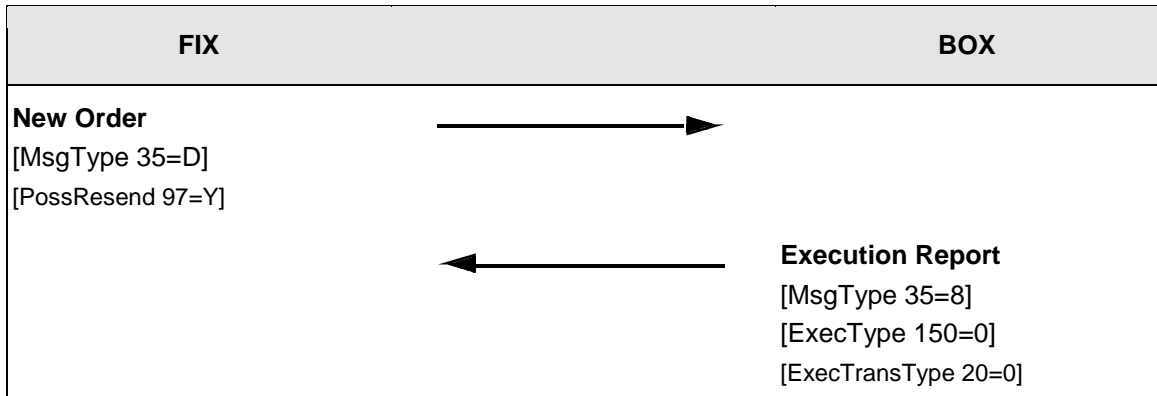
**An immediate or Cancel is Partially Executed in Continuous Trading**



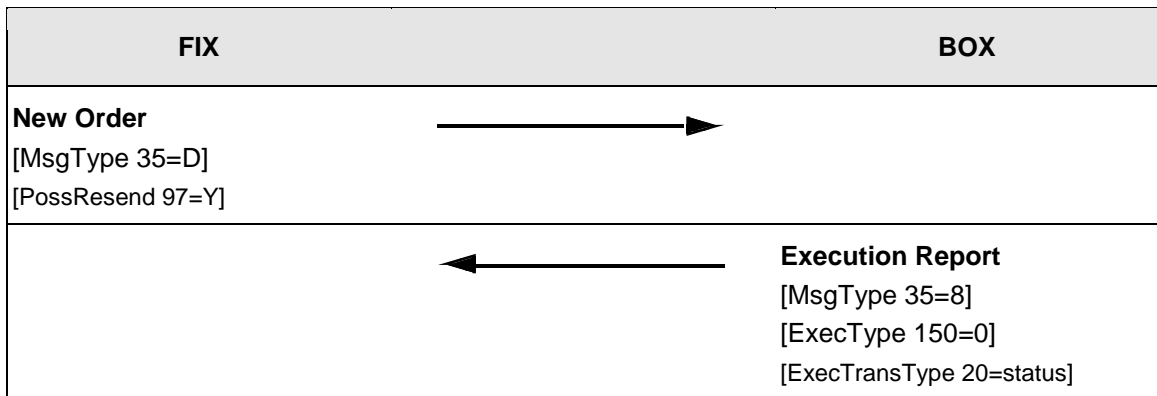
**An immediate or Cancel Order is not Executed in Continuous Trading**



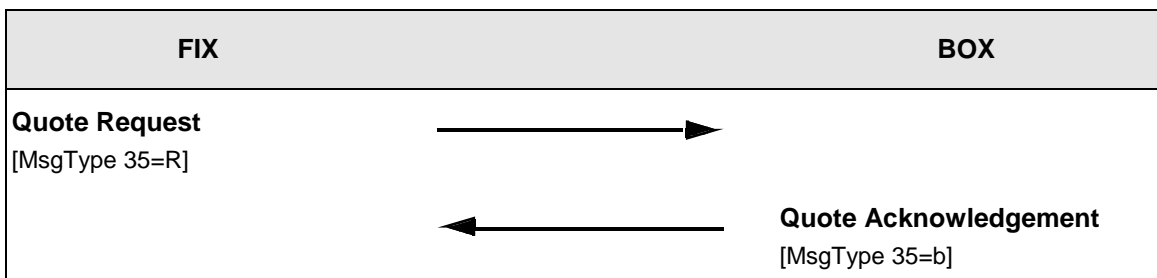
**A New Order is Sent with Possible Resend**



**An Order is Resent with Possible Resend**

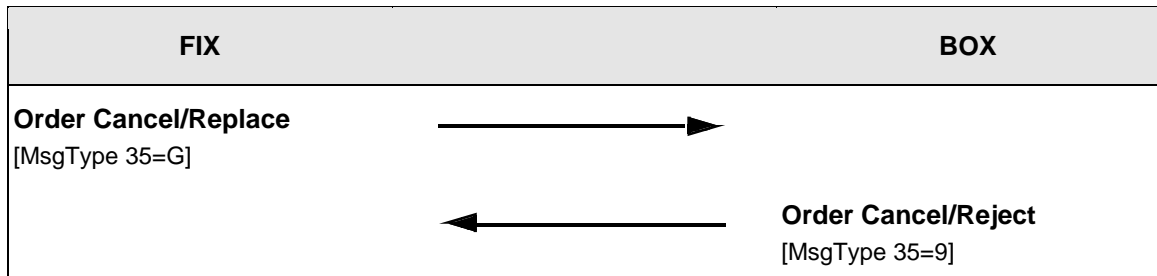


**8.3 Quotes Processing**

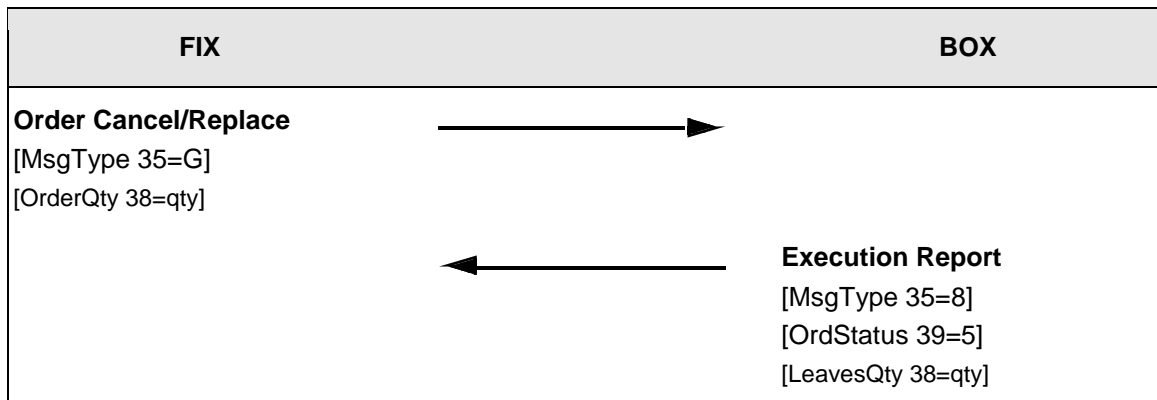


## 8.4 Modification Processing

### Modification is Rejected

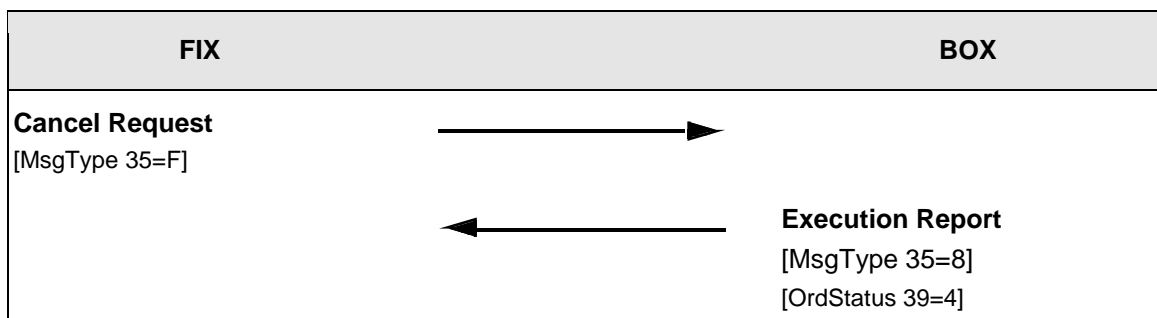


### Modification is Accepted

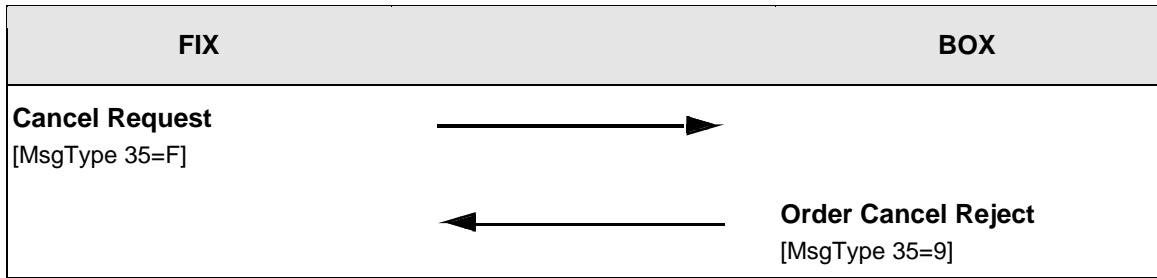


## 8.5 Cancellation Processing

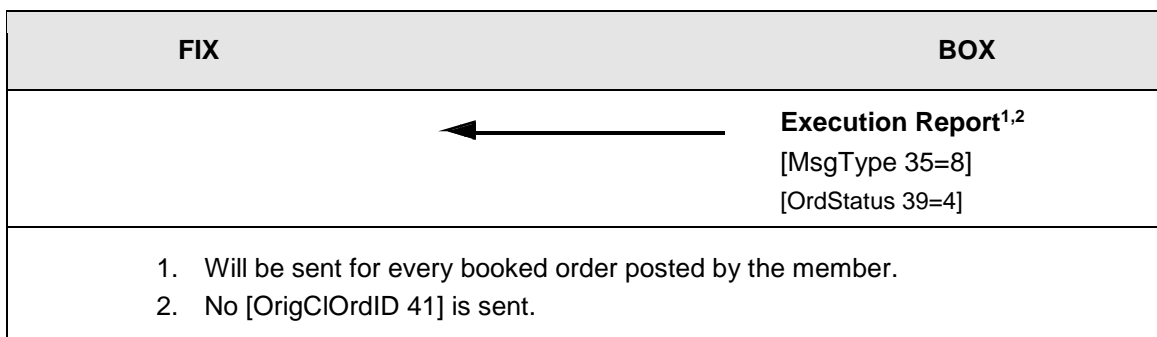
### Cancellation is Accepted



### Cancellation is Rejected

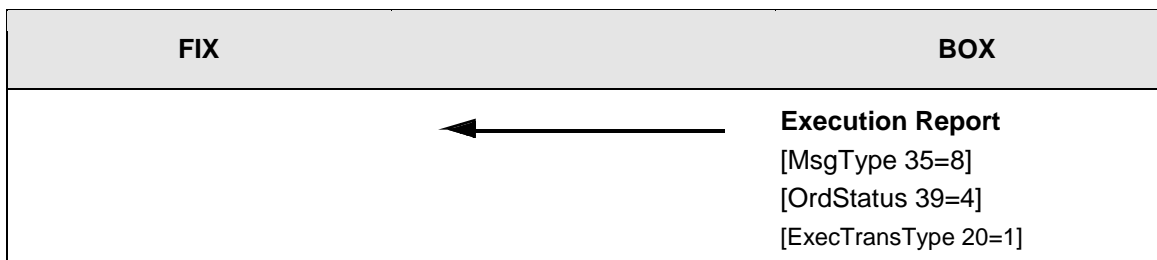


### Global Cancellation of all Orders for a Member Initiated by MOC



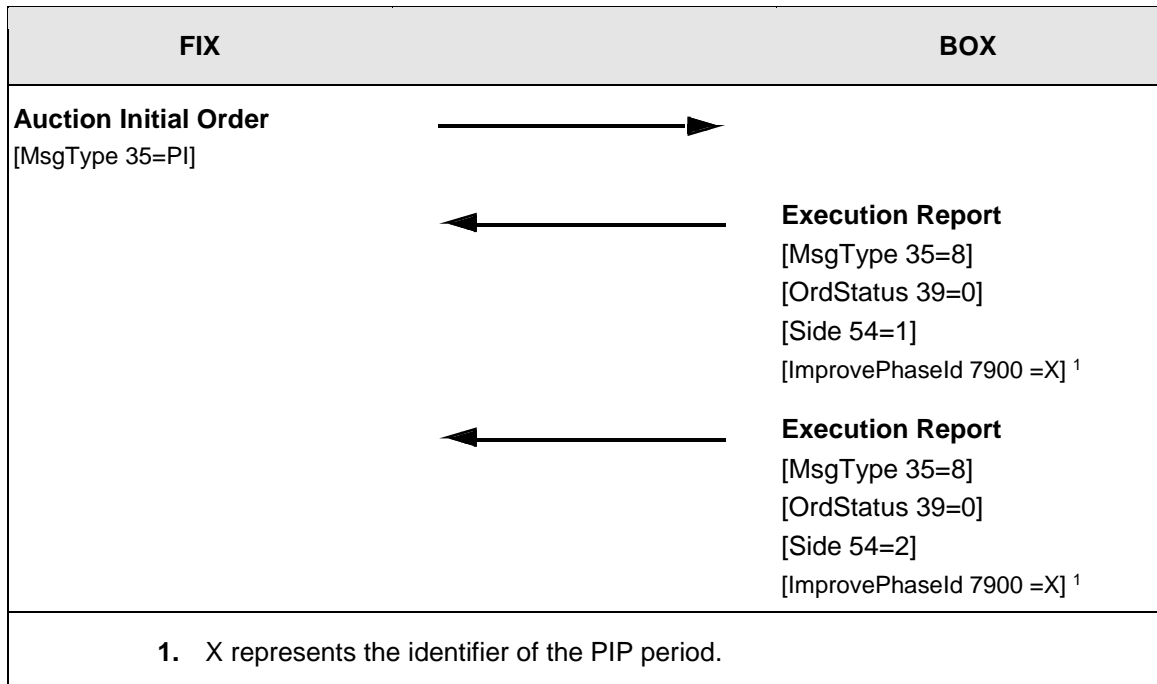
## 8.6 Trade Messages

### Cancellation of a Trade performed by MOC

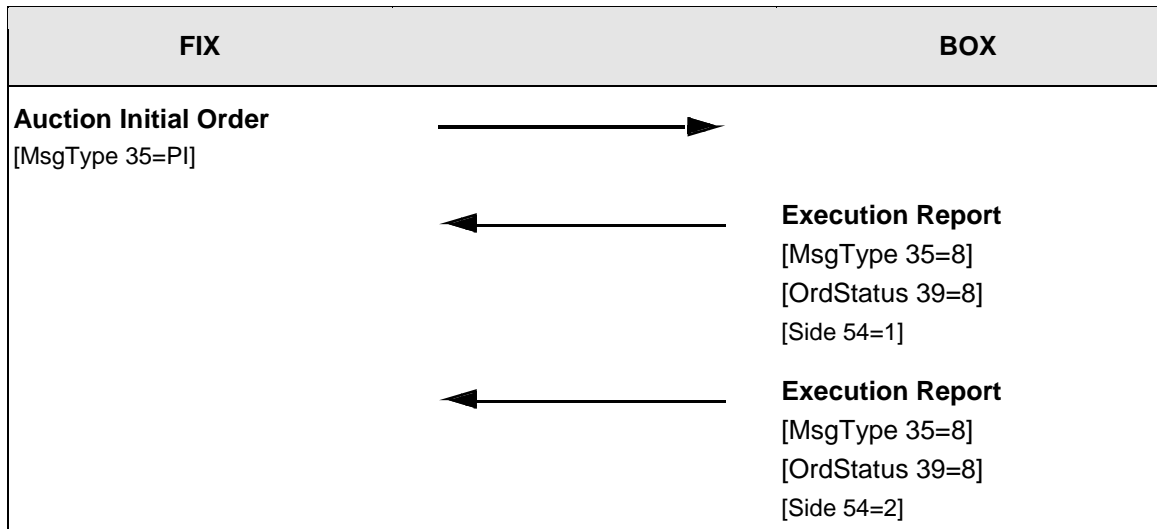


## 8.7 Improvement Phase Processing

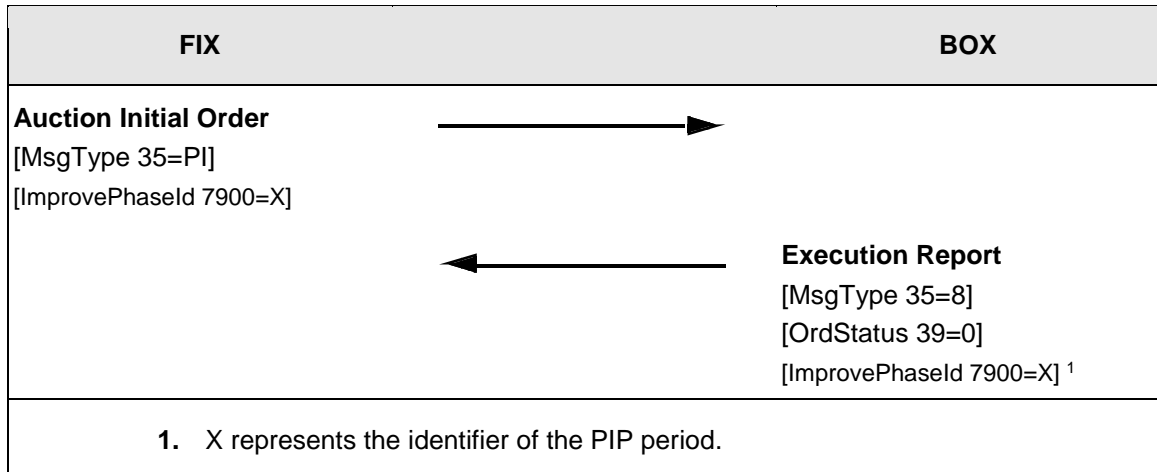
### The Initial Order is Accepted



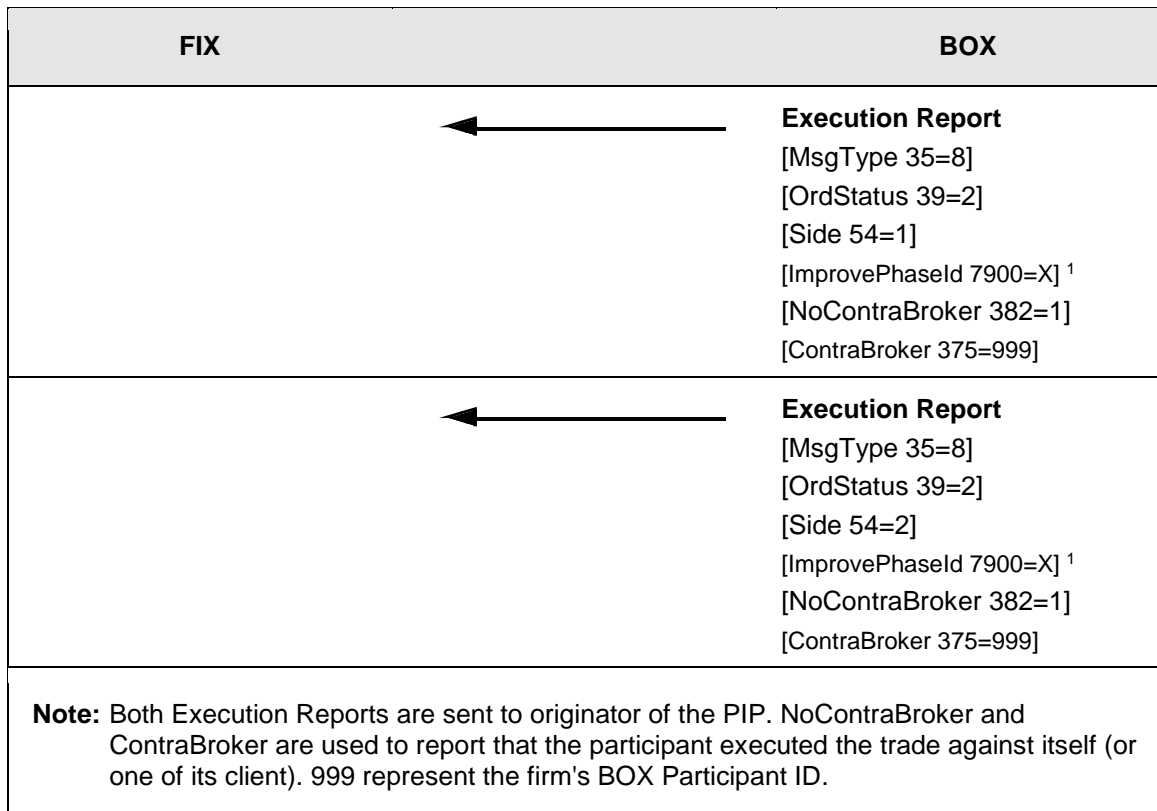
### The Initial Order is Rejected



### The Initial Order modifies a PIP in progress



### Matching of the Initial Order Against Itself

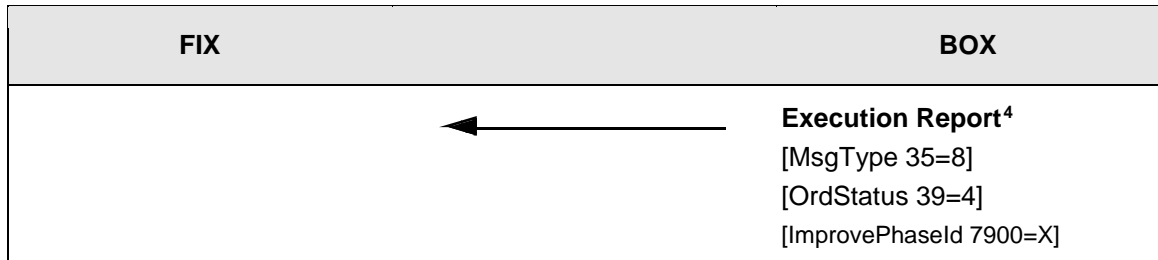


**Initial Order Executed Against a Regular Order and Against Itself**

FIX	BOX
←	<p><b>Execution Report <sup>1</sup></b>                      [MsgType 35=8]                      [OrdStatus 39=1]                      [ImprovePhaseId 7900=X]                      [ImprovePhaseId 7900=X] <sup>1</sup>                      [NoContraBroker 382=1]                      [ContraBroker 375=999]</p>
←	<p><b>Execution Report <sup>2</sup></b>                      [MsgType 35=8]                      [OrdStatus 39=1]                      [ImprovePhaseId 7900=X]                      [ImprovePhaseId 7900=X] <sup>1</sup>                      [NoContraBroker 382=1]                      [ContraBroker 375=999]</p>
←	<p><b>Execution Report <sup>3</sup></b>                      [MsgType 35=8]                      OrdStatus 39=2                      ImprovePhaseId 7900=X</p>
←	<p><b>Execution Report <sup>4</sup></b>                      [MsgType 35=8]                      [OrdStatus 39=4]                      ImprovePhaseId 7900=X]</p>
<p><b>Note:</b> NoContraBroker and ContraBroker are used to report that the participant executed the trade against itself (or one of its client). 999 represent the firm's BOX Participant ID. The 4 Execution Report messages may not be sent on the exact order as shown above.</p> <ol style="list-style-type: none"> <li>1. For the dealer side of the PIP.</li> <li>2. For the MBF side of the PIP that traded against the dealer side of the PIP.</li> <li>3. For the MBF side of the PIP that traded against the regular order.</li> <li>4. For the cancellation of the untraded remaining quantity on the dealer side of the PIP. This message may be sent before the execution report message(s).</li> </ol>	

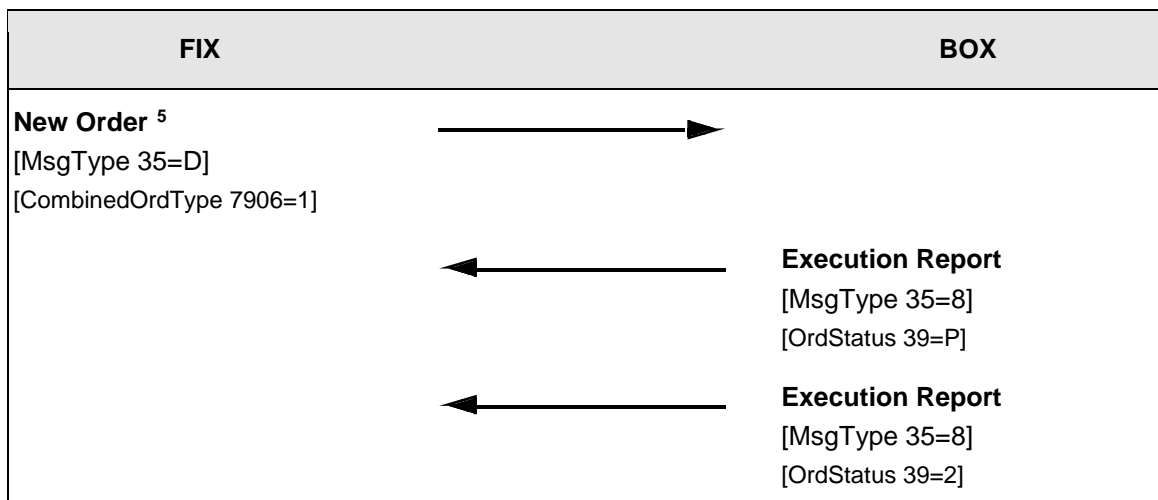


### Re-initialization of Memory Server (After a Server Failure)



## 8.8 IML Processing

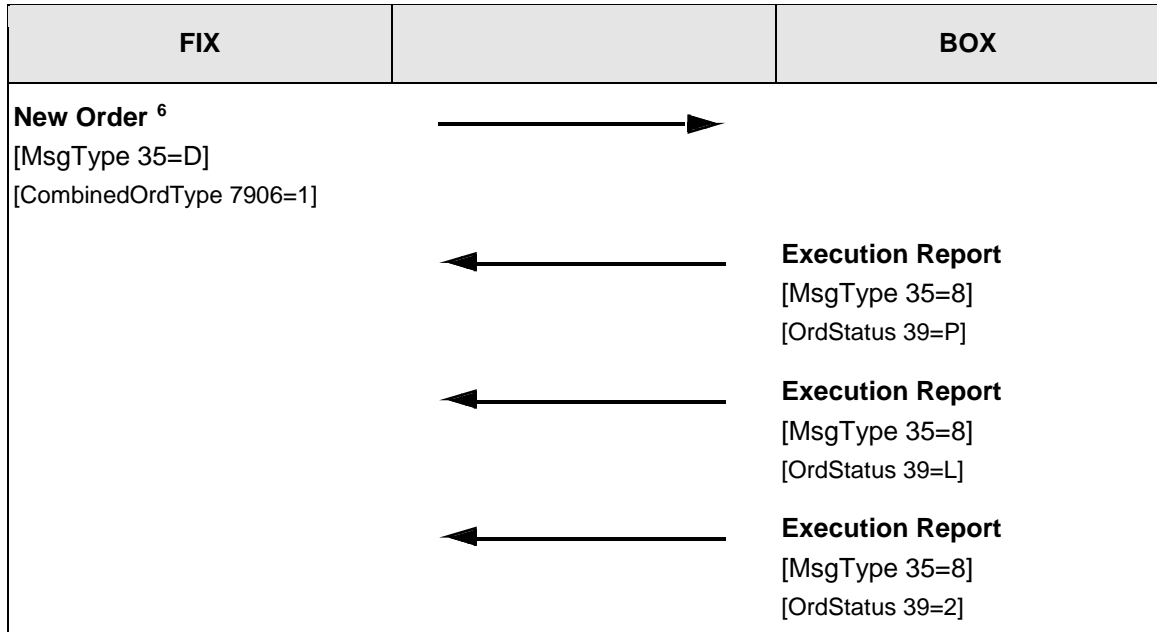
### Entering an Order that gets Exposed and then gets Filled in BOX



<sup>4</sup>A cancellation message is sent for each instrument for which there was an Improvement Phase at the time of the memory server failure.

<sup>5</sup>The price of the order may potentially cause a trade through.

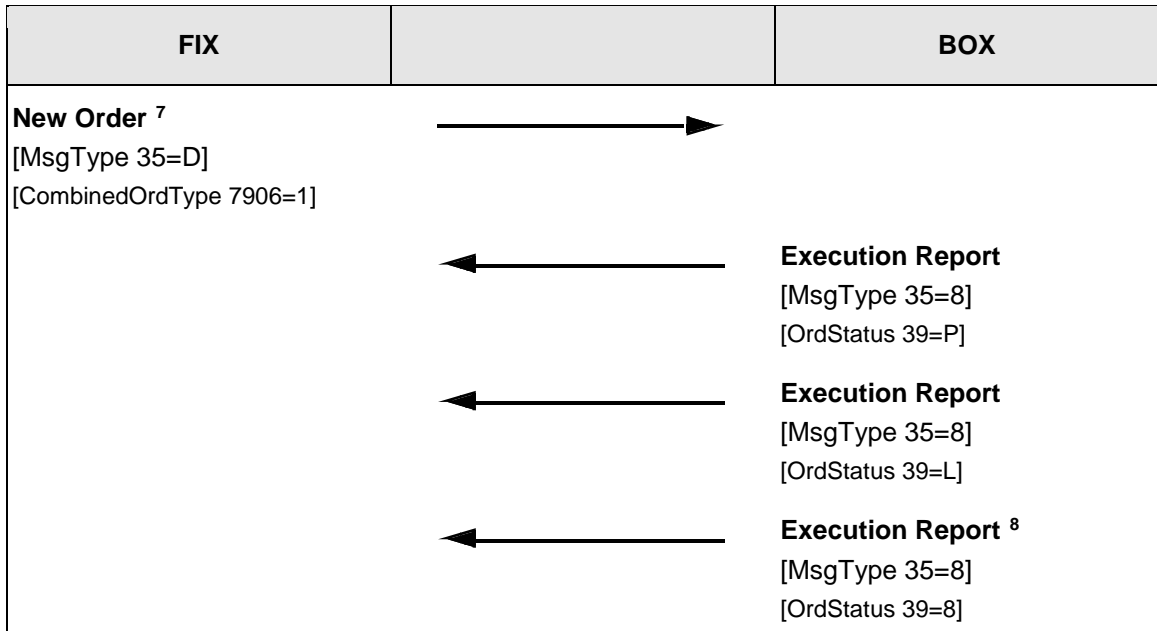
**Entering an Order that gets Exposed and gets routed to an Away Exchange. The Order is Totally Traded**



<sup>6</sup>The price of the order may cause a trade through (be filled at a better price at an away exchange).

### Entering an Order that gets Exposed and then gets Routed to Away Exchange.

**Note:** The Order is not Traded. (Cancelled or Timed-out).

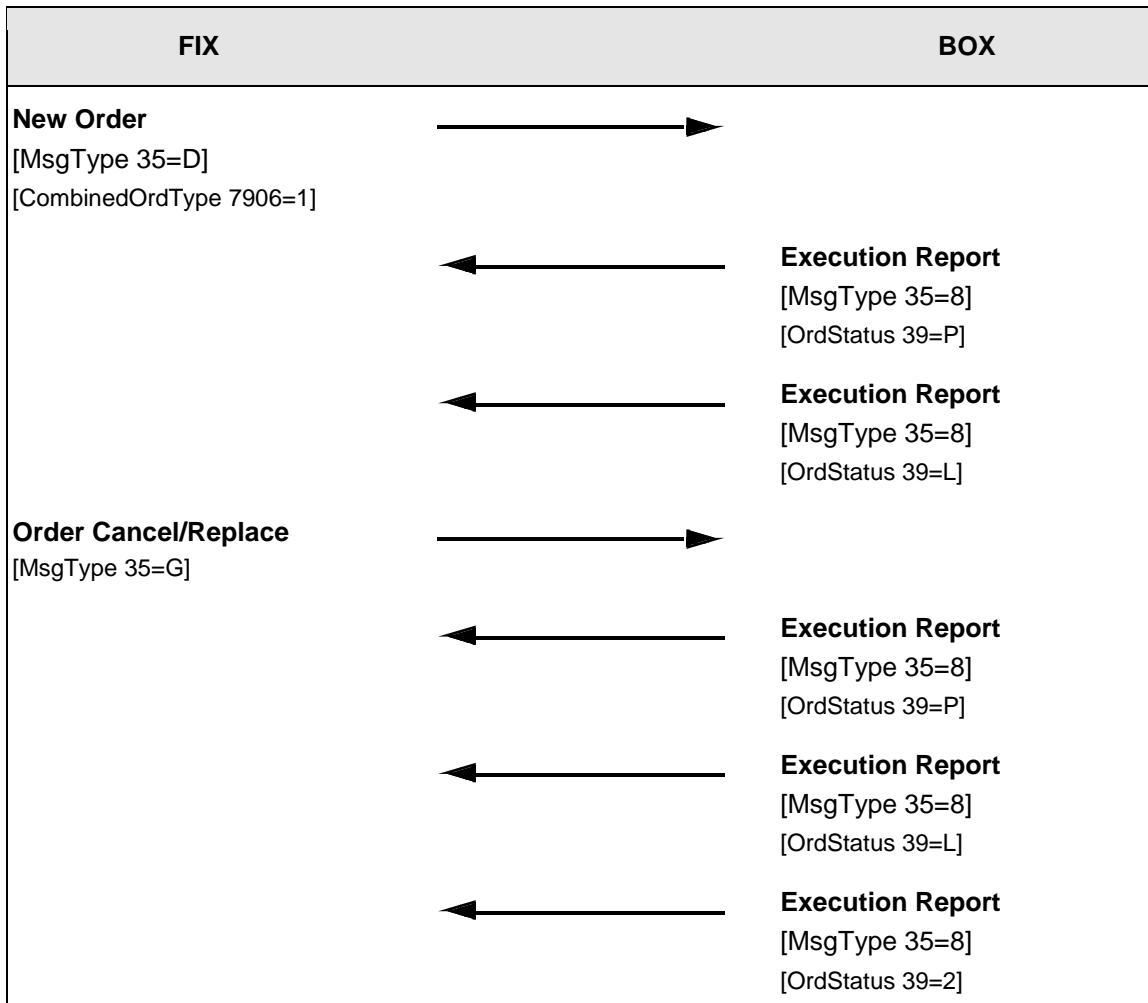


<sup>7</sup>The price of the order may potentially causes a trade through.

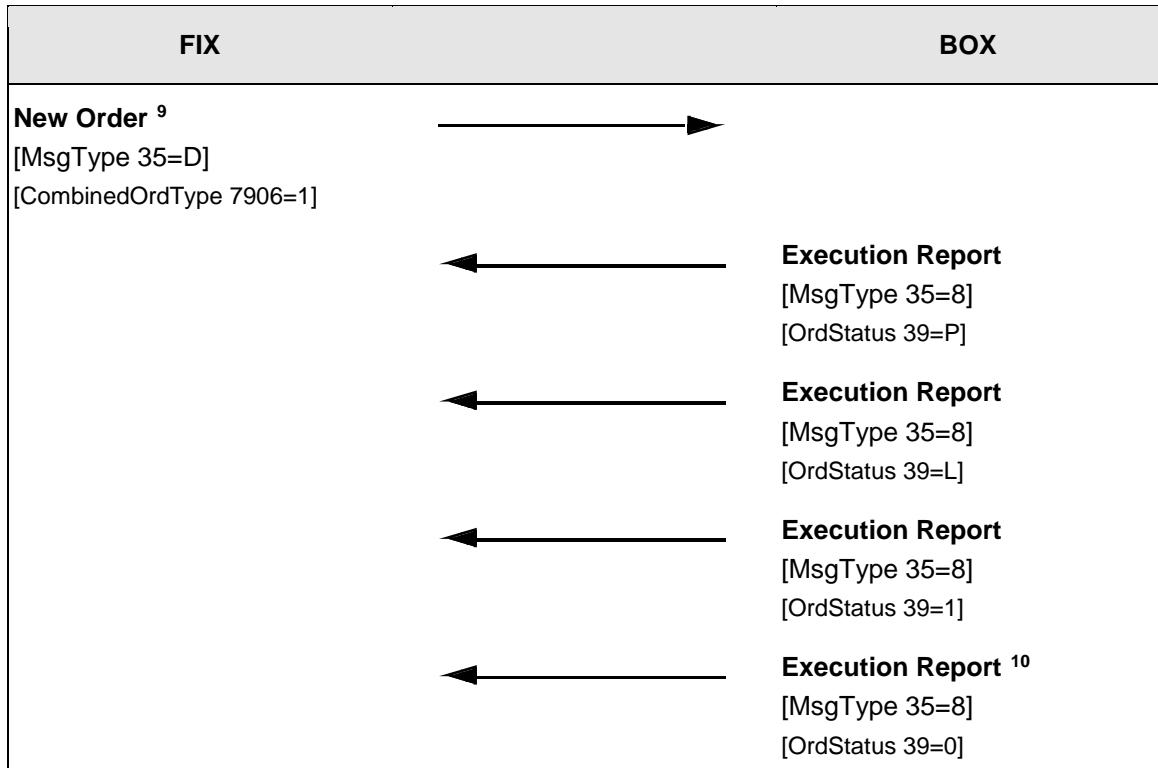
<sup>8</sup>The order is cancelled or not traded before the time-out period.

**Entering an Order that gets Exposed and then gets routed to an Away Exchange.**

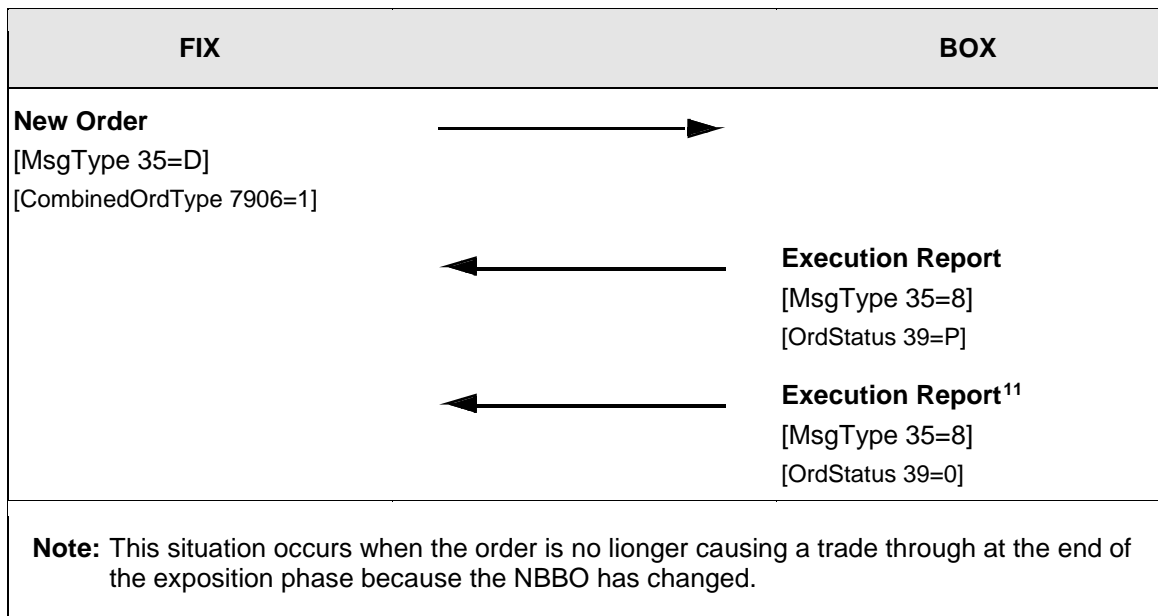
**Note:** The Order is Modified by the Participant while being Booked at Another Exchange. After the Modification, BOX is still Unable to fill the Order at the NBBO. Therefore, the Order gets routed an Away Market again.



**Entering an Order that gets Exposed and then gets routed to an Away Exchange. The Order is Partially Traded and Re-booked in BOX**



**Entering an Order that gets Exposed and then gets Booked in BOX**

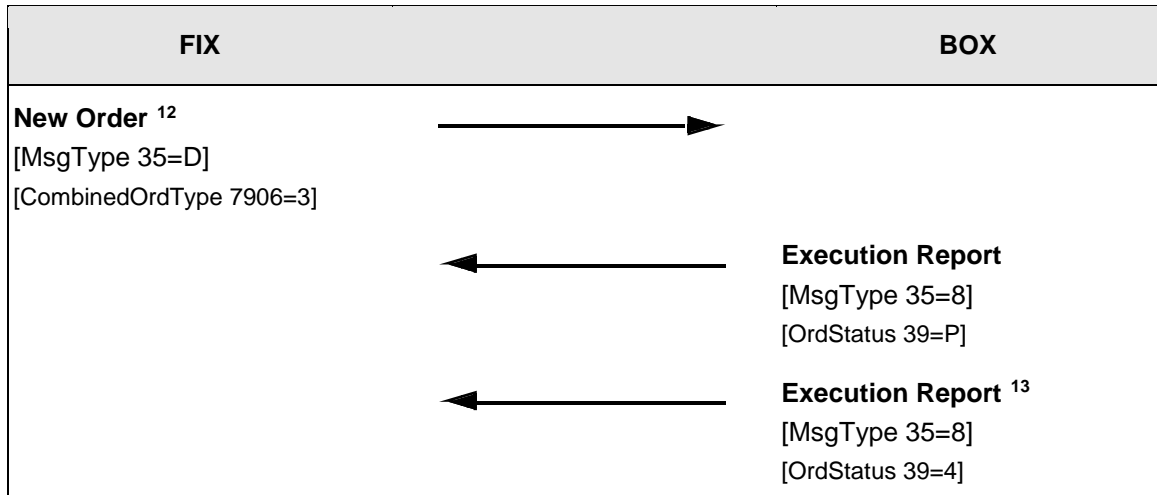


<sup>9</sup>The price of the order may potentially causes a trade through.

<sup>10</sup>The remaining quantity is re-booked in BOX with a new [OrderID 37] value.

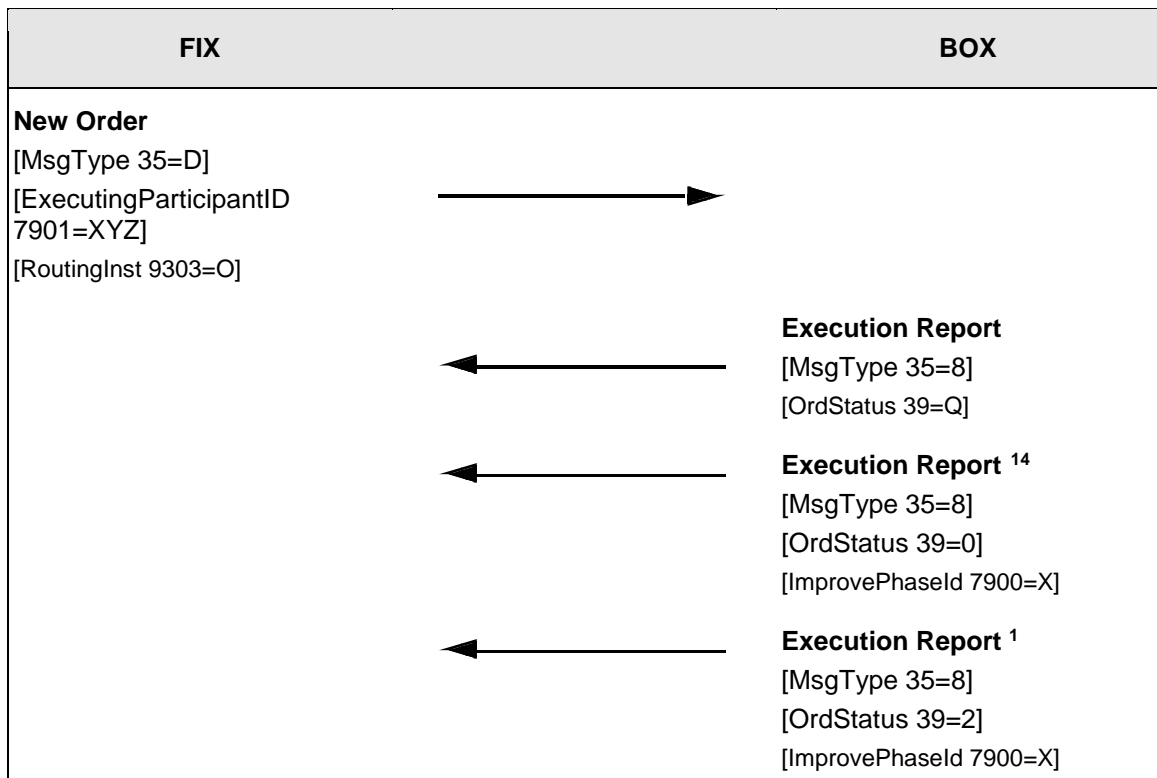
<sup>11</sup>Assigned a new [OrderID 37] value.

### Entering an Order that gets Exposed and then gets Eliminated



## 8.9 Directed/Routed Order

### Sending a Routed Order that gets Accepted and Transformed into a PIP Initial Order

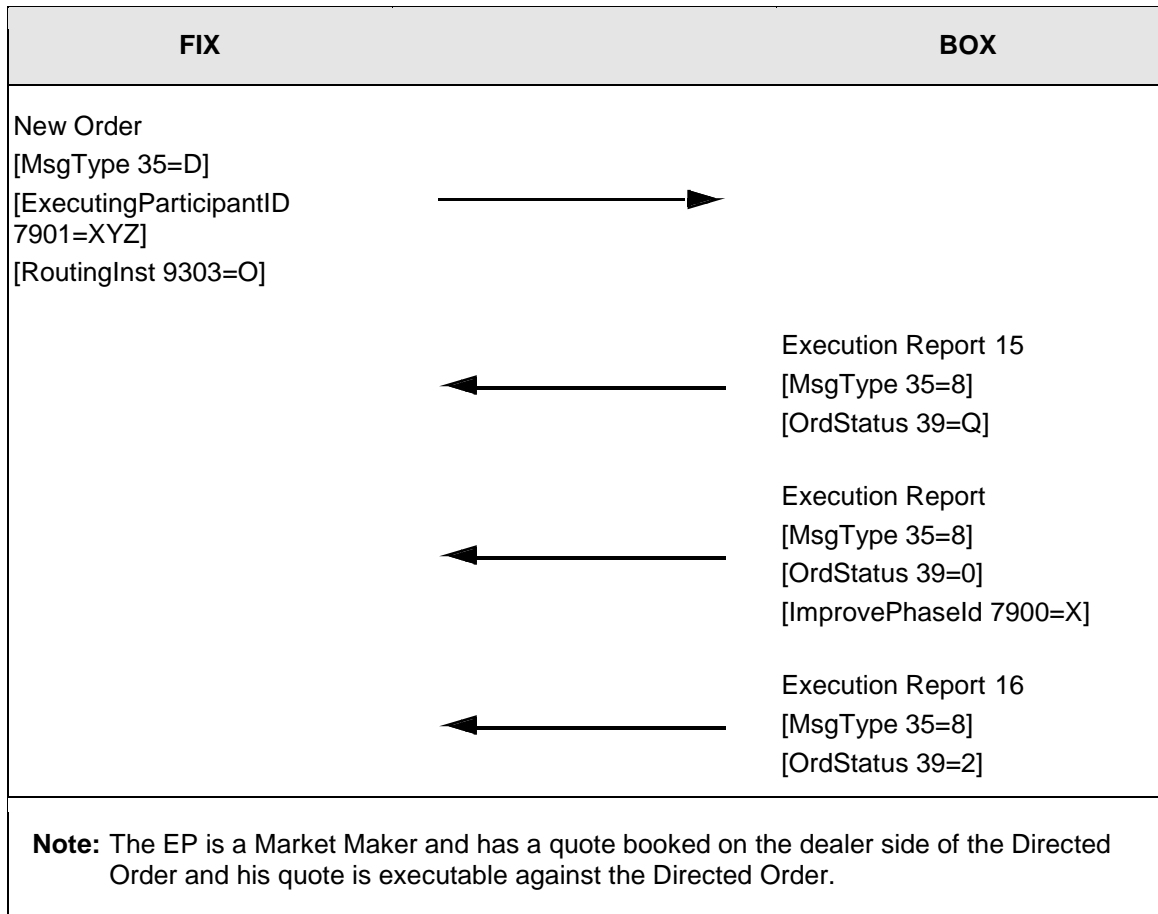


<sup>12</sup>The price of the order may potentially causes a trade through.

<sup>13</sup>Send at the end of the exposition phase if the order is still causing a trade through.

<sup>14</sup>For the MBF side of the PIP initial order initiated by the Executing Participant.

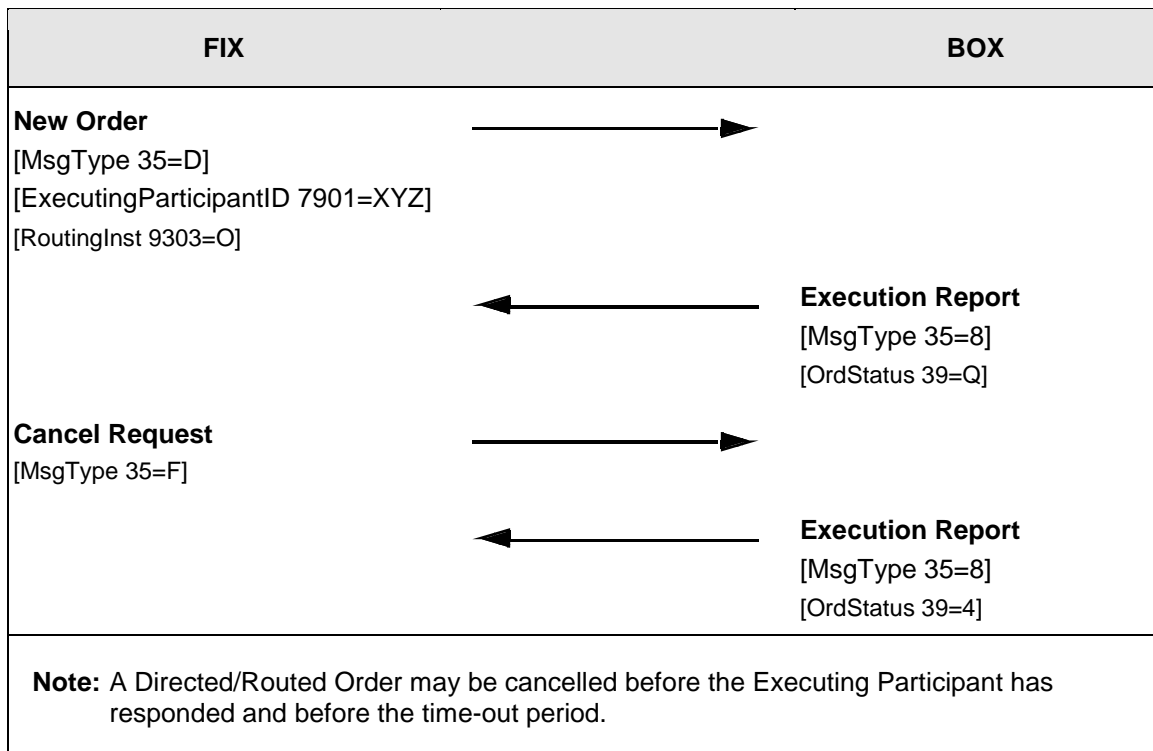
### Sending a Directed Order that gets Refused by the Executing Participant



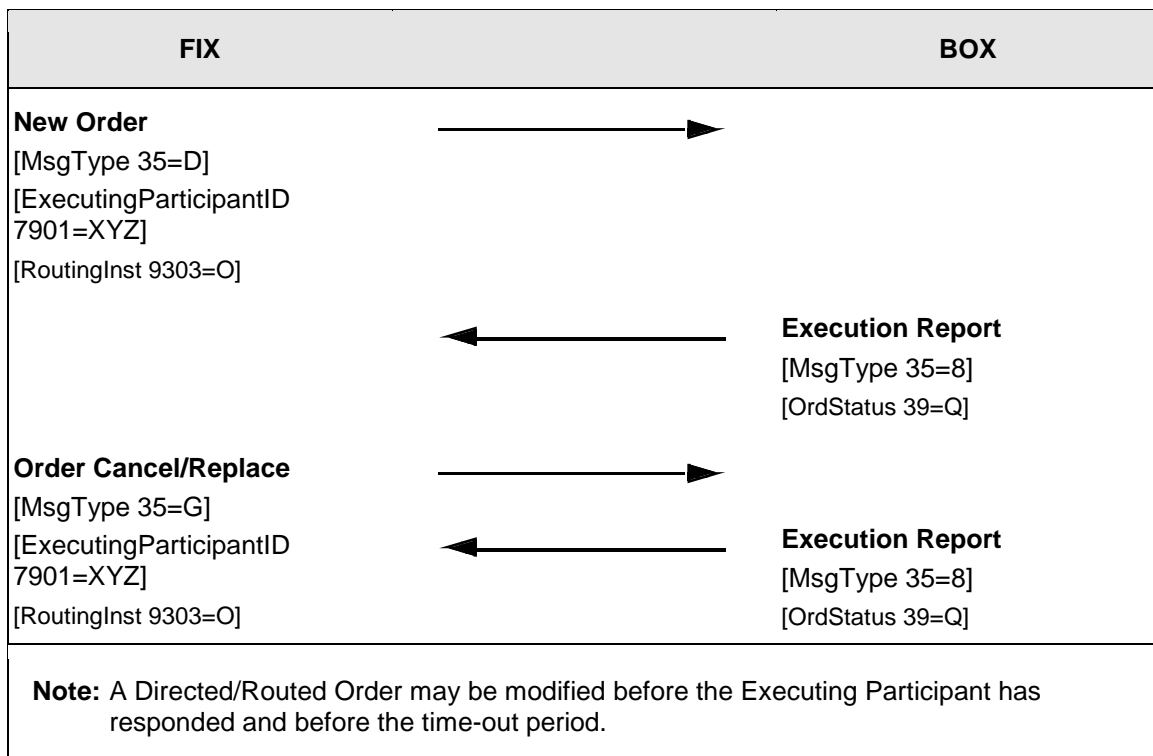
<sup>15</sup>In response to the Directed Order.

<sup>16</sup>The Directed Order is transformed into a regular order at its original price.

### Canceling a Directed/Routed Order





### Modifying a Directed/Routed Order







**Sending a Directed/Routed Order to an Unregistered Executing Participant or when the Executing Participant is not responding (timed-out).**

FIX		BOX
<b>New Order</b> [MsgType 35=D] [ExecutingParticipantID 7901=XYZ] [RoutingInst 9303=O]		
		<b>Execution Report</b> <sup>17</sup> [MsgType 35=8] [OrdStatus 39=0]
<p><b>Note:</b> The Directed/Routed Order is transformed into a regular order.</p>		

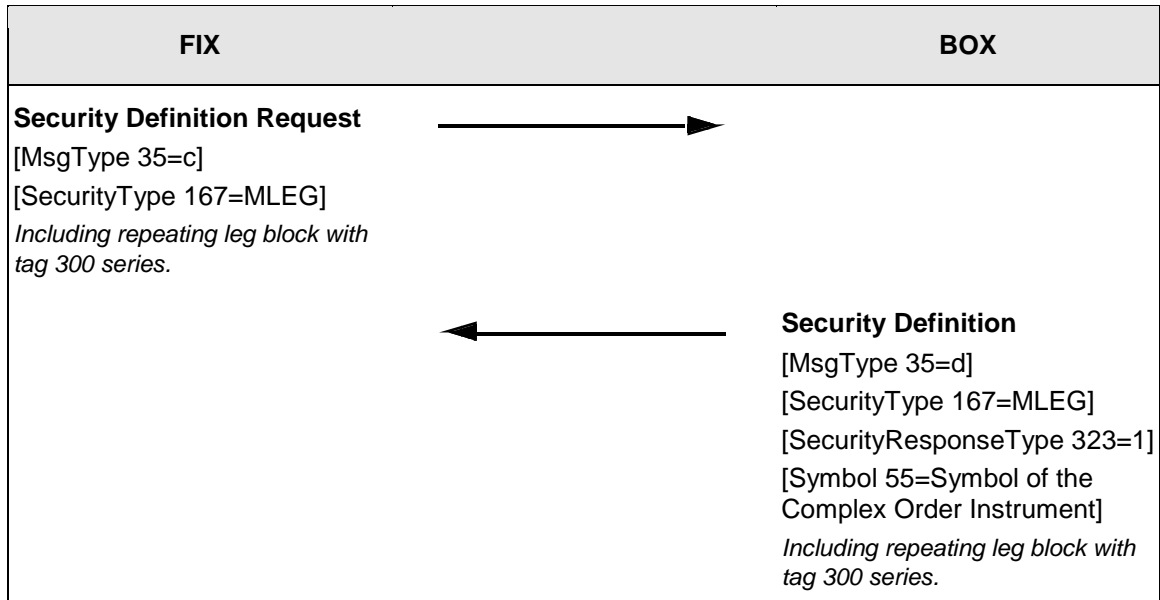
## 8.10 Complex Order Instrument Creation and Order Entry Processing

**Complex Order Instrument Created as Requested.**

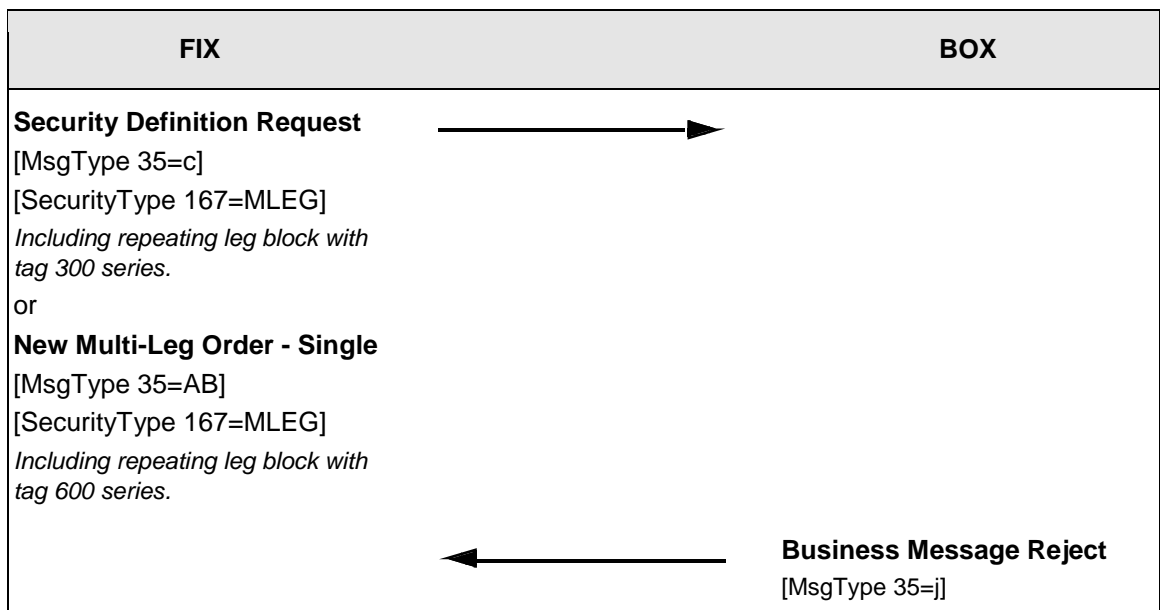
FIX		BOX
<b>Security Definition Request</b> [MsgType 35=c] [SecurityType 167=MLEG] <i>Including repeating leg block with tag 300 series.</i>		
		<b>Security Definition</b> [MsgType 35=d] [SecurityType 167=MLEG] [SecurityResponseType 323=2] [Symbol 55=Symbol of the Complex Order Instrument] <i>Including repeating leg block with tag 300 series.</i>

<sup>17</sup>In response to the Regular Order.

**Complex Order Instrument Created with Modifications.<sup>18</sup>**



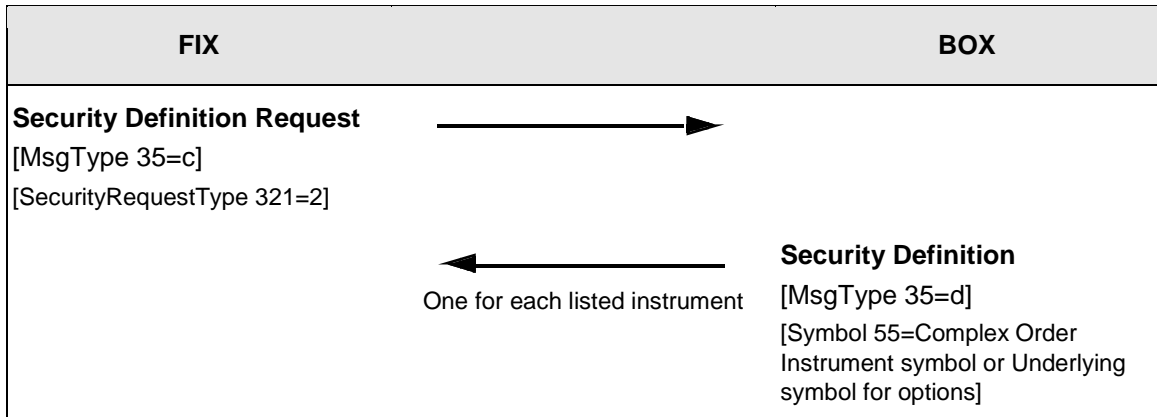
**Complex Order Instrument Creation Request Rejected.<sup>19</sup>**



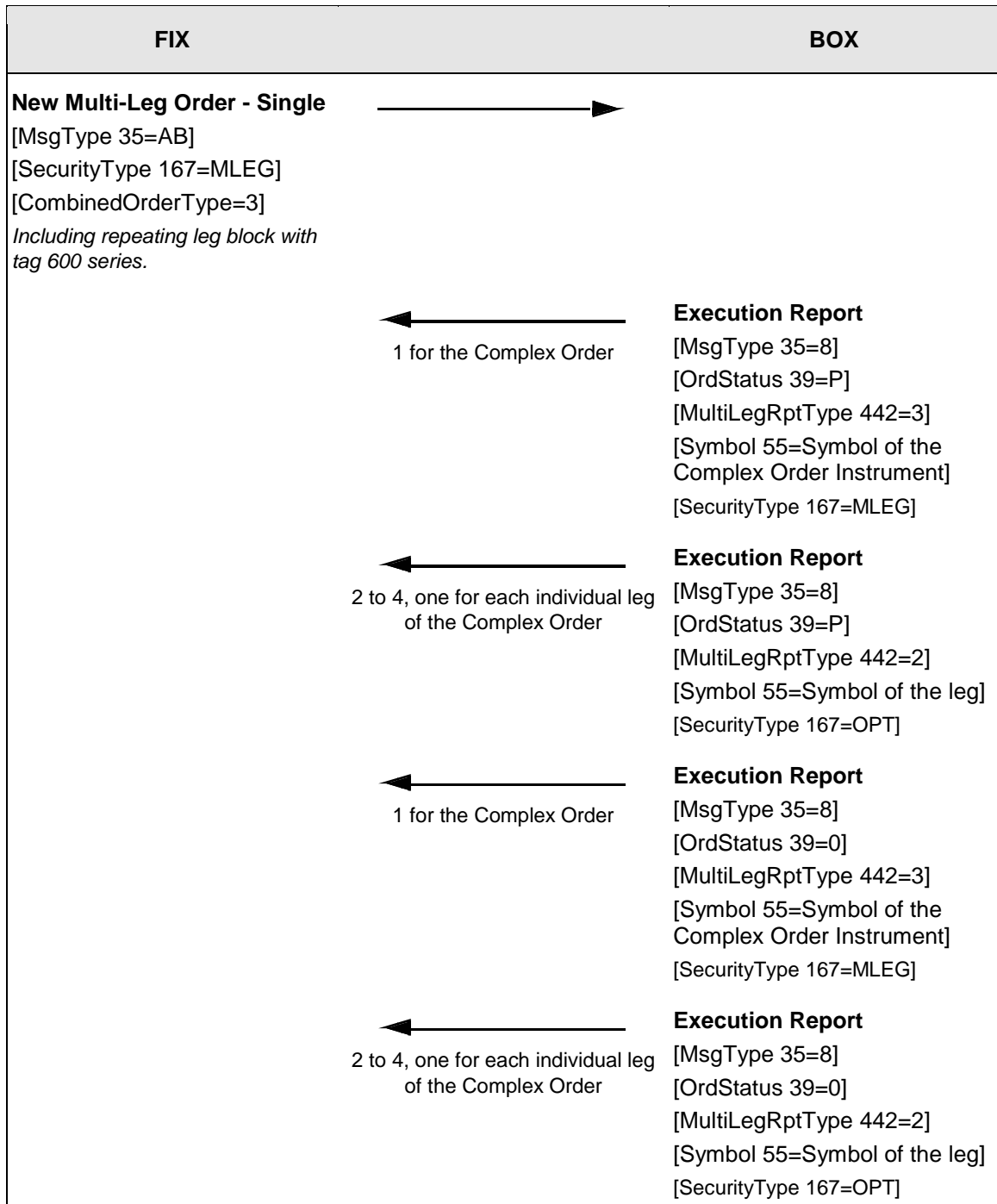
<sup>18</sup>A Complex Order Instrument already exists but with either:a) opposite verb (ex.: A-B exists and B+A is requested)b) ratios equivalent to the greatest common divisor (ex.: A+2B exists and 4A+8B is requested).

<sup>19</sup>One of the provided leg does not exist or is not valid; One or more field values provided in the request message is invalid.

### Complex Order Instrument List Request

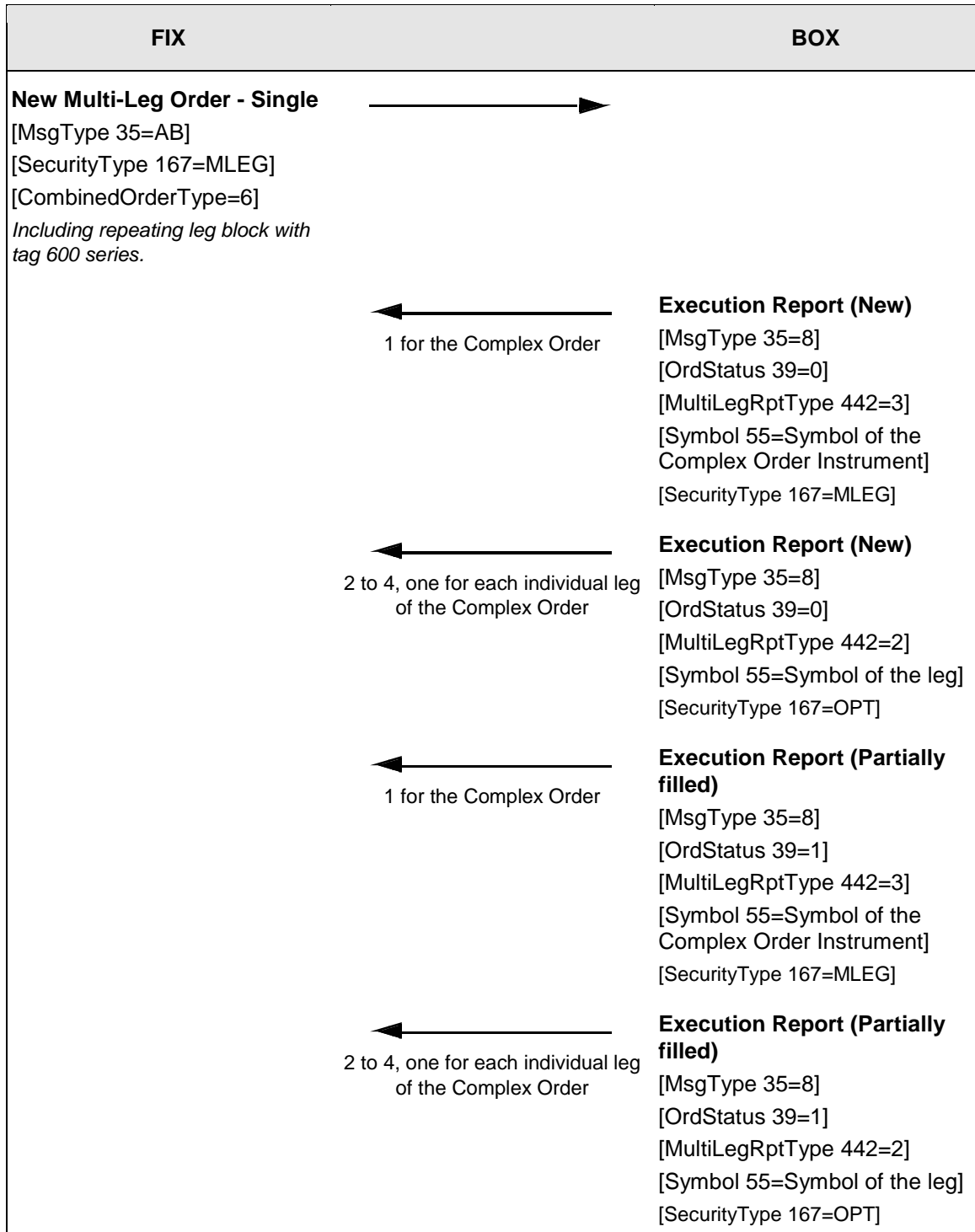


**Complex Order Created/Accepted (with exposure).<sup>20</sup>**



<sup>20</sup>Complex Order Instrument is created with this message or already exists.

**Complex Order Instrument Created/Accepted that gets Traded (No Exposure).<sup>21</sup>**



<sup>21</sup>Complex Order Instrument is created with this message or already exists.



1 for the Complex Order

**Execution Report (Filled)**

[MsgType 35=8]  
 [OrdStatus 39=2]  
 [MultiLegRptType 442=3]  
 [Symbol 55=Symbol of the  
 Complex Order Instrument]  
 [SecurityType 167=MLEG]

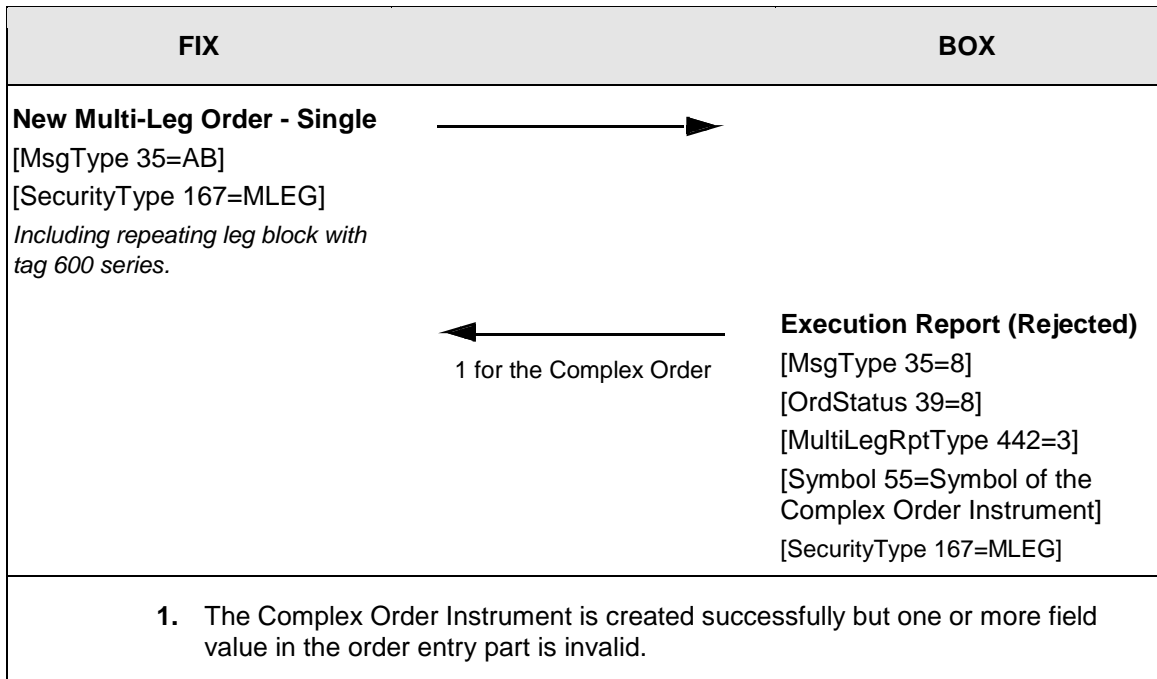


2 to 4, one for each individual leg  
 of the Complex Order

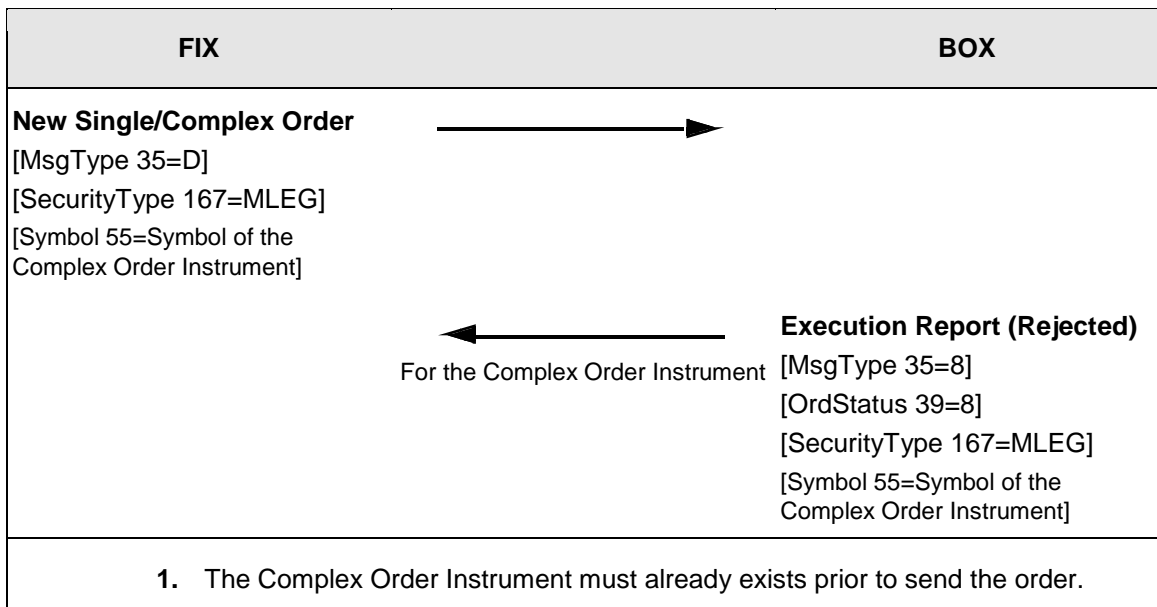
**Execution Report (Filled)**

[MsgType 35=8]  
 [OrdStatus 39=2]  
 [MultiLegRptType 442=2]  
 [Symbol 55=Symbol of the leg]  
 [SecurityType 167=OPT]

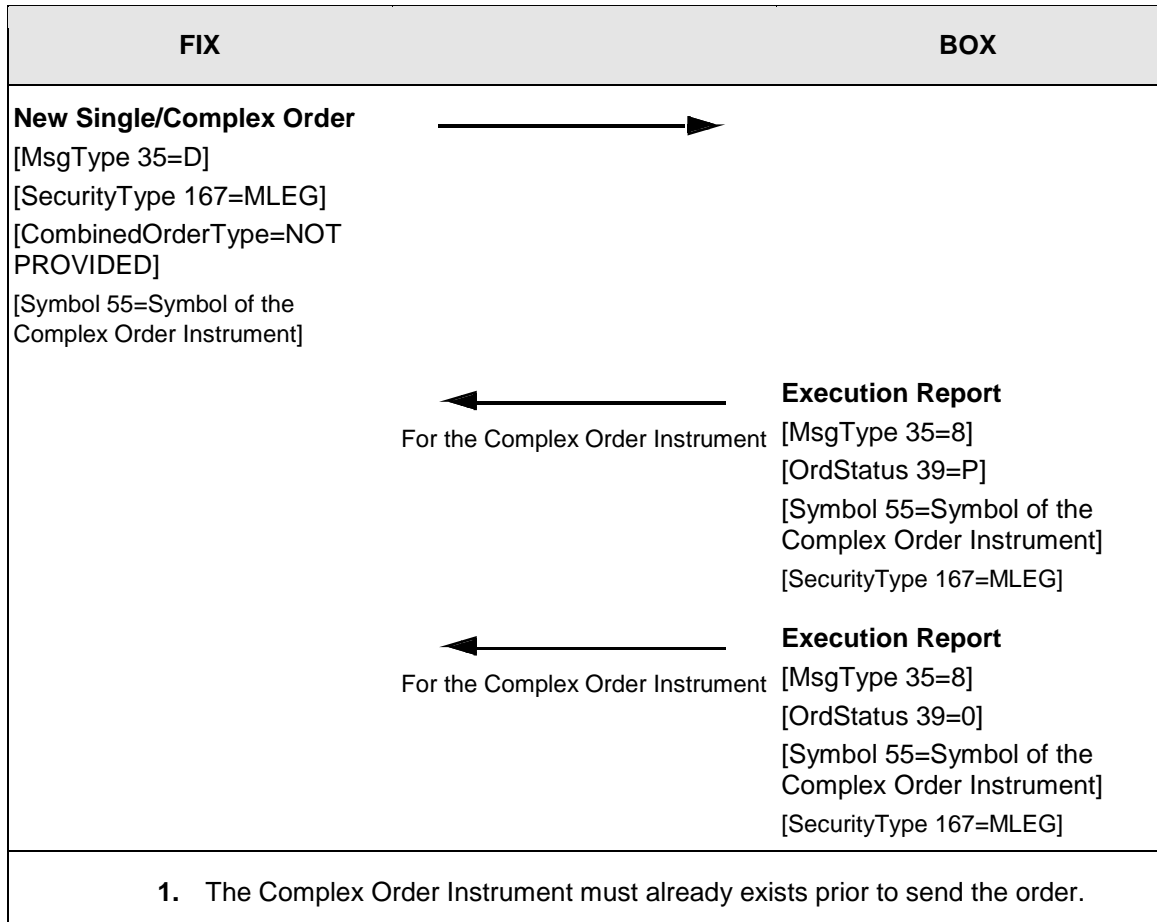
**Complex Order: Instrument Created but Order is rejected.<sup>1</sup>**



**Complex Order Rejected.<sup>1</sup>**

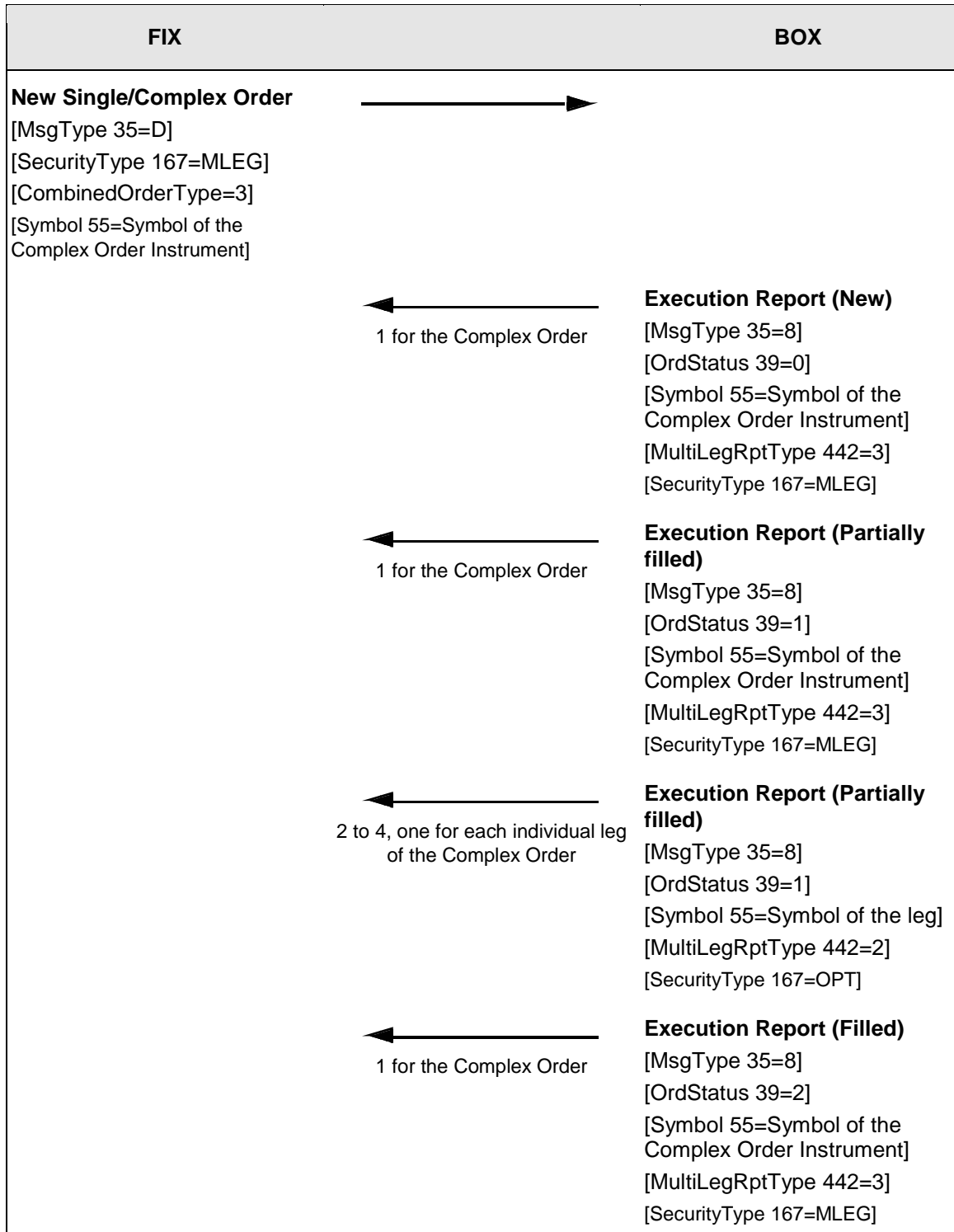



**Complex Order Accepted (with Exposure).<sup>1</sup>**



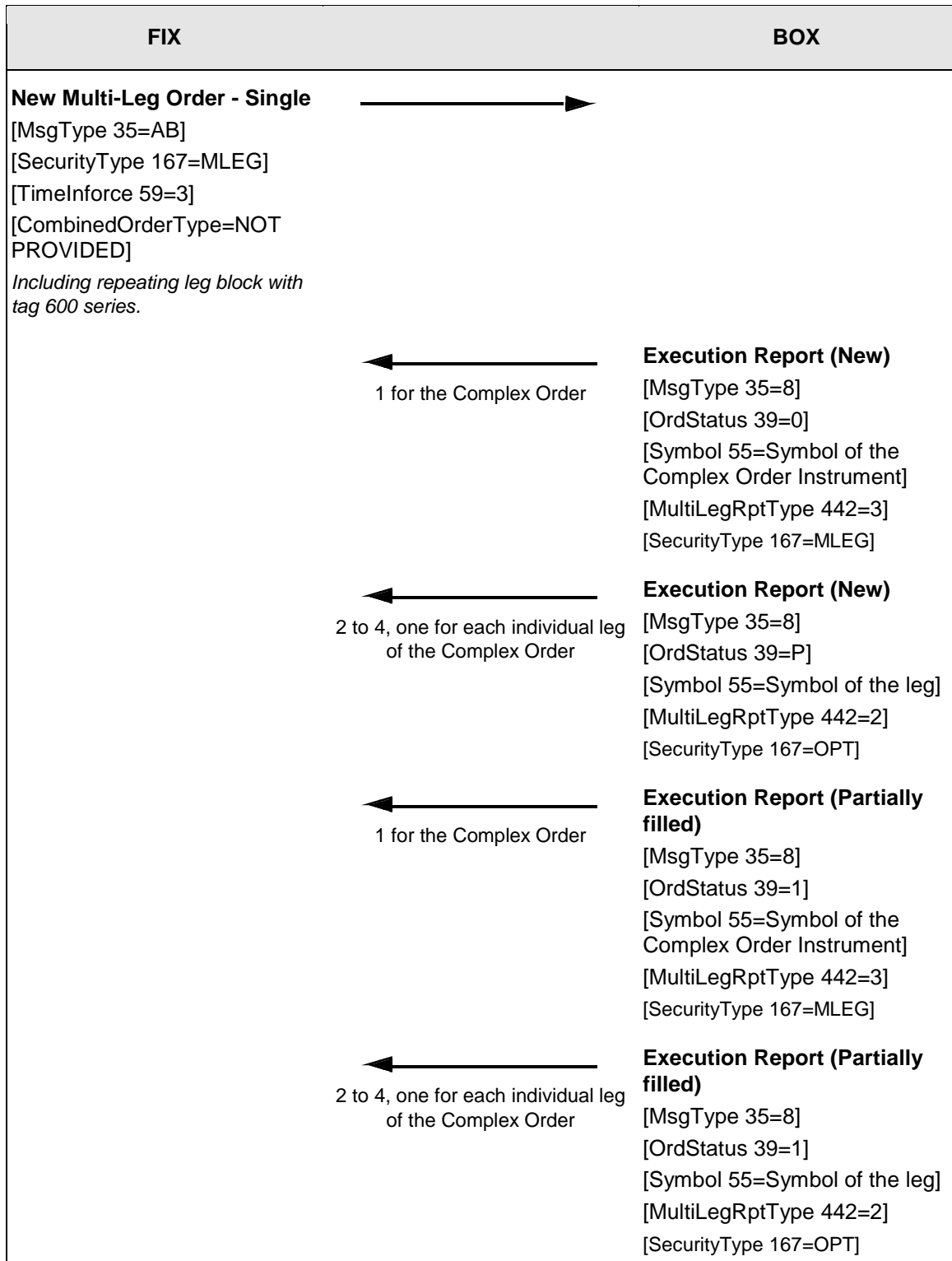


**Complex Order Accepted that gets totally Traded (with Exposure).<sup>1</sup>**



	<p><b>Execution Report (Filled)</b>                  [MsgType 35=8]                  [OrdStatus 39=2]                  [Symbol 55=Symbol of the leg]                  [MultiLegRptType 442=2]                  [SecurityType 167=OPT]</p>
<p>2 to 4, one for each individual leg of the Complex Order</p>	
<p><b>1.</b> The Complex Order Instrument must already exist prior to send the order.</p>	

### IOC Complex Order Instrument Created/Accepted that gets Partially Traded (with Exposure).<sup>1</sup>





1 for the Complex Order

**Execution Report (Cancelled)**

[MsgType 35=8]  
 [OrdStatus 39=4]  
 [Symbol 55=Symbol of the  
 Complex Order Instrument]  
 [MultiLegRptType 442=3]  
 [SecurityType 167=MLEG]



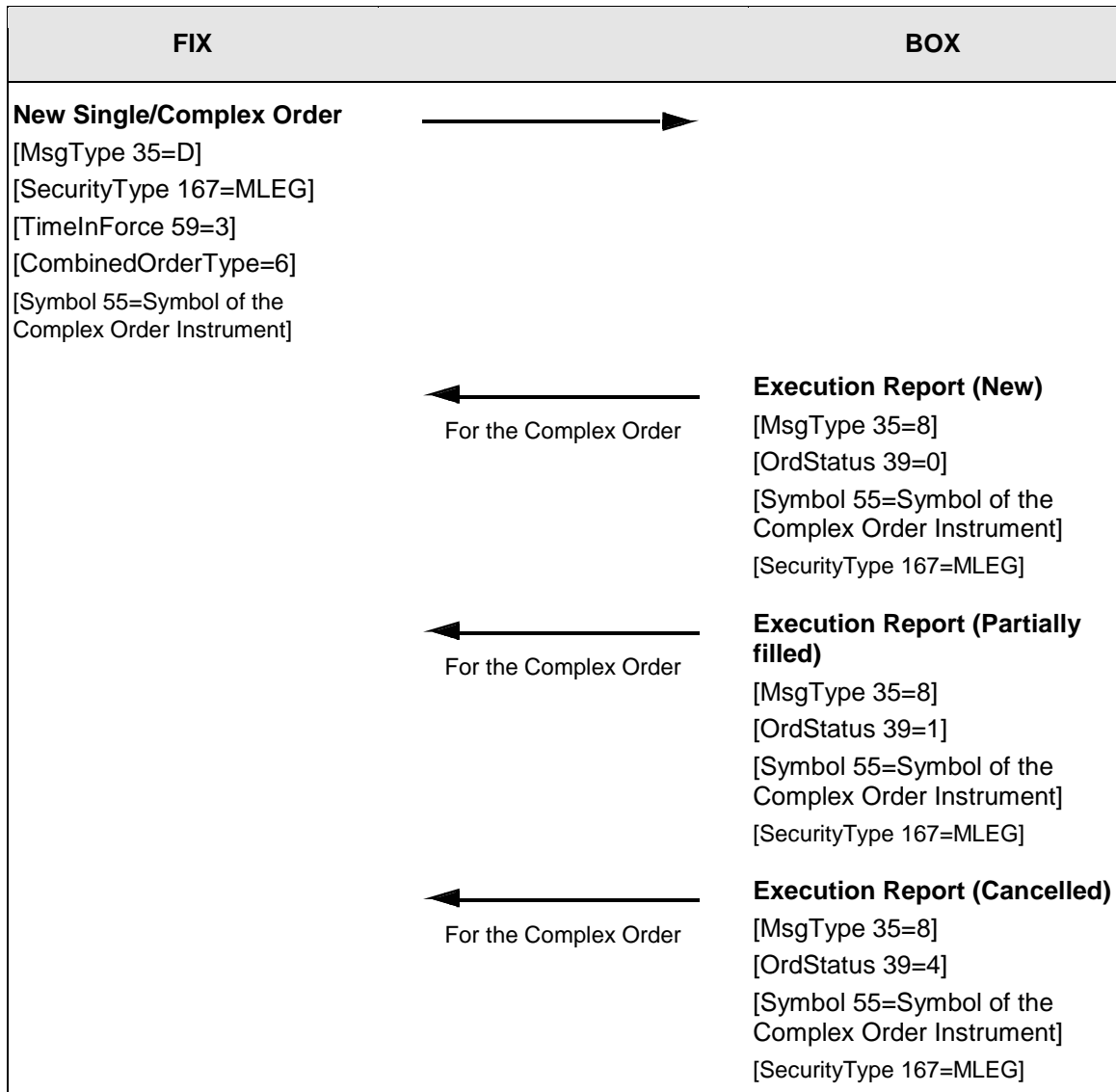
2 to 4, one for each individual leg  
 of the Complex Order

**Execution Report (Cancelled)**

[MsgType 35=8]  
 [OrdStatus 39=4]  
 [Symbol 55=Symbol of the leg]  
 [MultiLegRptType 442=2]  
 [SecurityType 167=OPT]

1. The Complex Order Instrument must already exist prior to sending the order

**New IOC Complex Order Accepted that gets Partially Traded (no Exposure).<sup>22</sup>**



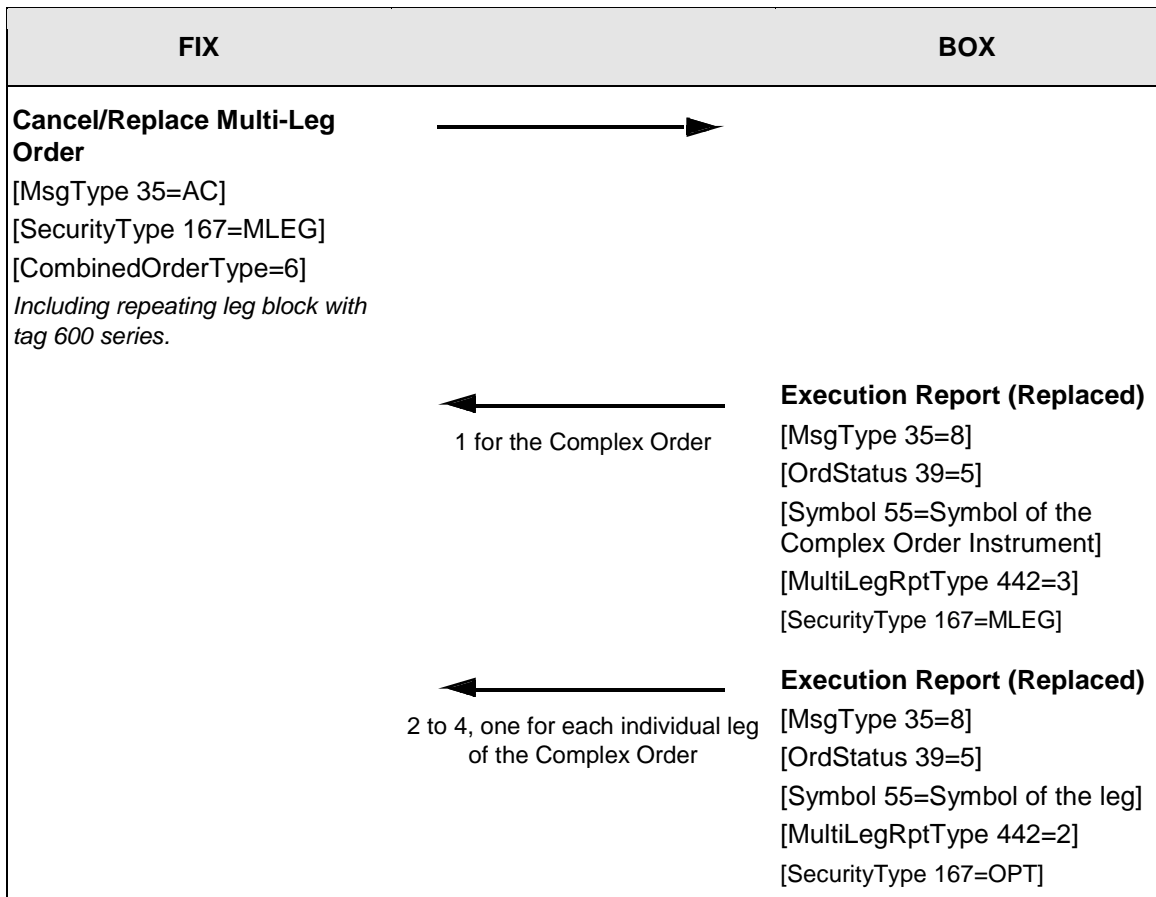
<sup>22</sup>The Complex Order Instrument must already exist prior to sending the order.

## 8.11 Complex Order Modification Processing

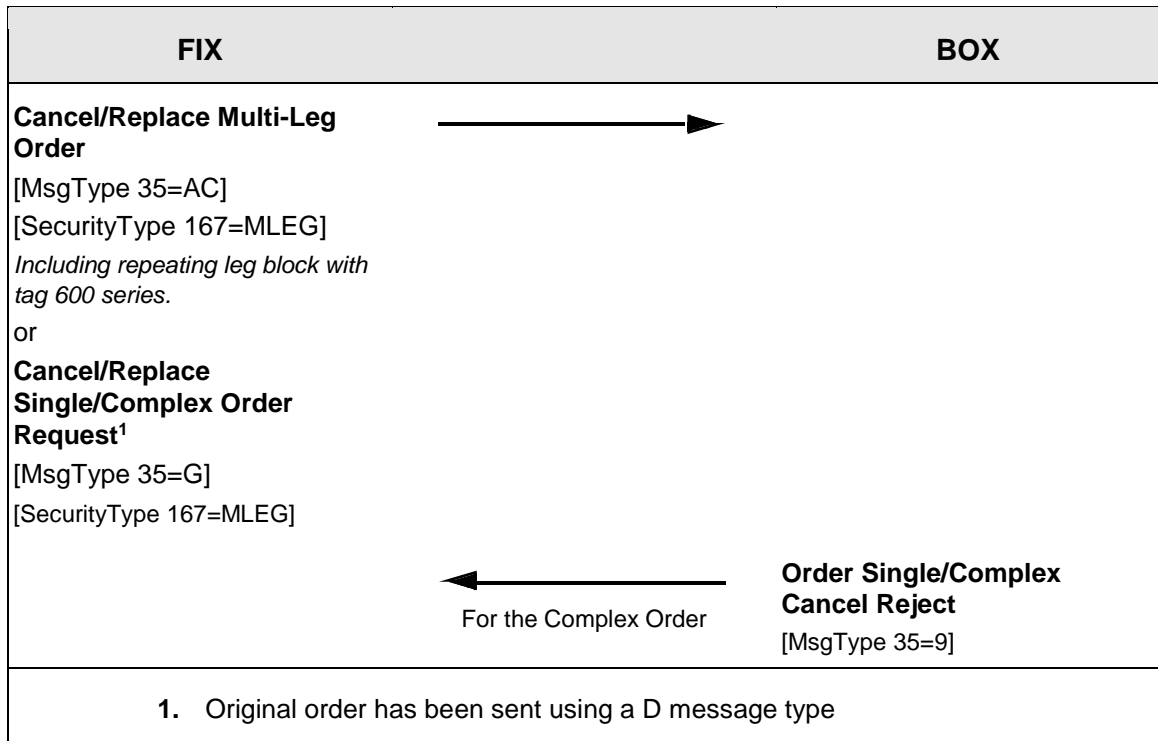
Complex Orders entered using the “AB” message type must be modified using the “AC” message type otherwise the Order Modification request is rejected.

Complex Orders entered using the “D” message type must be modified using the “G” message type otherwise the Order Modification request is rejected.

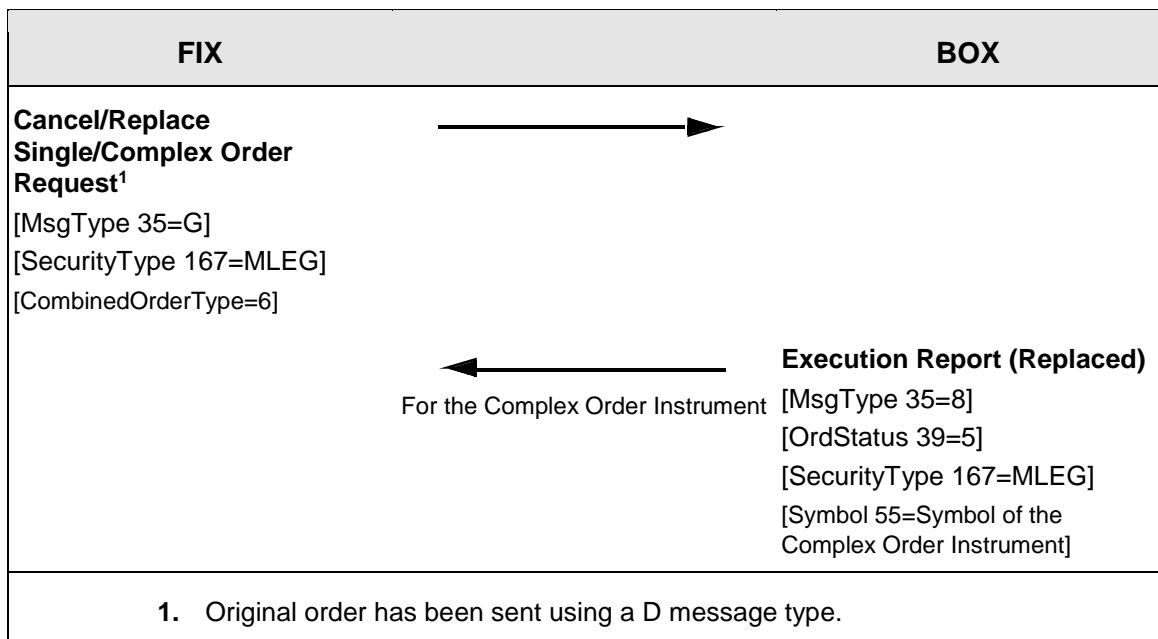
### Cancel/Replace Complex Order Accepted (no Exposure).



**Cancel/Replace Complex Order Rejected.**



**Cancel/Replace Complex Order Request Accepted (no Exposure).**

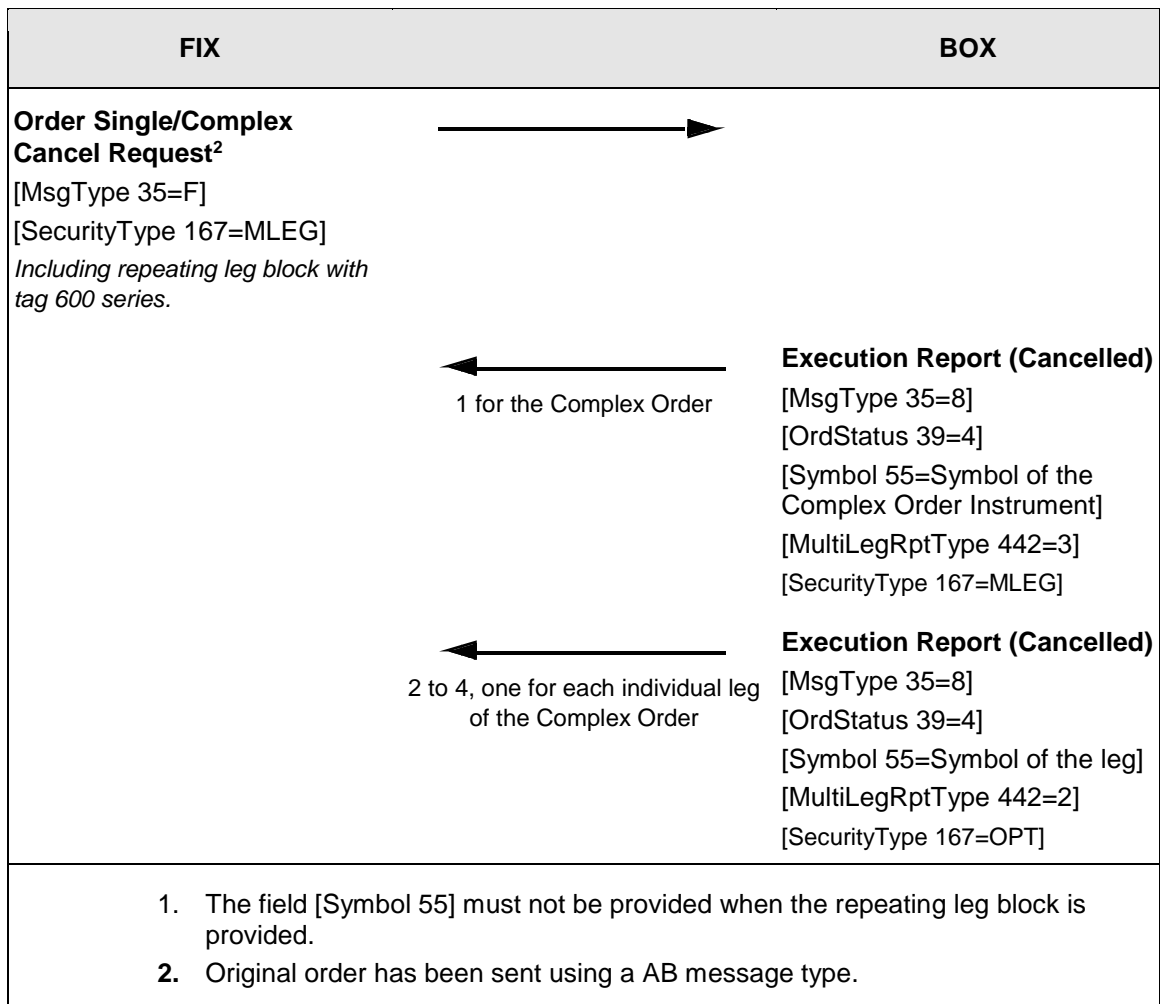


## 8.12 Complex Order Cancellation Processing

Complex Orders entered using the “AB” message type must be cancelled using the “F” message type including the leg block component identical to the one in the original order, otherwise the Order Cancellation request is rejected.

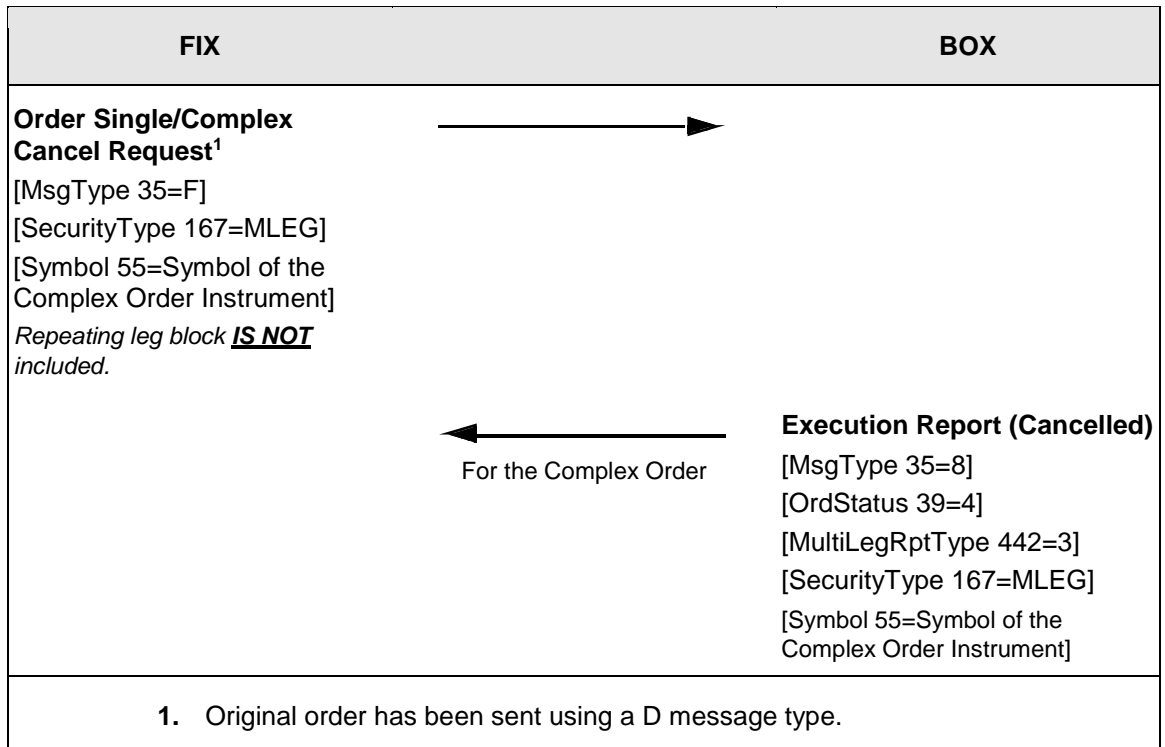
Complex Orders entered using the “D” message type must be cancelled using the “F” message type without the leg block component, otherwise the Order Cancellation request is rejected.

### Complex Order Cancel Request Accepted<sup>1</sup>

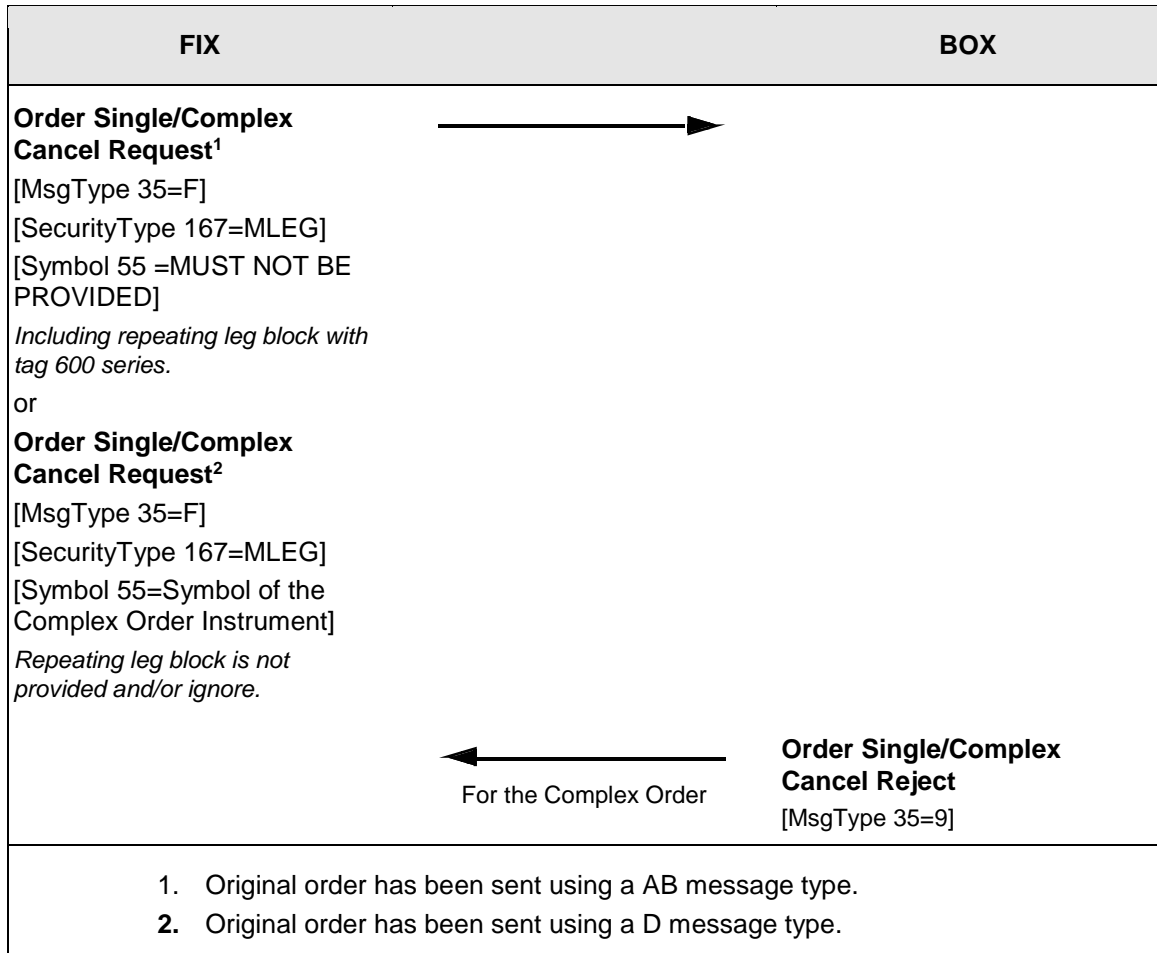






**Complex Order Cancel Request Accepted.**



**Complex Order Cancel Request Rejected.**

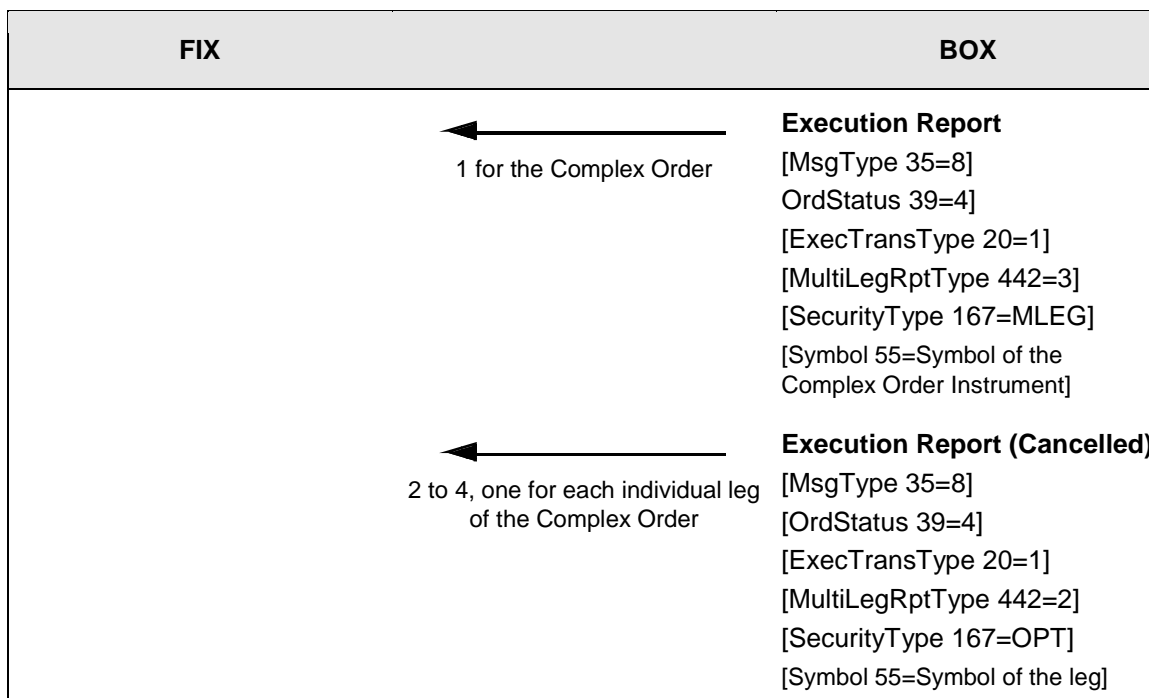


**Global Cancellation of all Complex Orders for a Participant Initiated by BOX MOC or Session Orders are Cancelled ([TimeInForce 59=W])**

FIX	BOX
 1 for the Complex Order	<p><b>Execution Report (Cancelled)<sup>1,2</sup></b>                      [MsgType 35=8]                      OrdStatus 39=4]                      [MultiLegRptType 442=3]                      [SecurityType 167=MLEG]                      [Symbol 55=Symbol of the Complex Order Instrument]</p>
 2 to 4, one for each individual leg of the Complex Order	<p><b>Execution Report (Cancelled)</b>                      [MsgType 35=8]                      [OrdStatus 39=4]                      [MultiLegRptType 442=2]                      [SecurityType 167=OPT]                      [Symbol 55=Symbol of the leg]</p>
<p>1. Will be sent for every booked order of the Participant.                      2. No [OrigClOrdID 41] is sent.</p>	

## 8.13 Complex Order Trade Messages

### Cancellation of a Complex Order Trade performed by BOX MOC



## 8.14 Complex Order Auction Phase Processing

The features supported and managed with the “PI” message type are: PIP, Solicitation, Facilitation and Customer Cross Order. The field [Auction Type 9383] allows Participants to specify what they want to do when they are sending “PI” message type.

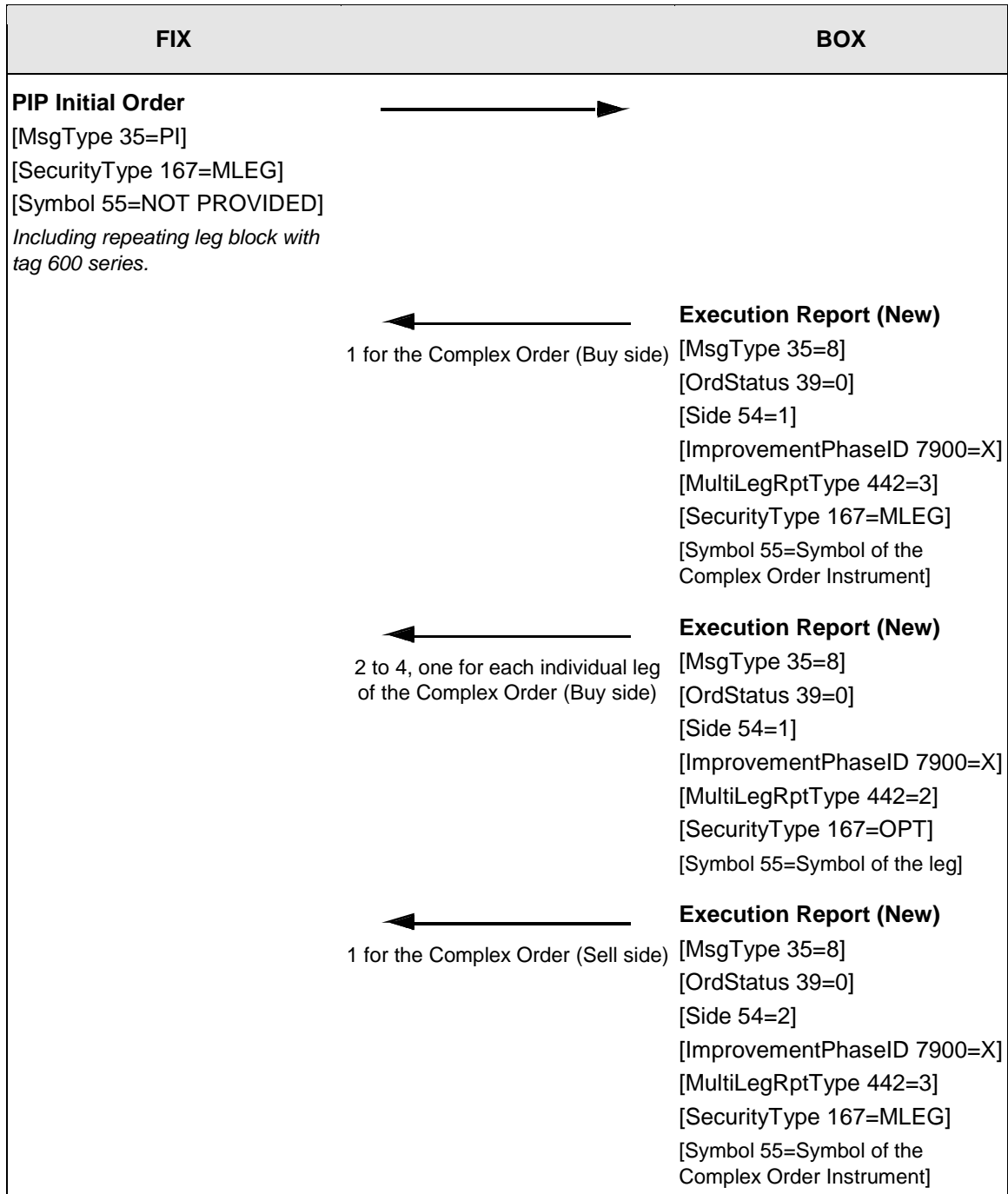
PIP Initial Complex Orders message entered for Solicitation and Facilitation auction types using the “PI” message type including the leg block component must be cancelled using the “F” message type otherwise the cancellation request is rejected.

PIP Initial Complex Orders message entered for Solicitation and Facilitation auction types using the “PI” message type not including the leg block component must be cancelled using the “F” message type without the leg block component, otherwise the cancellation request is rejected.

PIP Initial Complex Orders message entered for PIP including the leg block component must be improved using the “PI” message type including the leg block component otherwise the PIP Initial Order is rejected.

PIP Initial Complex Orders message entered for PIP not including the leg block component must be improved using the “PI” message type without the leg block component, otherwise the PIP Initial Order for the improvement is rejected.

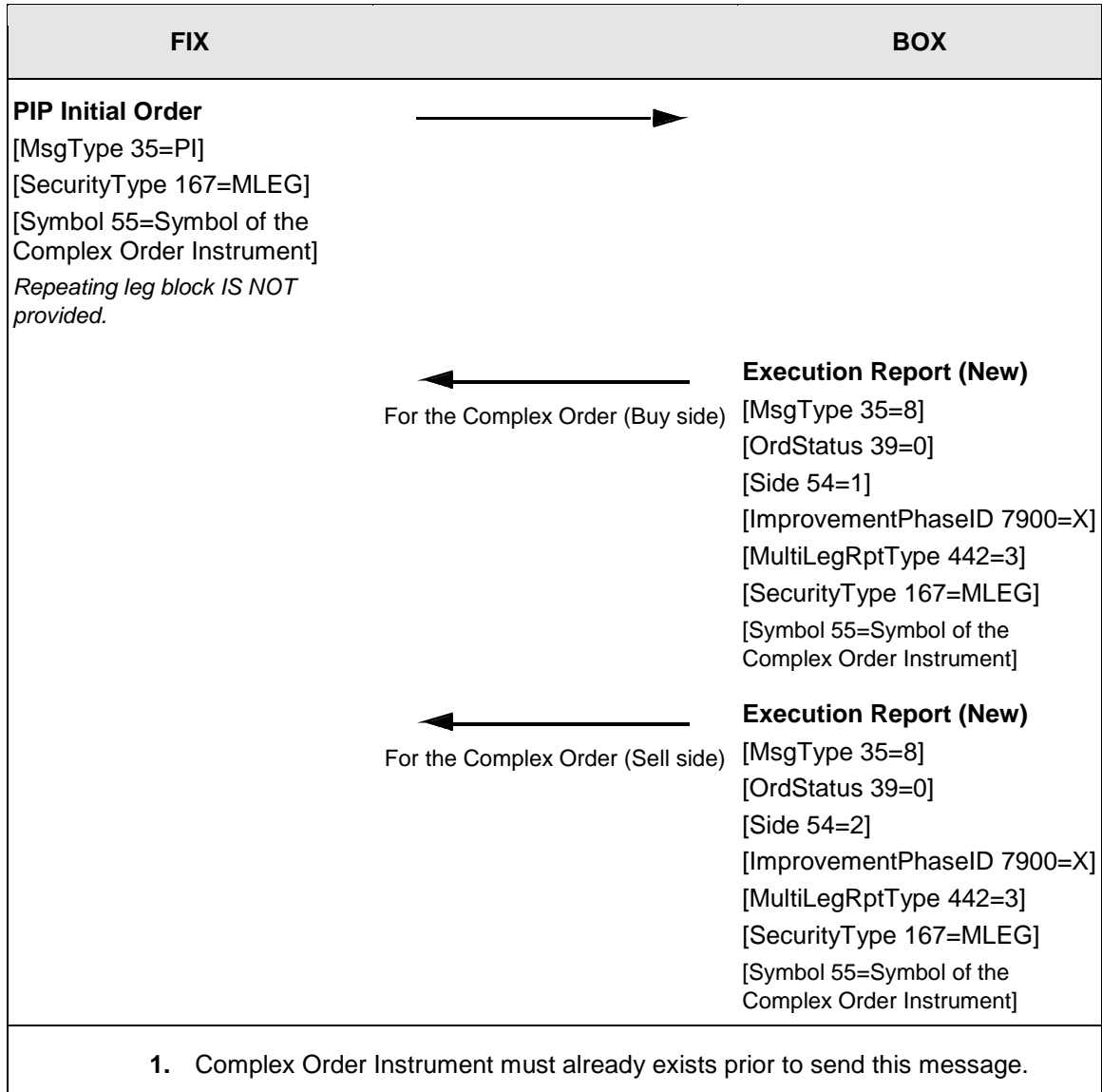
**PIP Initial Complex Order Accepted and gets Traded.<sup>1</sup>**



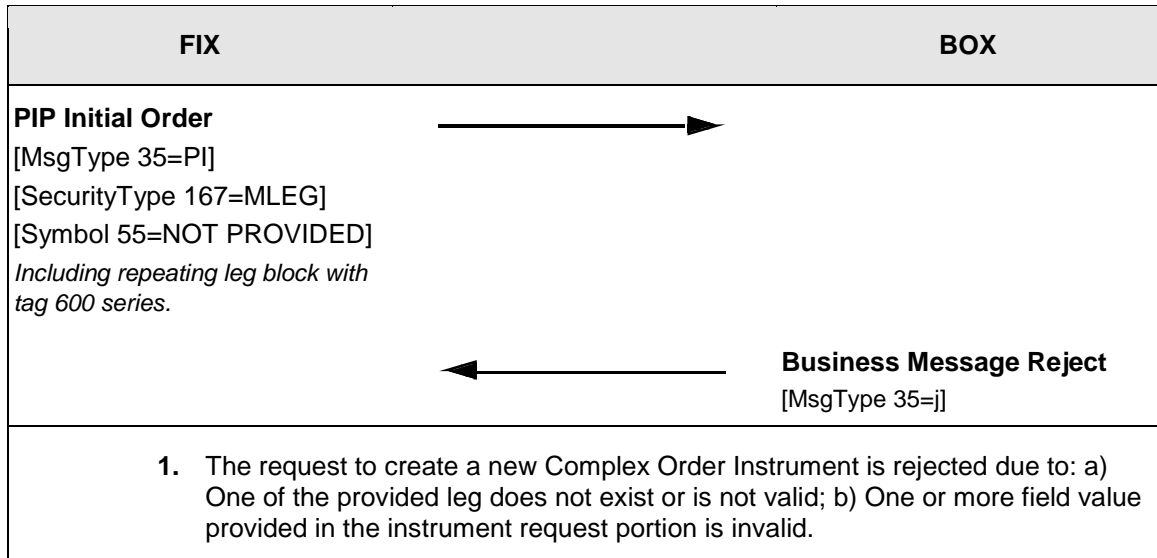
<p>←</p> <p>2 to 4, one for each individual leg of the Complex Order (Sell side)</p>	<p><b>Execution Report (New)</b>                  [MsgType 35=8]                  [OrdStatus 39=0]                  [Side 54=2]                  [ImprovementPhaseID 7900=X]                  [MultiLegRptType 442=2]                  [SecurityType 167=OPT]                  [Symbol 55=Symbol of the leg]</p>
<p>←</p> <p>1 for the Complex Order (Buy side)</p>	<p><b>Execution Report (Filled)</b>                  [MsgType 35=8]                  [OrdStatus 39=2]                  [Side 54=1]                  [ImprovementPhaseID 7900=X]                  [MultiLegRptType 442=3]                  [SecurityType 167=MLEG]                  [Symbol 55=Symbol of the Complex Order Instrument]</p>
<p>←</p> <p>2 to 4, one for each individual leg of the Complex Order (Buy side)</p>	<p><b>Execution Report (Filled)</b>                  [MsgType 35=8]                  [OrdStatus 39=2]                  [Side 54=1]                  [ImprovementPhaseID 7900=X]                  [MultiLegRptType 442=2]                  [SecurityType 167=OPT]                  [Symbol 55=Symbol of the leg]</p>
<p>←</p> <p>1 for the Complex Order (Sell side)</p>	<p><b>Execution Report (Filled)</b>                  [MsgType 35=8]                  [OrdStatus 39=2]                  [Side 54=2]                  [ImprovementPhaseID 7900=X]                  [MultiLegRptType 442=3]                  [SecurityType 167=MLEG]                  [Symbol 55=Symbol of the Complex Order Instrument]</p>
<p>←</p> <p>2 to 4, one for each individual leg of the Complex Order (Sell side)</p>	<p><b>Execution Report (Filled)</b>                  [MsgType 35=8]                  [OrdStatus 39=2]                  [Side 54=2]                  [ImprovementPhaseID 7900=X]                  [MultiLegRptType 442=2]                  [SecurityType 167=OPT]                  [Symbol 55=Symbol of the leg]</p>

1. Complex Order Instrument is created with this message or already exists.

**PIP Initial Complex Order Accepted - Instrument already exists<sup>1</sup>**



**PIP Initial Complex Order - Instrument Creation is Rejected.<sup>1</sup>**



**8.15 Directed Complex Order**

Directed Complex Orders entered using the “AB” message type must be modified using the “AC” message type otherwise the Order Modification request is rejected.

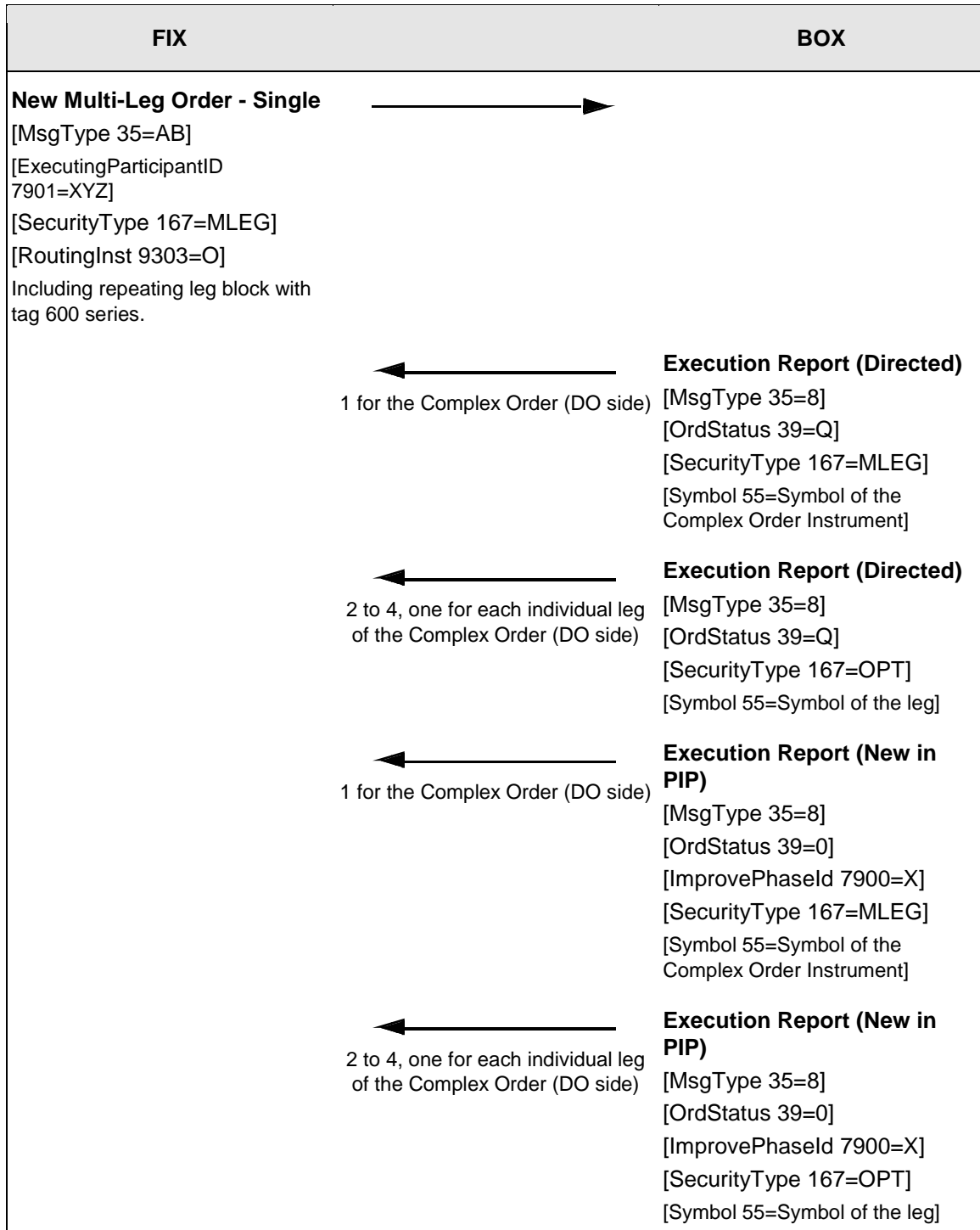
Directed Complex Orders entered using the “D” message type must be modified using the “G” message type otherwise the Order Modification request is rejected.

Directed Complex Orders entered using the “AB” message type must be cancelled using the “F” message type including the leg block component otherwise the Order Cancellation request is rejected.

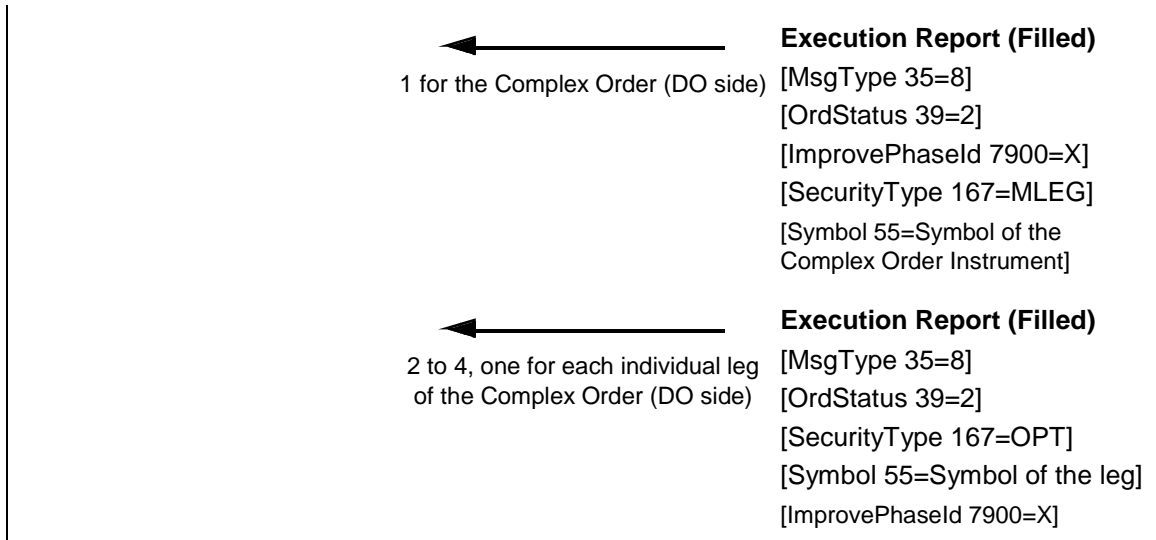
Directed Complex Orders entered using the “D” message type must be cancelled using the “F” message type without the leg block component, otherwise the Order Cancellation request is rejected.



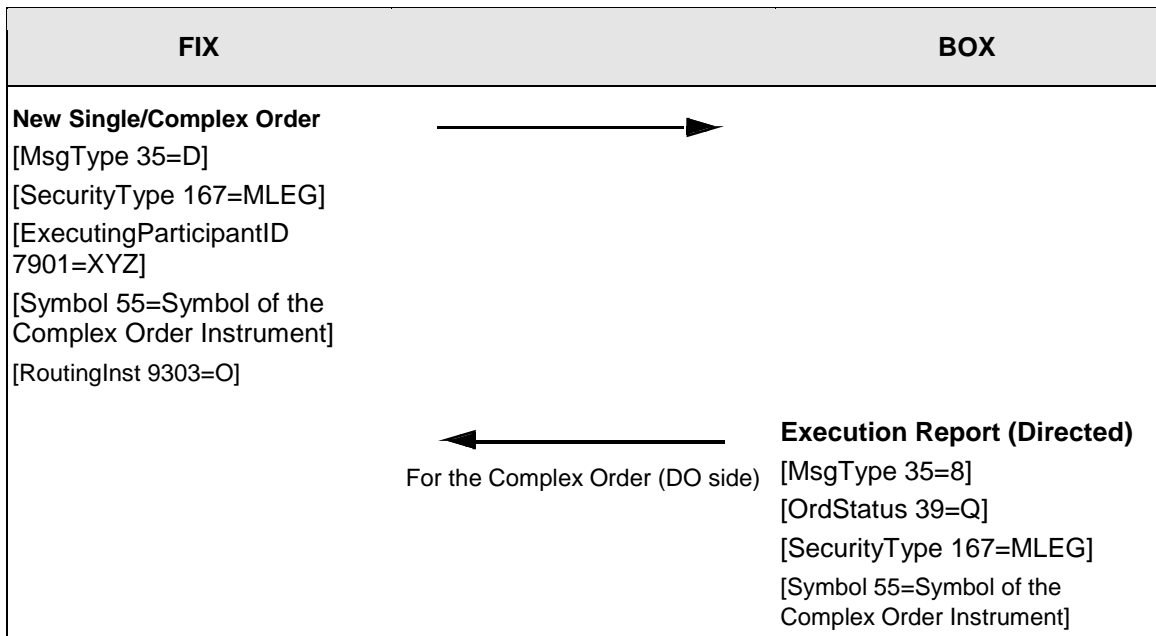
## Sending a Directed Complex Order that gets Accepted and Transformed into a PIP Initial Order<sup>23</sup>



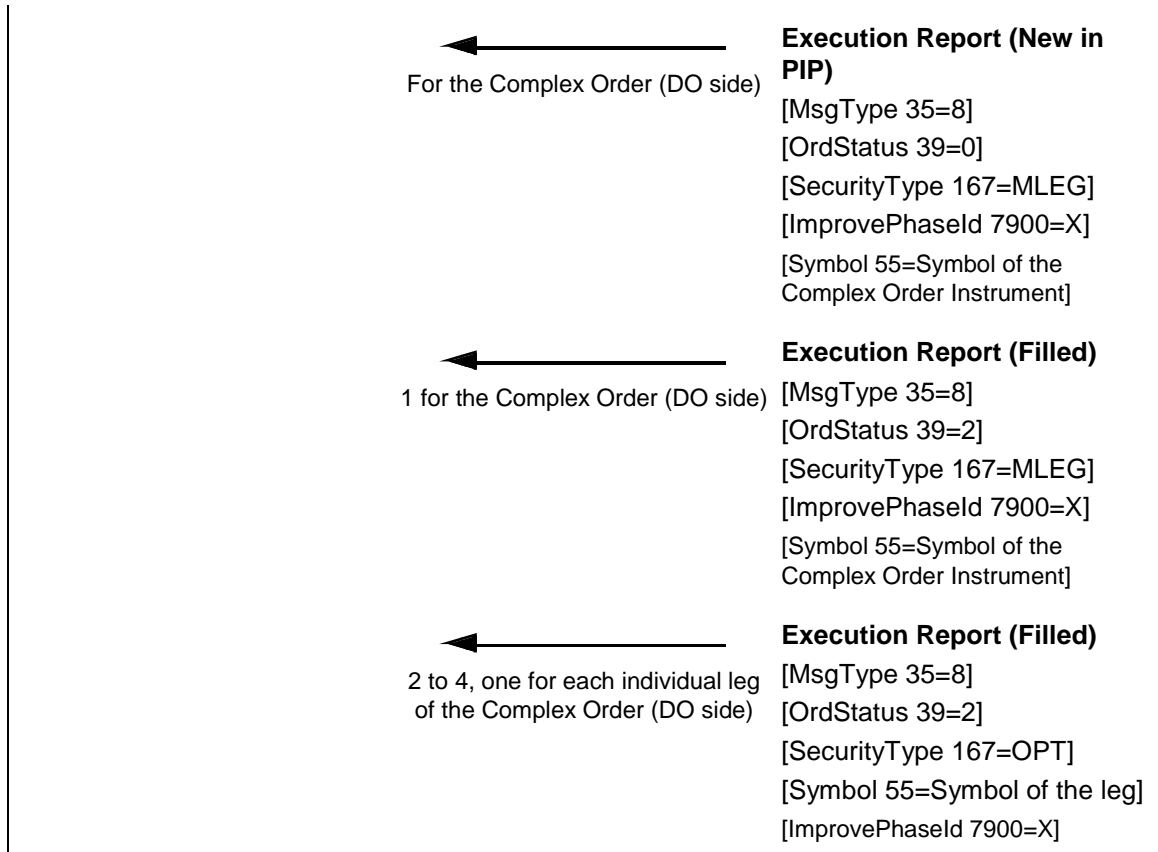
<sup>23</sup>Complex Order Instrument is created with this message or already exists.



**Sending a Directed Complex Order on an Existing Instrument that gets Accepted and Transformed into a PIP Initial Order<sup>24</sup>**

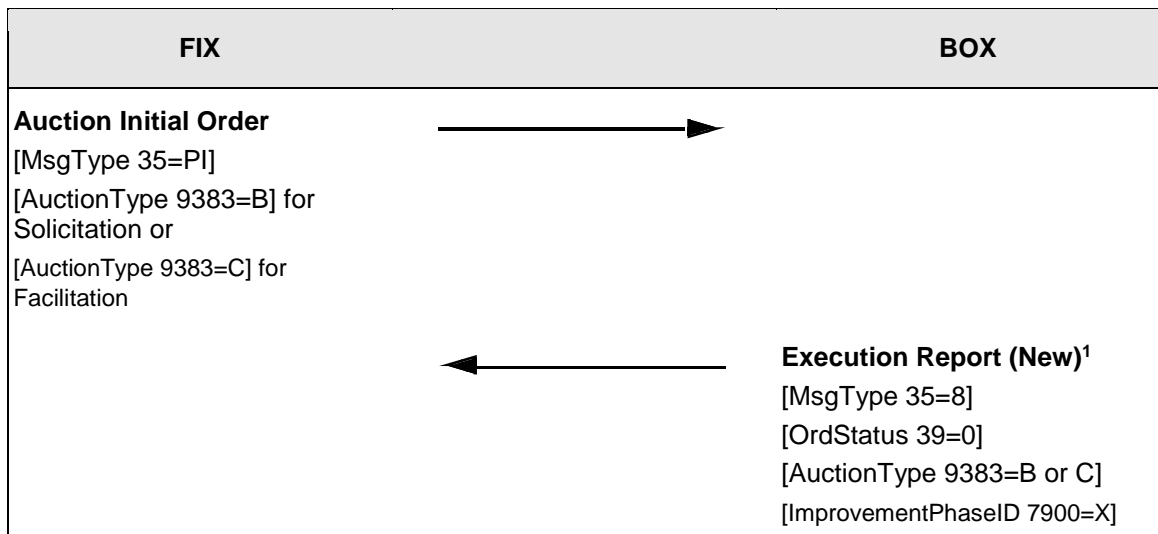


<sup>24</sup>The Complex Order Instrument must already exist prior to sending the Directed Order.



## 8.16 Solicitation / Facilitation Auctions

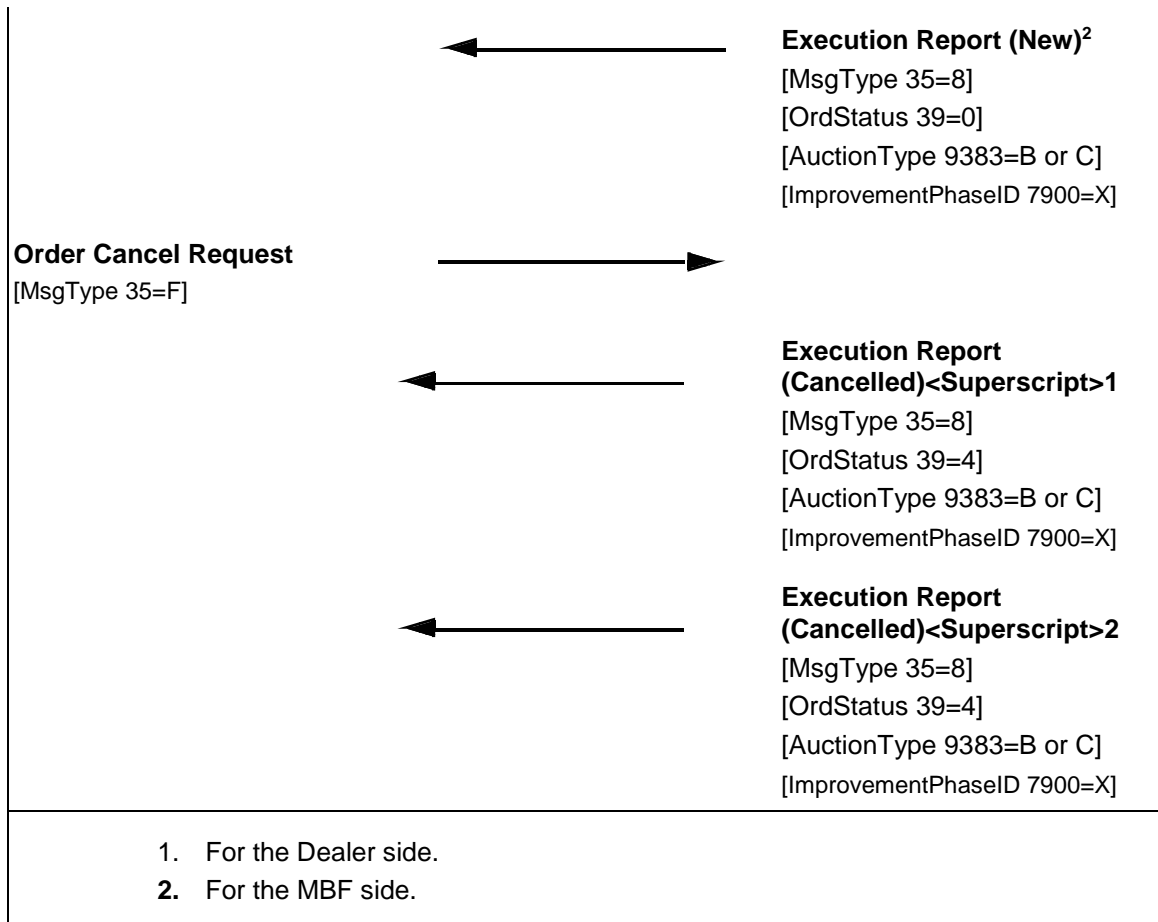
### Solicitation or Facilitation Auction Accepted and Traded



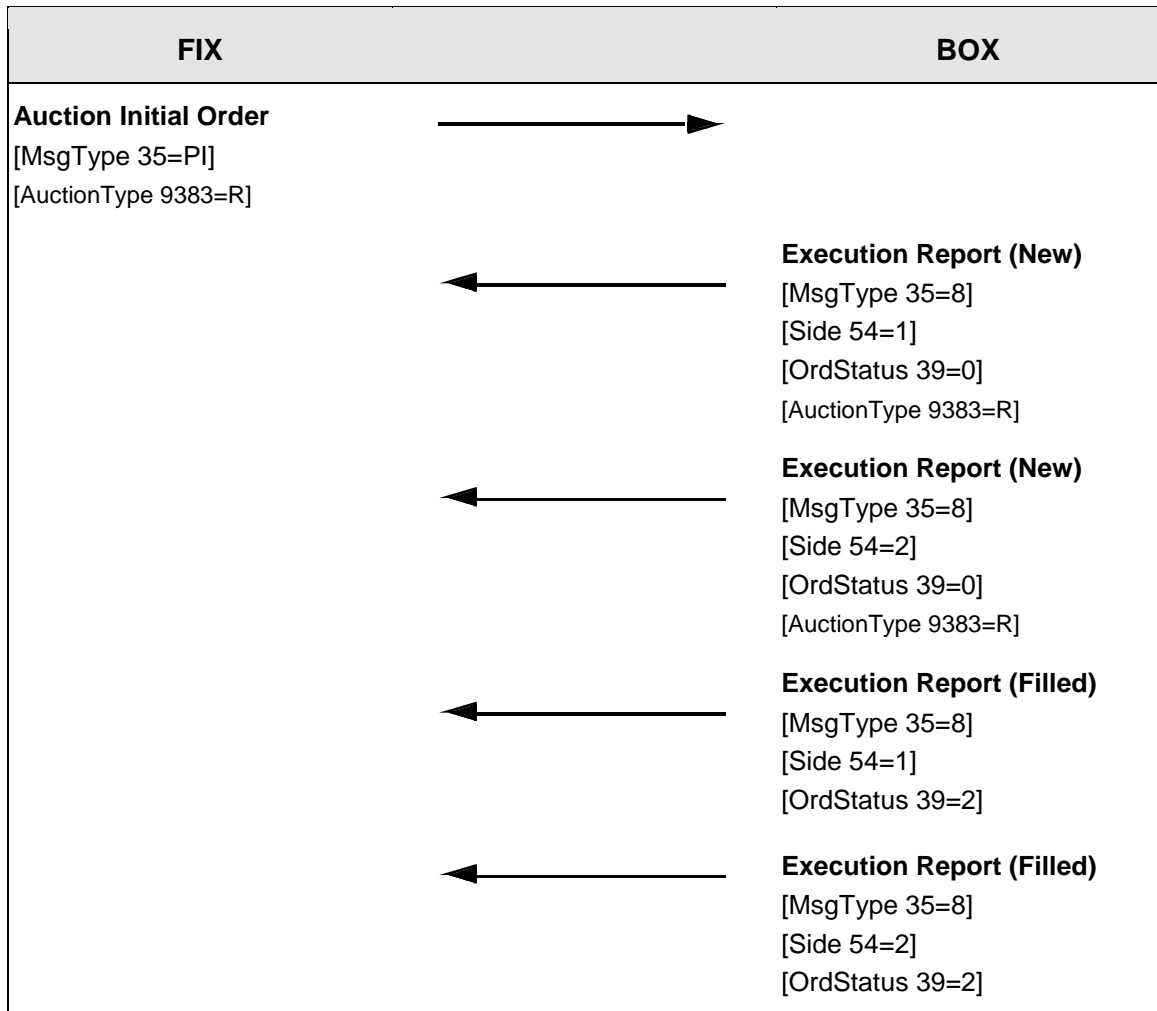
←	<p><b>Execution Report (New)<sup>2</sup></b>                  [MsgType 35=8]                  [OrdStatus 39=0]                  [AuctionType 9383=B or C]                  [ImprovementPhaseID 7900=X]</p>
←	<p><b>Execution Report (Filled)<sup>1</sup></b>                  [MsgType 35=8]                  [OrdStatus 39=2]                  [[AuctionType 9383=B or C]                  [TrdType 828=B or C]                  [ImprovementPhaseID 7900=X]</p>
←	<p><b>Execution Report (Filled)<sup>2</sup></b>                  [MsgType 35=8]                  [OrdStatus 39=2]                  [AuctionType 9383=B or C]                  [TrdType 828=B or C]                  [ImprovementPhaseID 7900=X]</p>
<p>1. For the Dealer side.                  2. For the MBF side.</p>	

**Solicitation or Facilitation Auction Accepted and Cancelled.**

FIX	BOX
<p><b>Auction Initial Order</b>                  [MsgType 35=PI]                  [AuctionType 9383=B] for                  Solicitation or                  [AuctionType 9383=C] for                  Facilitation</p>	→
←	<p><b>Execution Report (New)<sup>1</sup></b>                  [MsgType 35=8]                  [OrdStatus 39=0]                  [AuctionType 9383=B or C]                  [ImprovementPhaseID 7900=X]</p>

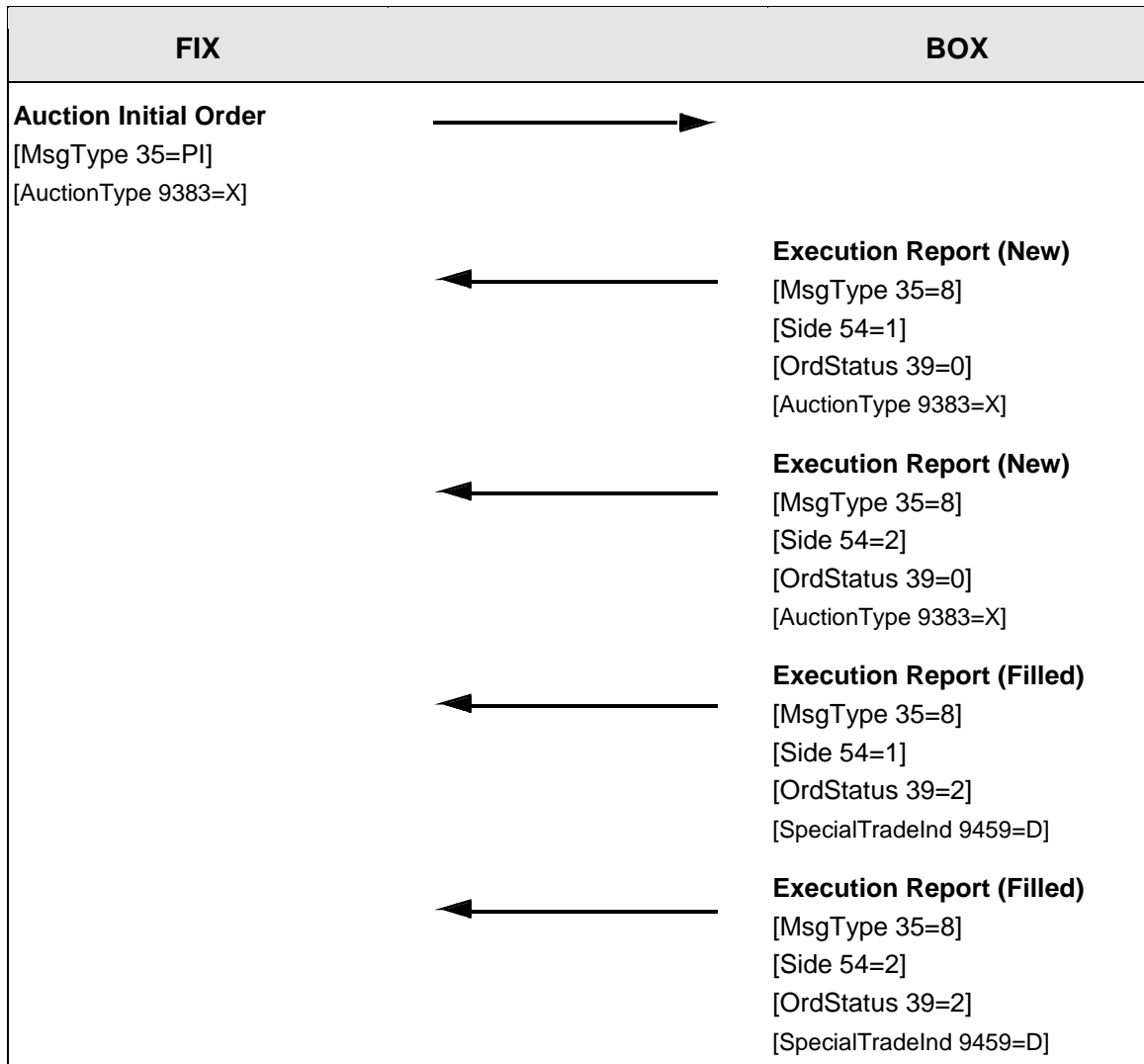


## 8.17 Floor Trade Entry



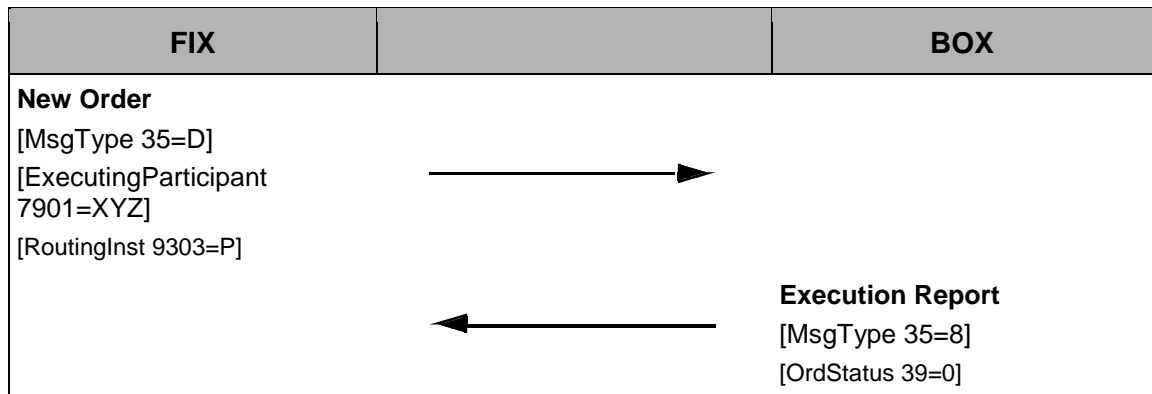
## 8.18 Customer Cross Order

### Customer Cross Order Accepted and Traded

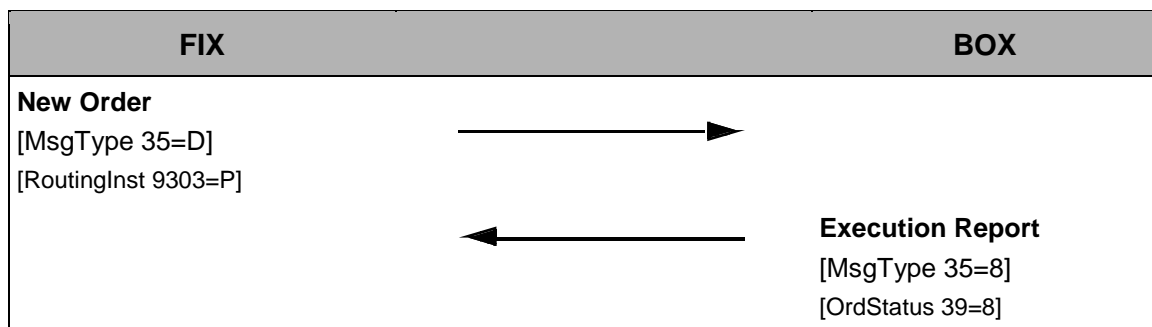


## 8.19 Preferred Order Processing

### Preferred Order Entered with a Market Maker

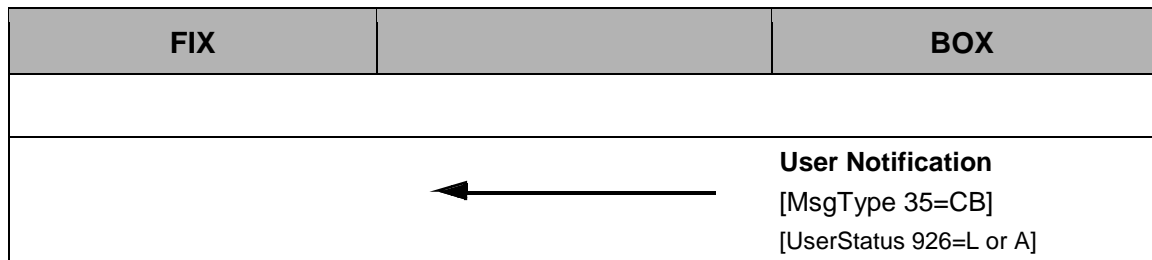


### Preferred Order Entered without a Market Maker



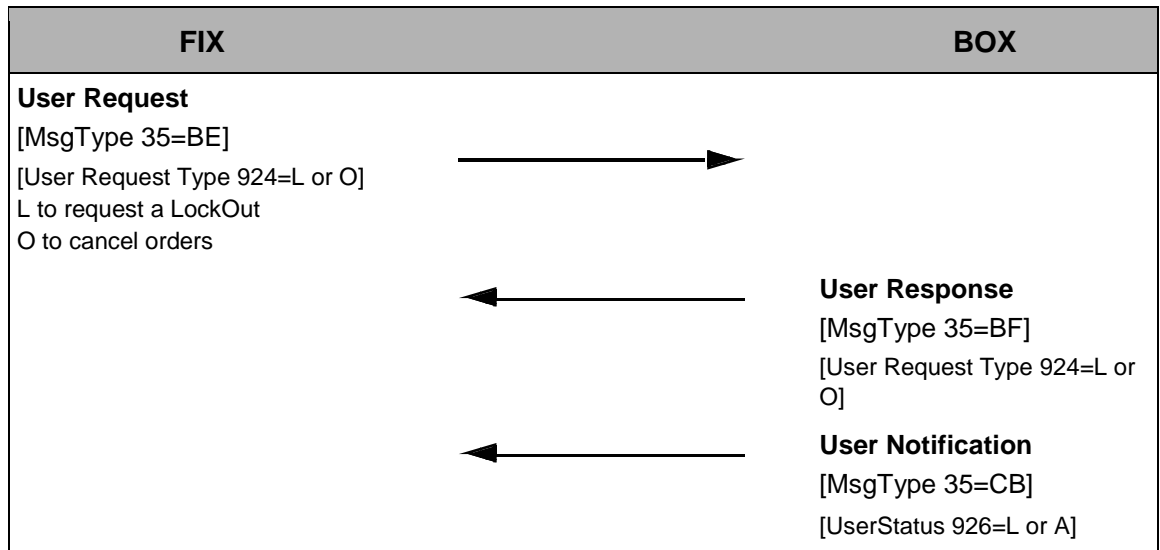
## 8.20 Lock-Out Indication Notification

### Lock-Out due to Exceeded Limit or Initiated by MOC





### Lock-Out Initiated by Participant



## Appendix A Theoretical Opening Price (TOP) Calculation

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### A.1 Calculation

This section summarizes and demonstrates the Theoretical Opening Price (TOP) calculation process during the pre-opening phase. In the pre-opening phase, bids and offers are sent as normal. However, instead of trading immediately, orders are simply collected by BOX to be matched only at the opening. As soon as a Market at Open order is entered, the system will begin the calculation of the TOP. In most cases, this calculation will proceed as follow:

- The system will look for the best available price on the opposite side of the Market at Open order(s).
- If the quantity available at this price level is not sufficient to fill all the Market at Open orders entered, the system will look for the next best limit and add up the quantity available at this price level to the one found at the previous price level. This will go on for as long as the total quantity found is lower than the total quantity of all Market at Open orders.
- As soon as enough quantity has been found, the system will use the last limit found as the current TOP.

### A.2 TOP

At the opening, the TOP becomes the opening price. All Market at Open orders will trade at the opening price against opposing limit orders with a price equal or better than that the TOP.

## Appendix B Clearing

---

This section aims to inform BOX Options Participants of the procedures to be followed so that information related to trades is transmitted properly to The Options Clearing Corporation (OCC). This appendix should be used in conjunction with the [TMS-BX-06E SOLA® TMS User Guide](#). It is to be noted that the purpose of this appendix is not to define the Clearing procedures at OCC. Participants should communicate with their OCC Representative for all questions pertaining to the Clearing procedures at OCC.

### B.1 BOX and OCC

All options traded on BOX are cleared by the OCC. As such, BOX traded options are fungible with those traded on other US equity options Exchanges. All trade information is transmitted to OCC by BOX at the end of each business day and is made available to Options Participants on OCC Interfaces at T+1.

#### Clearing Identification and OCC

In order for options trades to be processed properly under the appropriate Clearing Member at OCC, BOX Options Participants must provide BOX with their OCC Clearing Member name and number.

BOX will configure this information as being the default OCC Clearing Member number.

At the order entry level, if BOX Options Participants omit to specify the Clearing Member information, BOX will assign the default OCC Clearing Member number configured for the BOX Options Participant.

### B.2 Customer and Proprietary Clearing

#### Pre-Trade Clearing

At the order entry level (pre-trade), traders may specify, in the appropriate order entry field, the clearing information for Customer and Proprietary trading, such as CMTA, Give-Up and account number. This information will be transmitted to OCC by BOX at the end of the trading day.

Participants using the FIX protocol enter this information in the Account-1 field. These references are mapped to the right clearing information and are controlled through the TMS application.

If no information is provided at the order entry level, the default OCC clearing account number configured for the CompID is used.

#### Post-Trade Clearing

All clearing information on Customer or Proprietary trades can be modified through the Trade Management Software (TMS) on same day trading (T0) or through the

OCC system on T+1. BOX Options Participants must refer to the TMS User Guide for instructions on how to modify trade information on TMS.

### **Trade Allocation**

Trade allocations can be executed through the TMS application. Options Participants must refer to the TMS User Guide for instructions on how to allocate trades on TMS.

The CMTA and Give-Up Agreements are electronic agreement that is completed via the OCC Clearing system. Participants are offered two alternatives to effect clearing assignment of their BOX trades to their OCC Clearing Members of choice.

- At order entry, BOX Options Participants using the FIX protocol should enter the CMTA information in the [ClearingFirm 439] field and their Give-Up information in the [ExecBroker 76] field.
- CMTA and Give-Up can be executed through the TMS application. Options Participants must refer to the TMS User Guide for instructions on how to allocate trades on TMS.

All CMTAs and Give-Ups are validated at OCC. Invalid CMTAs and Give-Ups are treated by OCC in accordance with their applicable policy. BOX does not verify the validity of the CMTA and Give-Up indication.

## Appendix C Acronyms

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**Table 3: Acronyms**

TERM	DEFINITION
CMTA	Clearing Member Trade Assignment
FIX	Financial Information Exchange
IML	Inter Market Linkage
MBF	Must Be Filled
OCC	Options Clearing Corporation
OLA	Options Linkage Authority
TMS	Trade Management Software
TOP	Theoretical Opening Price

**Table 4: Terminology**

TERM	DEFINITION
Participant	A Participant is a firm that has one or several traders who can trade in BOX through one or several connection.
Client	A computer system able to interact with the BOX electronic trading platform and to support the specific range of functionality required by the firm's trading activities.
Connection	A Connection is a physical link between the Client and BOX. A Participant may have multiple connection (see Appendix B for details)
Trader	A Trader is the owner of Orders and Quotes that are sent to the BOX Trading System. Several Traders can use the same connection to send messages to the Exchange. The Trader Identifier must be present in all Business messages sent to BOX.
Group	Or Instrument Group: Refers to all instruments with the same underlying.
MOC	Market Operation Center which is the entity responsible for monitoring and regulating the BOX market.





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website: [www.m-x.ca](http://www.m-x.ca)