

# Electronic Information Environment (EIE) Project

## Materiel Management Service Operational Model

### EIE Project

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## 1 Overview and Scope

This document identifies common supply service interactions for Electronic Data Exchange (EDE) and Industry, the services invoked, the data objects included in the service, and relevant elements that are introspected to determine how to process the message payload.

Generally there is a high-level sequence diagram followed by a set of “rules”; either business rules that are not necessarily enforced by software, or actual interface software rules. The service interactions can span multiple services which are related by business context – there is no true orchestration of the messages per se. Where possible, this document also identifies error conditions.

This document establishes the runtime operational view of all the supply oriented services and calls out where applicable the specific constraints. The content in this document along with the specific “Service Specification Document” establishes the runtime model for Supply and its dependant services.

## 2 Service Interactions

The following service interactions are described from the perspective of a service being initiated either by Industry or Canada and the expected rules of engagement that should be followed<sup>1</sup>:

- Part Demand and Response
- Part Demand Fulfillment and Receipt – no Manifest
- Part Demand Fulfillment and Receipt – with Manifest
- Part Return and Receipt
- Mobility Kit<sup>2</sup> Demand and Response
- Mobility Kit Fulfillment and Receipt – with Manifest
- Mobility Kit Return and Receipt
- Inventory, Usage and Part Request Reporting
- Inventory Issue /Replenishment – no Manifest
- Inventory Issue /Replenishment – with Manifest
- DND Business Errors
- Industry Business Errors

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<sup>1</sup> Note that a platform does not need to implement all service interactions. This list of service interactions describes the scope of services supported by EDE.

<sup>2</sup> Mobility Kit is a generic term that encompasses Pickup Kits (PUK), Mobility Kits (MK), Ready Packs (RP)

### 3 Related Documents

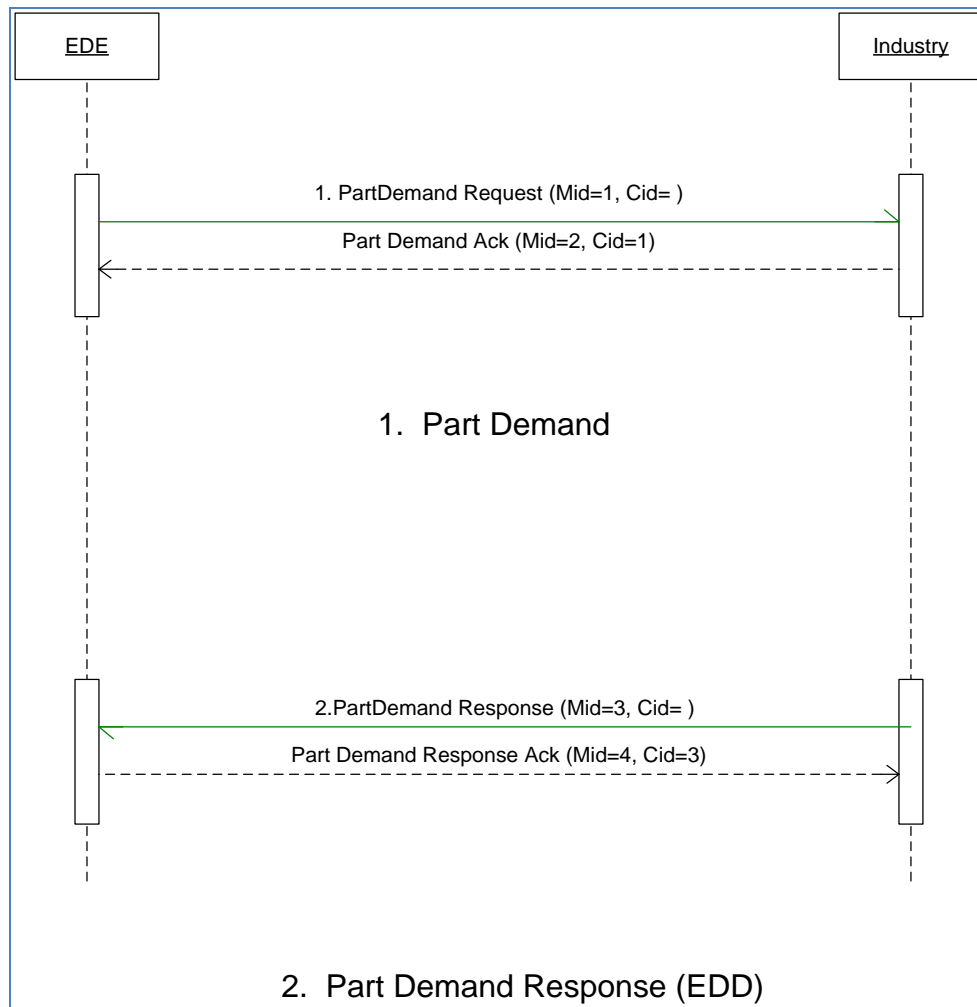
- [Ref. 1]      a. ISSCF Business Process Catalogue Annex B: Supply Process Model - In the Context of In-Service Support Contracting Framework (ISSCF)
- b. ISSCF Business Process Catalogue Annex I: Supply Process Model - In the Context of In-Service Support Contracting Framework (ISSCF)
- c. Performance Based Contracting (PBC) Process Catalogue Annex M: Navy Supply Process Model
- [Ref. 2]      Electronic Information Exchange Service Interaction Model
- [Ref. 3]      DRMIS Master Data Business Guidelines ISSCF fleets – Air Force

**Note1: Only applicable references will be made available to industry partner based on the adoption by the platform authority within Canada – DND, since not all references are applicable to all platforms/fleet.**

**Note2: In order to determine the specific version of references included in here, the reader is advised to read the accompanying ‘Release Notes’ for the Supply business domain that accompanied the release of this document.**

## 4 Terminology and Notation

Sequence diagrams throughout this document follow the following pattern:



**Figure 4-1 Sequence Diagram Notation**

In the above sequence diagram, the service names are representative of the action being performed rather than the actual service/operation name. The service name is depicted with the following parameters:

Mid – Message ID for this service interaction

Cid – Correlation ID for this service interaction. In the diagram it will tie back to one of the previously defined Mid's.

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The Ack represents the Output message expected to confirm receipt of the message.

## 5 Part Demand and Response

A Part Demand message may be initiated by Canada Maintenance System (CMMS) when a Work Order is released<sup>3</sup>. A Part Demand message is expressed as a Purchase Order (PO), and may include many parts, known as line items within the PO.

Additionally, a part demand message will be initiated for requesting a Mobility Kit<sup>4</sup>

Optionally, a Part Demand message may be sent for material that is not available within inventory that is in Canada's custody for fleets that have this model of inventory management.

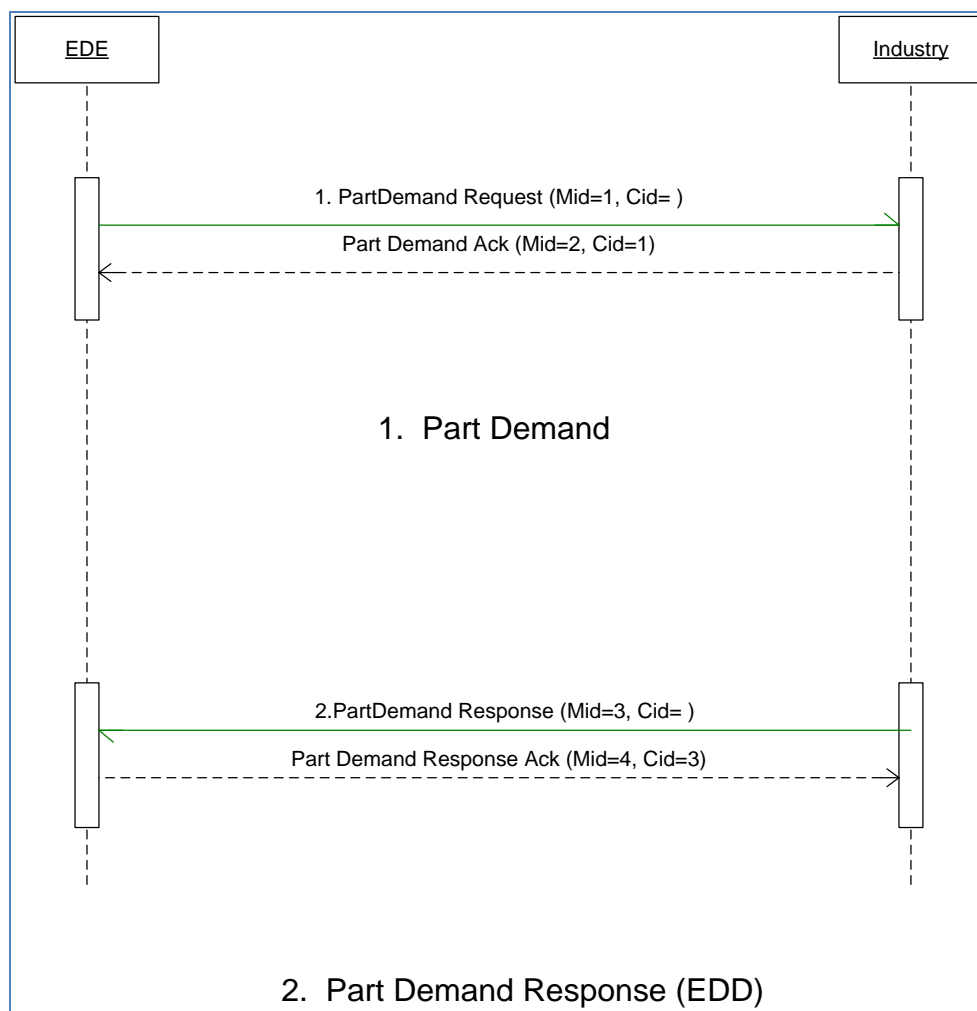
Once EDE delivers a Part Demand message to Industry, Industry will send a technical acknowledgement using the Output message definition for the service. Industry will then respond with a Part Demand Response message, which indicates the Estimated Date of Delivery (EDD) for the demanded parts. EDE will send a technical acknowledgement message back.

Industry may update the EDD through subsequent Part Demand Response messages, should they need to change the delivery date.

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<sup>3</sup> For WS which subscribe to this model.

<sup>4</sup> Mobility Kit is a generic term that encompasses Pickup Kits (PUK), Mobility Kits (MK), Ready Packs (RP)



**Figure 5-1 Part Demand and Response Interaction**

## 5.1 Business Rules Part Demand Message (EDE->Industry)

- Part Demand message will only be for one PO.
- Canada Supply System (CSS) may send an update part demand or cancel part demand message. Updates or cancel actions will be per line item.
- Industry will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Part Demand request message.

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### 5.1.1 Business Error Processing

- Industry will report errors on all line items within a Part Demand message in one message.
- Where possible, CSS will correct line item data based upon reported errors, and generate a new Part Demand message with a new Purchase Order Number. CSS will not re-use the initial Purchase Order Number. CSS will do the following:
  - Send only the corrected line items in a new Part Demand message, with a new Purchase Order number. In this case, only some of the line items in the original Part Demand message will ever be satisfied, while all items of the new Part Demand message are expected to be satisfied.

## 5.2 Business Rules Part Demand Response (Industry -> EDE)

- Industry is expected to send a Part Demand Response message for each part Demand message. In the Part Demand Response message, the Correlation ID is blank.
- The initial Part Demand Response message should include all line items sent as part of the Part Demand message.
- For a given line item, Industry may send multiple EDD lines to represent different delivery dates for partial delivery. For example, Canada demands quantity 10 of part XYZ, 5 are available now, 2 next week, 3 next month. This would be represented as 3 EDD lines against the line item.
- Industry may send multiple Part Demand Response messages for the same Part Demand message to update delivery dates. As delivery for long leadtime part may be weeks, Industry may send multiple Part Demand Response messages for a single Part Demand over an extended period of time as expected delivery date is refined.
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Part Demand Response message.

### 5.2.1 Business Error Processing

- Canada will report errors on all Part Demand Response line items within a Purchase Order in one message.
- Where possible, Industry will correct line item data based upon reported errors, and generate a new Part Demand Response message using the same Purchase Order number. Industry will do the following:

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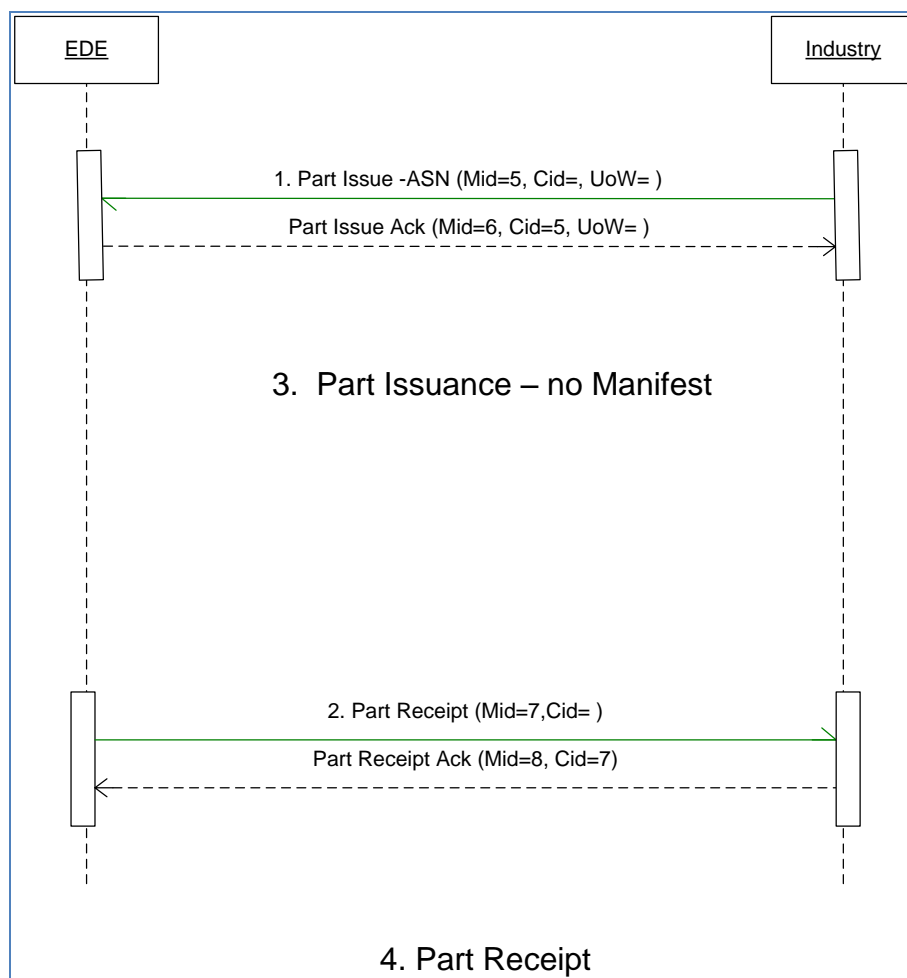
- Industry will send only the corrected line items in the new Part Demand Response message, with the original Purchase Order number. For any given line item, Part Demand Response must satisfy entire outstanding quantity for that line item.

## 6 Part Demand Fulfillment and Receipt – no Manifest

When Industry is ready to deliver parts to Canada, and none of the parts being delivered require additional Equipment Master Record (EMR, EMR Measurement, Measurement Point or Maintenance Plan (MP) data), Industry will send a Part Issuance message (aka Advanced Shipping Notice (ASN), and EDE will send a technical acknowledgement using the Output message definition for the service. This scenario would be for non-serialized parts.

A Part Issuance message may address some or all of the line items of the Part Demand message, depending upon how many items are available for delivery. The Part Issuance message may also only address part of the quantity requested (e.g. requested 10 of part XYZ, delivering only 5 now). Canada expects all line items available for a Part Demand to be included in a single Part Issuance message, not a single Part Issuance message per line item or serial number.

Upon receipt of the parts, EDE will send a Part Receipt message to Industry, and Industry will send a technical acknowledgement using the Output message definition for the service.



**Figure 6-1 Part Issuance and Receipt - no Manifest**

## 6.1 Business Rules – Part Issuance Message (Industry -> EDE)

- A Part Issuance message will only be for one PO. Although the schema supports more than one PO, the CSS operational model does not support it
- Industry will not populate the Unit of Work ID in this message. If the Unit of Work ID is populated, EDE will treat the message as part of a Manifest. (See next interaction process).
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Part Issuance message.

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### 6.1.1 Business Error Processing

- Canada will report errors on all Part Issue line items within a Purchase Order in one message.
- Where possible, Industry will correct erroneous line item data based upon reported errors, and generate a new Part Issue message using the same Purchase Order number, and including only the corrected line items within the Part Issue message.

## 6.2 Business Rules -Part Receipt Message (EDE -> Industry)

- CSS will send one Part Receipt message for all parts received in the PO. EDE will transform and send the messages to Industry as they are received.
- Correlation ID for Part Receipt is null; it does not have to tie back to the Part Issuance message.
- Industry will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Part Receipt message.

### 6.2.1 Business Error Processing

- Industry will report errors on all Part Receipt line items within a Purchase Order in one message.
- Resolution of the errors will be a manual process within CSS, since CSS does not support correcting a previously transmitted part-receipt message.
- Industry will have to manually adjust their information as well for the part receipt message that was sent from Canada against which industry reported errors.

## 7 Part Demand Fulfillment and Receipt – with Manifest

When Industry is ready to deliver parts to Canada and some or all of the parts being delivered do require additional EMR, EMR Structure (for complex assemblies), EMR Measurement, Measurement Point or Maintenance Plan (MP) data, they will issue a Part Issuance message (aka ASN) in the context of a Manifest<sup>5</sup>. Note that each Weapon System may have different requirements in terms of which additional data sets are required.

In this case, Industry will send a Unit of Work Manifest message which declares what other message types are to be expected. Please note that the additional data sets required is dependent upon the requirements of the platform being supported – not all platforms require all of these listed data sets namely EMR, EMR Structure, EMR Measurement, Measurement Point or Maintenance Plan (MP) data. The Manifest has a unique identifier known as a Unit of Work ID. Industry will then send the following messages, if required:

- Part Issuance
- EMR /EMR Structure
- Measurement Point
- EMR Measurement
- Maintenance Plan

All of the above five messages are optional (although at least one must be there), and all will include a reference to the Unit of Work ID in the message header. Industry may send these messages in any order, once the Unit of Work Manifest has been sent and acknowledged by Canada EDE.

As noted earlier, a Part Issuance message may address some or all of the line items of the Part Demand message. The Part Issuance message may also address some or all of the quantity requested. Canada expects all line items available for a Part Demand to be included in a single Part Demand Fulfillment message, not a single Part Demand Fulfillment message per line item or serial number.

Canada will respond with a Part Receipt message once parts are receipted into CSS.

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<sup>5</sup> Please refer to DRMIS Master Data Business Guidelines ISSCF fleets – Air Force [Ref. 3] for a definition or an equivalent document provided by the specific platform/fleet Project Management office (PMO) for which parts require additional master data, since it is contingent on the specific maintenance program requirement and model of the platform/fleet.



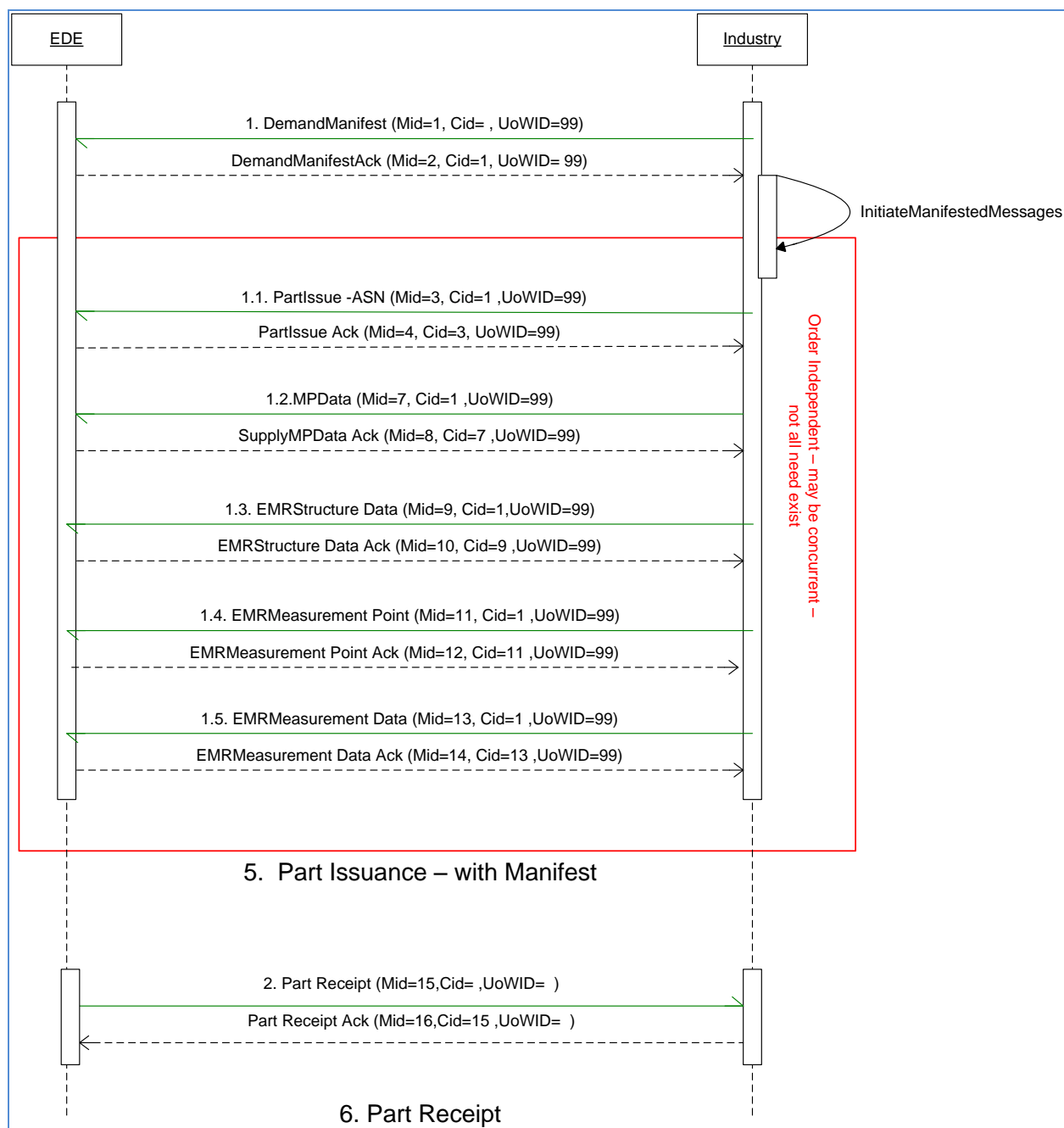


Figure 7-1 Part Issuance with Manifest

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## 7.1 Business Rules Unit of Work Manifest Message (Industry-> EDE)

- The Unit of Work Manifest message is consumed by EDE and used to govern delivery to CSS and CMMS as applicable.
- The manifest must declare included message types and object counts (ASN, EMR/EMR Structure, EMR Measurement, Measurement Point, Maintenance Plan (MP))
- A Manifest may be comprised of any combination of the above five message types.
  - An ASN message is not always required. There are scenarios where Industry sends corrections to EMR or MP data after CSS has accepted the ASN data thus resulting in no ASN message being sent.
  - If there is only an ASN, it does not need a Manifest (see previous scenario). However, there is nothing that prevents Industry from sending an ASN-only manifest.
  - All subsequent messages that reference the Manifest must include Manifest Unit of Work ID in their message header.
  - EDE will validate that the Unit of Work ID is known, and that it aligns to a Manifest message type.
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Manifest messageID.
- Industry will not send any Manifest-related messages (ASN, EMR/EMR Structure, EMR Measurement, Measurement Point and MP) until EDE returns an acknowledgement for the initial Manifest message through the Manifest output message definition.
- All subsequent messages that reference the Manifest must include Manifest message ID in their Correlation ID as well as the UOW ID that was initially declared in the Manifest message.
  - EDE will validate that the CorrelationID and UOW ID are known, and that it aligns to a Manifest message type.
- For each subsequent message type, EDE will count the message business objects, and verify against Manifest declared business object count.
- Error conditions
  - In the event of any technical error condition against any message associated with a Manifest, EDE will not process any further associated manifest messages.

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- EDE receives too many objects vs. Manifest count
  - EDE returns a fault against the message (ASN, EMR/EMR Structure, EMR Measurement, Measurement Point or MP) that triggered the error condition.
  - EDE marks the Manifest message as being in an error state.
  - EDE returns a fault against any subsequent manifest-related messages received.
- EDE does not receive all objects within Manifest Time-to-Live (TTL)
  - EDE marks the Manifest message as being Dead.
  - EDE returns a fault against any subsequent manifest-related messages received.
  - EDE invokes the UOW of Error Service to report the manifest having timed-out.
- If EDE encounters any error while processing Manifest-related messages, EDE will not forward any Manifest-related data to Canada Supply System (CSS) or Canada Maintenance Management System (CMMS).
- Manifest Declaration Failure
  - If EDE cannot process the original manifest since the listed content is not valid, EDE will reject the manifest message by issuing a Manifest Fault Message.
- Manifest Message Delivery Incomplete – Content Delivered does not match declaration
  - If EDE cannot reconcile the content delivered to manifest declaration, EDE will respond with a Fault Message for specific message type and will not accept any subsequent messages against the UOW reference and the associated manifest.
- Manifest TTL has expired and new content arrive with expired Manifest reference
  - EDE will reject the new content with a fault message.

## 7.2 Send Part Issue (ASN) Message (Industry -> EDE)

- A synopsis of applicable rules is as follows:
  - Part Issue message will only be for one PO.
- For Manifest ASN message, Unit of Work ID must be populated with Manifest Unit of Work ID and the correlation id must refer to the original manifest's message ID as in Figure 7-1 Part Issuance with Manifest.
- ASN message must be received within the Manifest Time-to-Live (TTL).
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Part Issue messageID and the UOW ID.

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- Part Issue (ASN) line item objects are counted and compared to value provided in the Manifest.
- Industry will not send ASN message until EDE provides an acknowledgement to the Manifest message.
- The order of ASN, EMR/EMR Structure, EMR Measurement, Measurement Point and MP messages is not guaranteed.
- The ASN message (nor any of the affiliated messages) will not be sent to CSS/CMMS until all Manifest objects are received.
- Manifest does not have to always include an ASN message.

### 7.2.1 Business Error Processing

Please refer to prior description of Part Issue [Business Error Processing](#).

## 7.3 EMR Structure Message (Industry->EDE)

- An EMR structure message may represent a single EMR, or for complex assemblies may reflect the relationship between a parent EMR and its child EMRs. This is referred to as an EMR Structure.
- For Manifest EMR Structure message, Unit of Work ID must be populated with Manifest Unit of Work ID and the correlation id must refer to the original manifest messageID as in Figure 9-1 Mobility Kit Issuance or Replenishment and Receipt – with Manifest.
- EMR Structure message must be received within the Manifest Time-to-Live (TTL)
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the EMR/EMR Structure messageID and Unit of Work (UOW) ID.
- EMR Structure objects are counted and compared to value provided in the Manifest.
- Industry will not send EMR Structure message until EDE provides an acknowledgement on the Manifest message.
- Order of ASN, EMR Structure, EMR Measurement, Measurement Point and MP messages is not guaranteed.
- EMR Structure message is not sent to CMMS until all Manifest objects are received.
- Manifest does not always have to include an EMR Structure message.

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## 7.4 EMR Measurement<sup>6</sup> Message (Industry ->EDE)

- For Manifest EMR Measurement message, Unit of Work ID must be populated with Manifest Unit of Work ID and the correlation id must refer to the original manifest message's message ID as in Figure 7-1 Part Issuance with Manifest.
- EMR Measurement message must be received within the Manifest Time-to-Live (TTL)
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the EMR Measurement messageID and UOW ID.
- Within the EMR Measurement message, Measurement objects are counted and compared to value provided in the Manifest.
- Industry will not send EMR Measurement message until EDE provides an acknowledgement on the Manifest message.
- Order of ASN, EMR Structure, EMR Measurement, Measurement Point or MP messages is not guaranteed.
- EMR Measurement message is not sent to CSS or CMMS until all Manifest objects are received.
- Manifest does not have to always include an EMR Measurement message.

## 7.5 EMR Measurement Point<sup>7</sup> Message (Industry ->EDE)

- For Manifest EMR Measurement Point message, Unit of Work ID must be populated with Manifest Unit of Work ID and the correlation id must refer to the original manifest message's message ID as in Figure 7-1 Part Issuance with Manifest.
- EMR Measurement Point message must be received within the Manifest Time-to-Live (TTL)
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the EMR Measurement Point messageID and UOW ID.
- Within the EMR Measurement Point message, Measurement Point objects are counted and compared to value provided in the Manifest.
- Industry will not send EMR Measurement Point message until EDE provides an acknowledgement on the Manifest message.

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<sup>6</sup> Where the weapon system/ platform requires EMR Measurement data be sent with part information

<sup>7</sup> Where the weapon system/ platform requires EMR Measurement Point data be sent with part information

- Order of ASN, EMR Structure, EMR Measurement, Measurement Point or MP messages is not guaranteed.
- EMR Measurement Point message is not sent to CSS or CMMS until all Manifest objects are received.
- However if an EMR measurement message is sent then an EMR Measurement Point will have to be sent.
- Manifest does not have to always include an EMR Measurement Point message.

## 7.6 Maintenance Plan<sup>8</sup> (MP) Message (Industry ->EDE)

- For Manifest Maintenance Plan message, Unit of Work ID must be populated with Manifest Unit of Work ID and the correlation id must refer to the original manifest message's message ID as in Figure 7-1 Part Issuance with Manifest.
- Maintenance Plan message must be received within the Manifest Time-to-Live (TTL)
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Maintenance Plan messageID and UOW ID.
- Within the MP message, base MP objects are counted and compared to value provided in the Manifest.
- Industry will not send Maintenance Plan message until EDE provides an acknowledgement on the Manifest message.
- Order of ASN, EMR Structure, EMR Measurement, Measurement Point, MP messages is not guaranteed.
- Maintenance Plan message is not sent to CMMS until all Manifest objects are received.
- Manifest does not have to always include a MP message.

## 7.7 Part Receipt Message (CSS -> Industry)

- A Part Receipt message is only sent if the Manifest content included a Part Issue ASN message.
- CSS will send one or more Part Receipt messages for parts received in the PO. EDE will transform and send message to Industry as they are received.

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<sup>8</sup> Where the weapon system/ platform requires Maintenance Plan data be sent with part information

- Industry will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Part Receipt messageID.

## 8 Mobility Kit Demand and Response

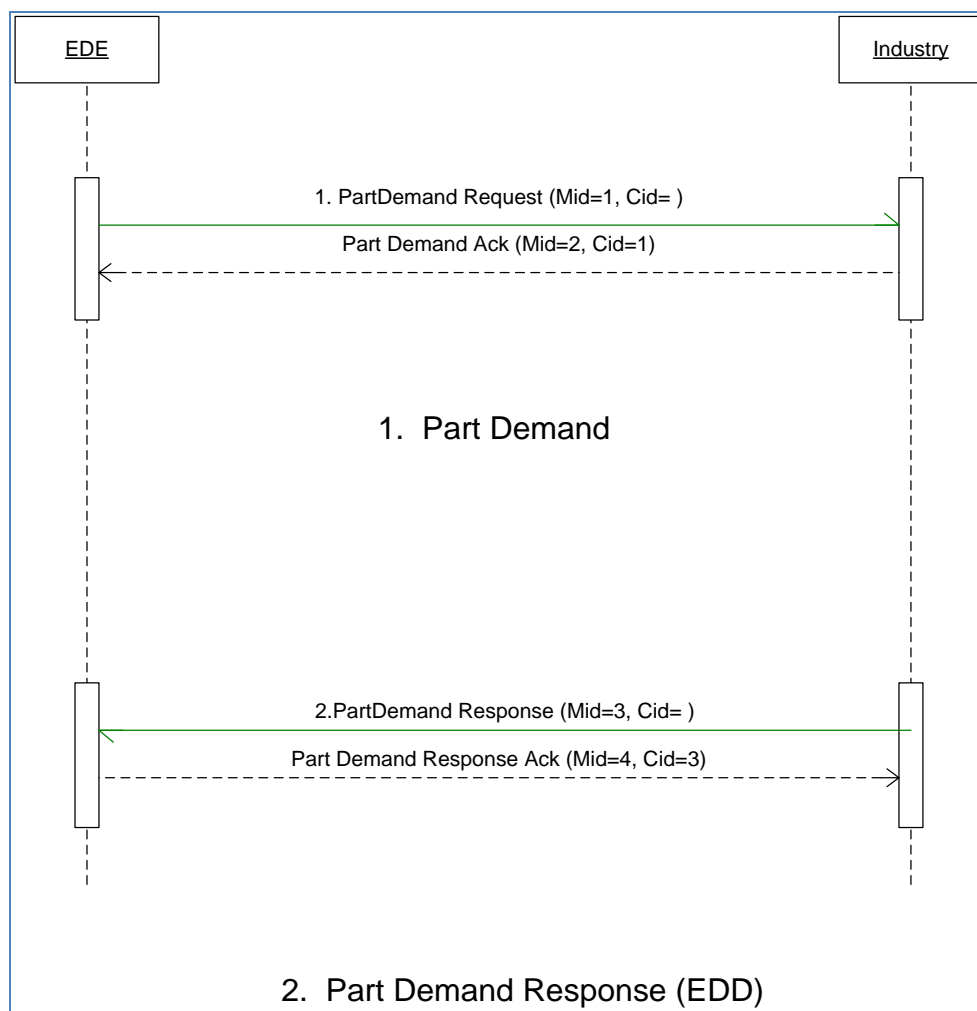
A Mobility Kit (MK) demand and response uses the same services and follows the same pattern as a normal part demand and response. The only difference is in the data represented in the message.

A Mobility Kit Demand uses a Part Demand message that is expressed as a Purchase Order (PO), but will only include one line item identifying the Mobility Kit requested. The Purchase Order for a Mobility Kit will not include a Work Order number. Canada and Industry have agreed upon the attribute ShipToCode to identify which MK is being requested. Industry will acknowledge the Mobility Kit demand message through the service Output message definition.

Industry will respond with a Part Demand Response message, which indicates the Estimated Date of Delivery (EDD) for the Mobility Kit. Canada will acknowledge the Mobility Kit demand response message through the service Output message definition.

Beyond that, all previously defined Part Demand and Response business rules apply.





**Figure 8-1 Mobility Kit Demand and Response**

The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.

## 9 Mobility Kit Issuance, Replenishment and Receipt with Manifest

A Mobility Kit Issue message supports many operational scenarios, including Mobility Kit, Flyaway kit, Pickup Kit (PUK) or Ready Pack (RP) delivery, and may support Mobility Kit, PUK and Ready Pack (RP) replenishment depending upon the WS operational model.

When Industry is ready to deliver a Mobility Kit and its contents to Canada, or to replenish an existing Mobility Kit, and some or all of the parts being delivered within the Mobility Kit message require additional EMR, EMR Structure (for complex assemblies), EMR Measurement, Measurement Point or Maintenance Plan (MP) data, they will issue a Mobility Kit Issue message in the context of a Manifest<sup>9</sup>.

In this case, Industry will send a Manifest message which declares what other messages to expect. The Manifest has a unique identifier known as a Unit of Work ID. Industry will then send the following messages, if required<sup>10</sup>:

- Mobility Kit Issue
- EMR Structure
- EMR Measurement
- Measurement Point
- Maintenance Plan

For a Mobility Kit, there will at least be a Mobility Kit Issue message. The other message types are optional, but as a MK may contain several thousand parts where Measurements, Measurement Point or Maintenance Plans are likely to exist<sup>11</sup>, all messages will include a reference to the Unit of Work ID in the message header. Industry may send these messages in any order, once the Manifest has been sent and acknowledged by Canada EDE.

Canada expects the Mobility Kit Issue message to contain all line items available, not a single Mobility Kit Issue message per line item or serial number. In the event that there are too many line items to send without performance impact, then Industry may split the payload into several messages.

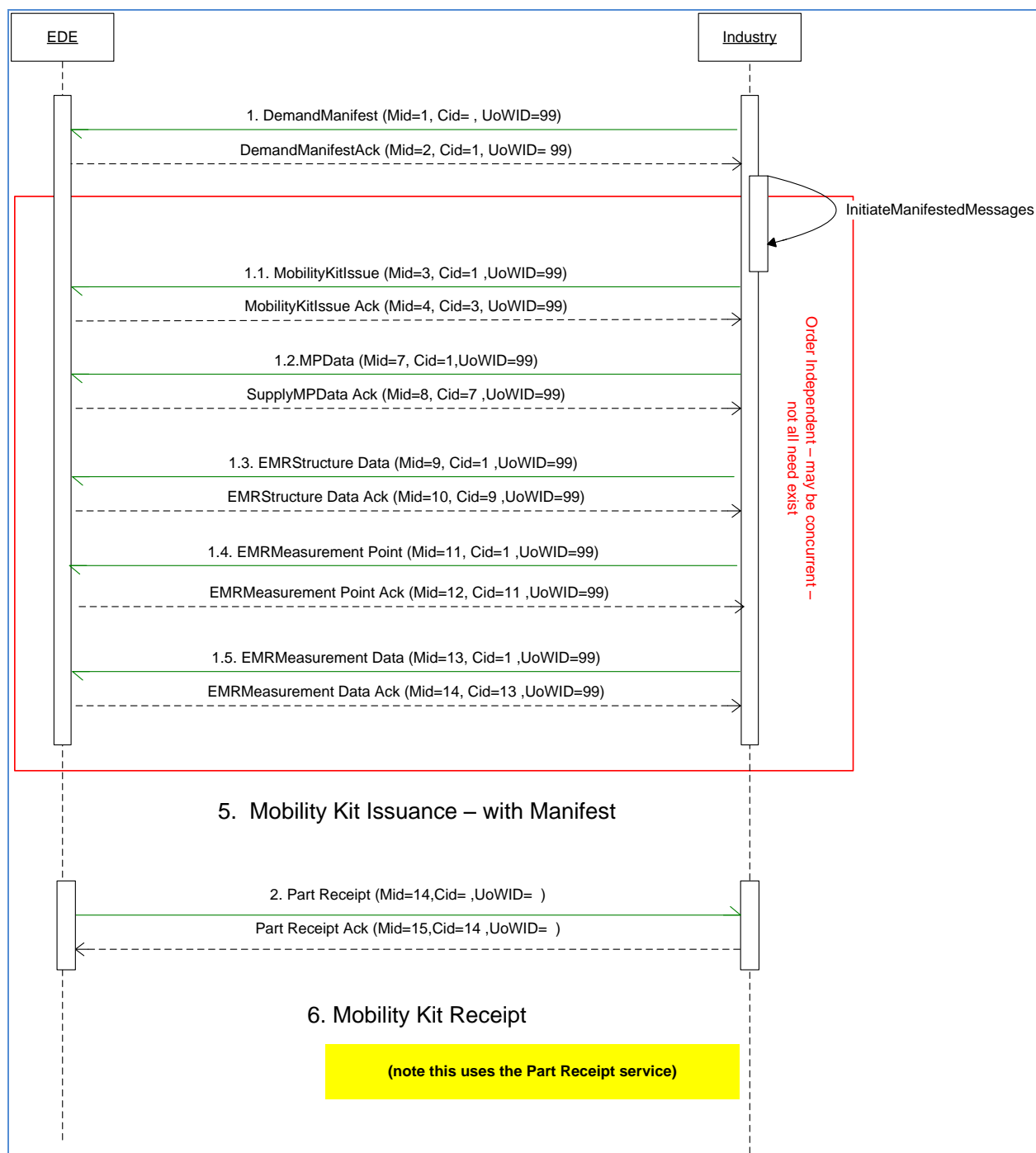
Canada will respond with a Part Receipt message once parts are receipted into CSS.

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<sup>9</sup> Please refer to DRMIS Master Data Business Guidelines ISSCF fleets – Air Force [Ref. 3] for a definition or an equivalent document provided by the specific platform/fleet Project Management office (PMO) for which parts require additional master data, since it is contingent on the specific maintenance program requirement and model of the platform/fleet.

<sup>10</sup> Not all platforms require all of the following data sets

<sup>11</sup> Depending upon the platform supported



**Figure 9-1 Mobility Kit Issuance or Replenishment and Receipt – with Manifest**

The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.

## 9.1 Business Rules Manifest Message (Industry ->EDE)

The business rules for Mobility Kit Issuance with Manifest are essentially the same as those for Part Issuance with manifest. They are defined below:

- The Unit of Work Manifest message is consumed by EDE, and used to govern delivery to CSS and CMMS as applicable.
- The manifest must declare included message types and object counts (Mobility Kit Issuance, EMR Structure, EMR Measurement, Measurement Point and MP)
- A Manifest will contain a Mobility Kit Issuance message, and may be comprised of any combination of the remaining four message types.
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Manifest messageID and UOW ID.
- Industry will not send any Manifest-related messages (Mobility Kit Issuance, EMR Structure, EMR Measurement, Measurement point and MP) until EDE returns an acknowledgement for the initial Manifest message through the Manifest output message definition.
- All subsequent messages that reference the Manifest must include Manifest message ID in their Correlation ID as well as the UOW ID that was initially declared in the Manifest message.
  - EDE will validate that the CorrelationID and UOW ID are known, and that it aligns to a Manifest message type.
- For each subsequent message type, EDE will count message business objects, and verify against Manifest business object count.
- Error conditions
  - In the event of any technical error condition against any message associated with a Manifest, EDE will not process any further associated manifest messages.
  - EDE receives too many objects vs. Manifest count
    - EDE returns a fault against the message (Mobility Kit Issuance, EMR Structure, EMR Measurement or MP) that triggered the error condition.
    - EDE marks the Manifest message as being in an error state.
    - EDE returns a fault against any subsequent manifest-related messages received.

---

**The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.**

- EDE does not receive all objects within Manifest Time-to-Live (TTL)
  - EDE marks the Manifest message as being Dead.
  - EDE returns a fault against any subsequent manifest-related messages received.
  - EDE invokes the UOW of Error Service to report the manifest having timed-out.
- If EDE encounters any error while processing manifest-related messages, EDE will not forward any Manifest-related data to CSS/CMMS.
- Manifest Declaration Failure
  - If EDE cannot process the original manifest since the listed content is not valid. EDE will reject the manifest message by issuing a Manifest Fault Message.
- Manifest Message Delivery Incomplete – Content Delivered does not match declaration.
  - If EDE cannot reconcile the content delivered to manifest declaration. EDE will respond with a Fault Message for specific message type and will not accept any subsequent messages against the UOW reference and the associated manifest.
- Manifest TTL has expired and new content arrive with expired Manifest reference.
  - EDE will reject the new content with a fault message.

## 9.2 Send Mobility Kit Issuance Message (Industry -> EDE)

A Mobility Kit Issue message supports many operational scenarios, including Mobility Kit, Pickup Kit (PUK) and Ready Pack (RP) delivery, and Mobility Kit, PUK or RP replenishment.

- For Manifest MK Issuance message, Unit of Work ID must be populated with Manifest Unit of Work ID and the correlation id must refer to the original manifest message ID as in Figure 9-1 Mobility Kit Issuance or Replenishment and Receipt – with Manifest.
- MK Issuance message must be received within the Manifest Time-to-Live (TTL).
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Mobility Kit Issue messageID.
- MK Issuance objects are counted and compared to value provided in the Manifest.
- Industry will not send MK Issuance message until EDE provides an HTTP acknowledgement on the Manifest message.

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**The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.**

- Order of MK Issuance, EMR Structure, EMR Measurement, MP messages is not guaranteed<sup>12</sup>.
- MK Issuance message is not sent to CSS until all Manifest objects are received.

### 9.2.1 Business Error Processing

Mobility Kit Issue business error processing is the same as Part Issue business error processing. Please refer to prior description of Part Issue [Business Error Processing](#).

## 9.3 EMR Structure Message (Industry ->EDE)

These are identical to the rules defined for Part Issuance with Manifest, EMR Structure.

- For Manifest EMR Structure message, Unit of Work ID must be populated with Manifest Unit of Work ID and the correlation id must refer to the original manifest messageID as in Figure 9-1 Mobility Kit Issuance or Replenishment and Receipt – with Manifest.
- EMR Structure message must be received within the Manifest Time-to-Live (TTL)
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the EMR Structure messageID.
- EMR Structure objects are counted and compared to value provided in the Manifest.
- Industry will not send EMR Structure message until EDE provides an acknowledgement on the Manifest message.
- Order of ASN, EMR Structure, EMR Measurement, Measurement Point and MP messages is not guaranteed.
- EMR Structure message is not sent to CMMS until all objects as per manifest declaration are received.
- Manifest does not have to always include an EMR Structure message.

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<sup>12</sup> Where the weapon system/ platform requires this data be sent with part information.

#### 9.4 EMR Measurement Point<sup>13</sup> Message (Industry ->EDE)

- For Manifest EMR Measurement Point message, Unit of Work ID must be populated with Manifest Unit of Work ID and the correlation id must refer to the original manifest messageID as in Figure 9-1 Mobility Kit Issuance or Replenishment and Receipt – with Manifest.
- EMR Measurement Point message must be received within the Manifest Time-to-Live (TTL)
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the EMR Measurement Point messageID and UOW ID.
- Within the EMR Measurement Point message, Measurement Point objects are counted and compared to value provided in the Manifest.
- Industry will not send EMR Measurement Point message until EDE provides an acknowledgement on the Manifest message.
- Order of ASN, EMR Structure, EMR Measurement, Measurement Point or MP messages is not guaranteed.
- EMR Measurement Point message is not sent to CSS or CMMS until all Manifest objects are received.
- However if an EMR measurement message is sent then an EMR Measurement Point will have to be sent.
- Manifest does not have to always include an EMR Measurement Point message.

#### 9.5 EMR Measurement<sup>14</sup> Message (Industry ->EDE)

These are identical to the rules defined for Part Issuance with Manifest, EMR Measurement.

- For Manifest EMR Measurement message, Unit of Work ID must be populated with Manifest Unit of Work ID and the correlation id must refer to the original manifest message ID as in Figure 9-1 Mobility Kit Issuance or Replenishment and Receipt – with Manifest.
- EMR Measurement message must be received within the Manifest Time-to-Live

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<sup>13</sup> Where the weapon system/ platform requires EMR Measurement Point data be sent with part information

<sup>14</sup> Where the weapon system/ platform requires EMR Measurement data be sent with part information

- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the EMR Measurement messageID.
- Within the EMR Measurement message, Measurement objects are counted and compared to value provided in the Manifest.
- Industry will not send EMR Measurement message until EDE provides an acknowledgement on the Manifest message.
- Order of ASN, EMR Structure, EMR Measurement, MP messages is not guaranteed.
- EMR Measurement message is not sent to CMMS until all Manifest objects are received.
- Manifest does not have to include an EMR Measurement message.

## 9.6 Maintenance Plan<sup>15</sup> (MP) Message (Industry ->EDE)

These are identical to the rules defined for Part Issuance with Manifest, Maintenance plan.

- For Manifest Maintenance Plan message, Unit of Work ID must be populated with Manifest Unit of Work ID and the correlation id must refer to the original manifest message ID as in Figure 9-1 Mobility Kit Issuance or Replenishment and Receipt – with Manifest.
- Maintenance Plan message must be received within the Manifest Time-to-Live.
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Maintenance Plan messageID.
- Within the MP message, base MP objects are counted and compared to value provided in the Manifest.
- Industry will not send Maintenance Plan message until EDE provides an acknowledgement on the Manifest message.
- Order of ASN, EMR Structure, EMR Measurement, MP messages is not guaranteed.
- Maintenance Plan message is not sent to CMMS until all Manifest objects are received.
- Manifest does not have to include a MP message.

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<sup>15</sup> Where the weapon system/ platform requires Maintenance Plan data be sent with part information



## 9.7 Part Receipt Message (CSS -> Industry)

- Mobility Kit Receipt will use the standard Part Receipt service.
- The Mobility Kit Receipt message will receipt all items in the Mobility Kit which were successfully receipted in CSS.
- Industry will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Part Receipt messageID.

### 9.7.1 Business Error Processing

Mobility Kit Receipt business error processing is the same as Part Receipt business error processing. Please refer to prior description of Part Receipt [Business Error Processing](#).

## 10 Reporting

### 10.1 Inventory Overview Reporting

Inventory Reporting is provided against the reporting supplying location where inventory is contained (aka Storage location) inventory and/or Mobility Kit inventory, depending upon the requirements of the particular platform. Inventory Reporting will be against serviceable storage locations, and may include unserviceable locations. On a scheduled basis, CMMS/CSS will report inventory per storage location through the Inventory overview Report.

Once EDE successfully delivers an Inventory Report message to Industry, Industry will send a technical acknowledgement using the Output message definition for the service.

### 10.2 Goods Movement Reporting

CMMS will use parts from the depot inventory, ship stores or Mobility Kit to maintain the WS. On a scheduled basis, CMMS/CSS will report usage from the ship stores, depot inventory or Mobility Kit through the Goods Movement Report service. Only certain pre-defined movements are reported to Industry, as identified by Canada and the Industry partner.

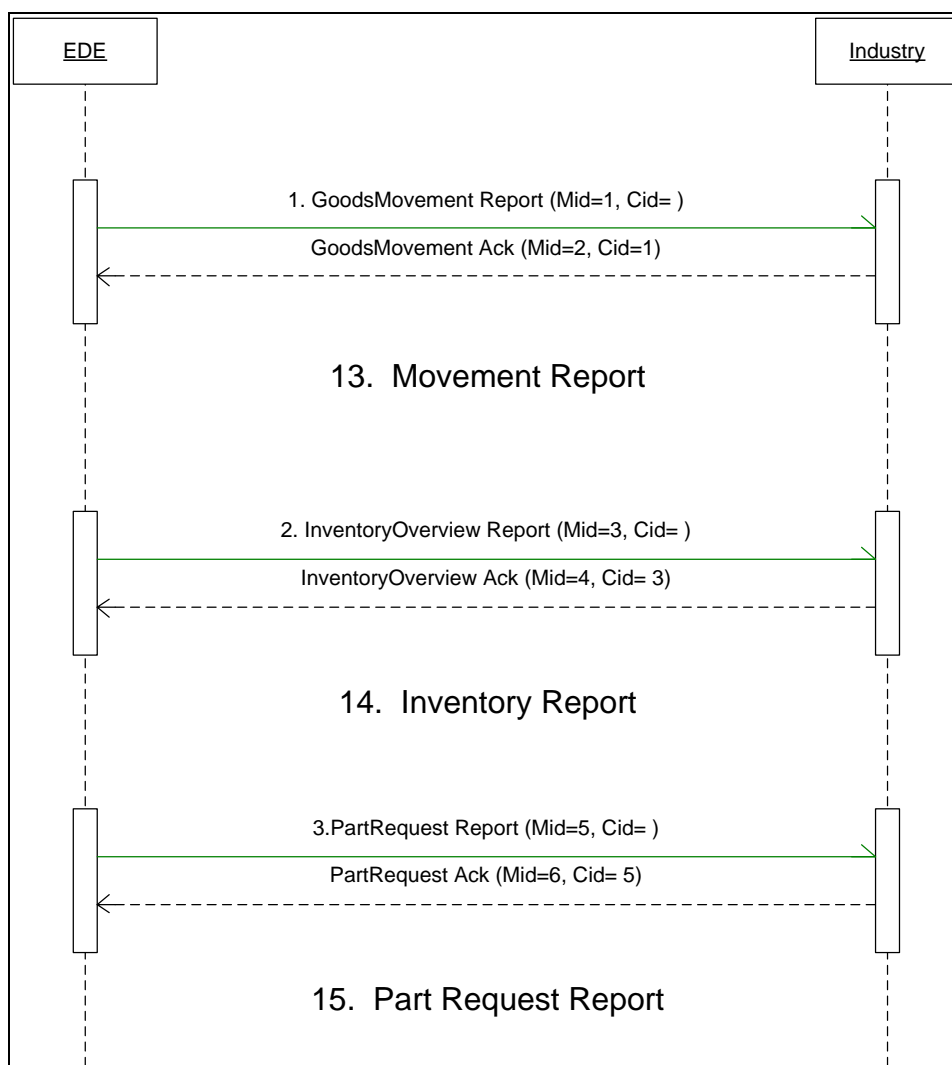
Once EDE successfully delivers a Goods Movement Report message to Industry, Industry will send a technical acknowledgement using the Output message definition for the service.

### 10.3 Part Request Reporting

Part Request Reporting will identify demands satisfied by stock on-hand for each relevant storage location in order to assist the industry partner in supply performance evaluation, depending upon the requirements of the particular platform. Part Request Reporting will be against serviceable storage locations.

On a scheduled basis, CMMS/CSS will report part requests per storage location through the Part Request Report.

Once EDE successfully delivers the Part Request Report message to Industry, Industry will send a technical acknowledgement using the Output message definition for the service.



**Figure 10-1 Reporting**

### 10.3.1 Business Rules - all Reports (CSS->Industry)

- Report message will only be for one Storage location, which may represent a depot, base, unit or mobility kit. There will be one report per storage location.
- The combination of Plant and ShipToCode identifies the location this message represents.

The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.

## 11 Inventory Replenishment and Receipt - no Manifest

An Inventory Replenishment message supports replenishment of stock held at depots, base or unit or ship (aka Storage locations) in Canada, for WS programs which hold stock, for programs which support Industry-initiated inventory replenishment<sup>16</sup>. Industry will monitor Canada held inventory through the Inventory Overview, Goods Movement and Part Request reports<sup>17</sup>, and determine when to ship additional inventory to Canada.

When Industry is ready to deliver inventory to Canada, or to replenish an existing inventory, and none of the parts being delivered within the Inventory Replenishment message require additional EMR<sup>18</sup>, EMR Structure (for complex assemblies), EMR Measurement, Measurement Point or Maintenance Plan (MP) data, they will issue an Inventory Replenishment message, with no requirement for a manifest message to precede it.

Canada will respond with a Part Receipt message once inventory is receipted into CSS.

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<sup>16</sup> Not all platforms support inventory replenishment

<sup>17</sup> For the reports applicable to the platform. Not all platforms implement all report services.

<sup>18</sup> Not all platforms require all of the following data sets

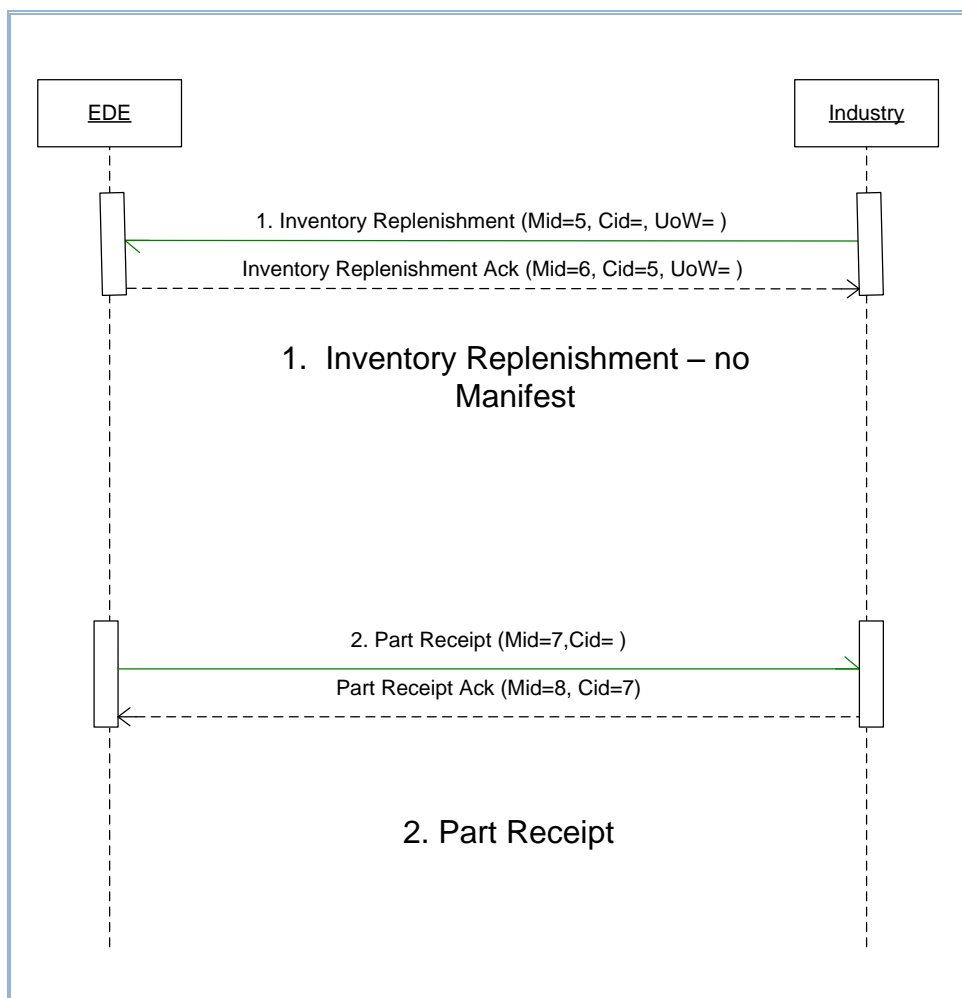


Figure 11-1 Inventory Replenishment – no manifest

### 11.1.1 Business Error Processing

Inventory replenishment business error processing is similar to Part Issue business error processing with a minor variation in that the data will not contain any reference to a Purchase Order. Please refer to prior description of 6.1.1.

- Canada will report errors on all Inventory replenishment items in one message.
- Where possible, Industry will correct erroneous line item data based upon reported errors, and generate a new Inventory Replenishment message including only the corrected line items within the Inventory Replenishment message.

The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.

## 12 Inventory Replenishment and Receipt with Manifest

An Inventory Replenishment message supports replenishment of stock held at depots in Canada, for WS programs which hold stock<sup>19</sup>. Industry will monitor Canada held inventory through the Inventory Overview and Goods Movement reports, and determine when to ship additional inventory to Canada.

When Industry is ready to deliver inventory to Canada, or to replenish an existing inventory, and some or all of the parts being delivered within the Inventory Replenishment message require additional EMR, EMR Structure (for complex assemblies), EMR Measurement, Measurement Point or Maintenance Plan (MP) data, they will issue an Inventory Replenishment message in the context of a manifest<sup>20</sup>.

In this case, Industry will send a Unit of Work Manifest message which declares what other messages to expect, in a similar manner as that described in Section 9, Mobility Kit Issuance with Manifest. The Manifest has a unique identifier known as a Unit of Work ID. Industry will then send the following messages, if required<sup>21</sup>:

- Inventory Replenishment
- EMR Structure
- EMR Measurement
- Measurement Point
- Maintenance Plan

When delivering inventory, there will at least be an Inventory Replenishment message. The other message types are optional, but all messages will include a reference to the Unit of Work ID in the message header. Industry may send these messages in any order, once the Manifest has been sent and acknowledged by Canada EDE.

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<sup>19</sup> Not all platforms support inventory replenishment

<sup>20</sup> Please refer to DRMIS Master Data Business Guidelines ISSCF fleets – Air Force [Ref. 3] for a definition or an equivalent document provided by the specific platform/fleet Project Management office (PMO) for which parts require additional master data, since it is contingent on the specific maintenance program requirement and model of the platform/fleet.

<sup>21</sup> Not all platforms require all of the following data sets

Canada expects the Inventory Replenishment message to contain all inventory items shipped, not a single Inventory Replenishment message per line item or serial number. In the event that there are too many line items to send without performance impact, then Industry may split the payload into several messages.

Canada will respond with a Part Receipt messages once inventory is receipted into CSS.

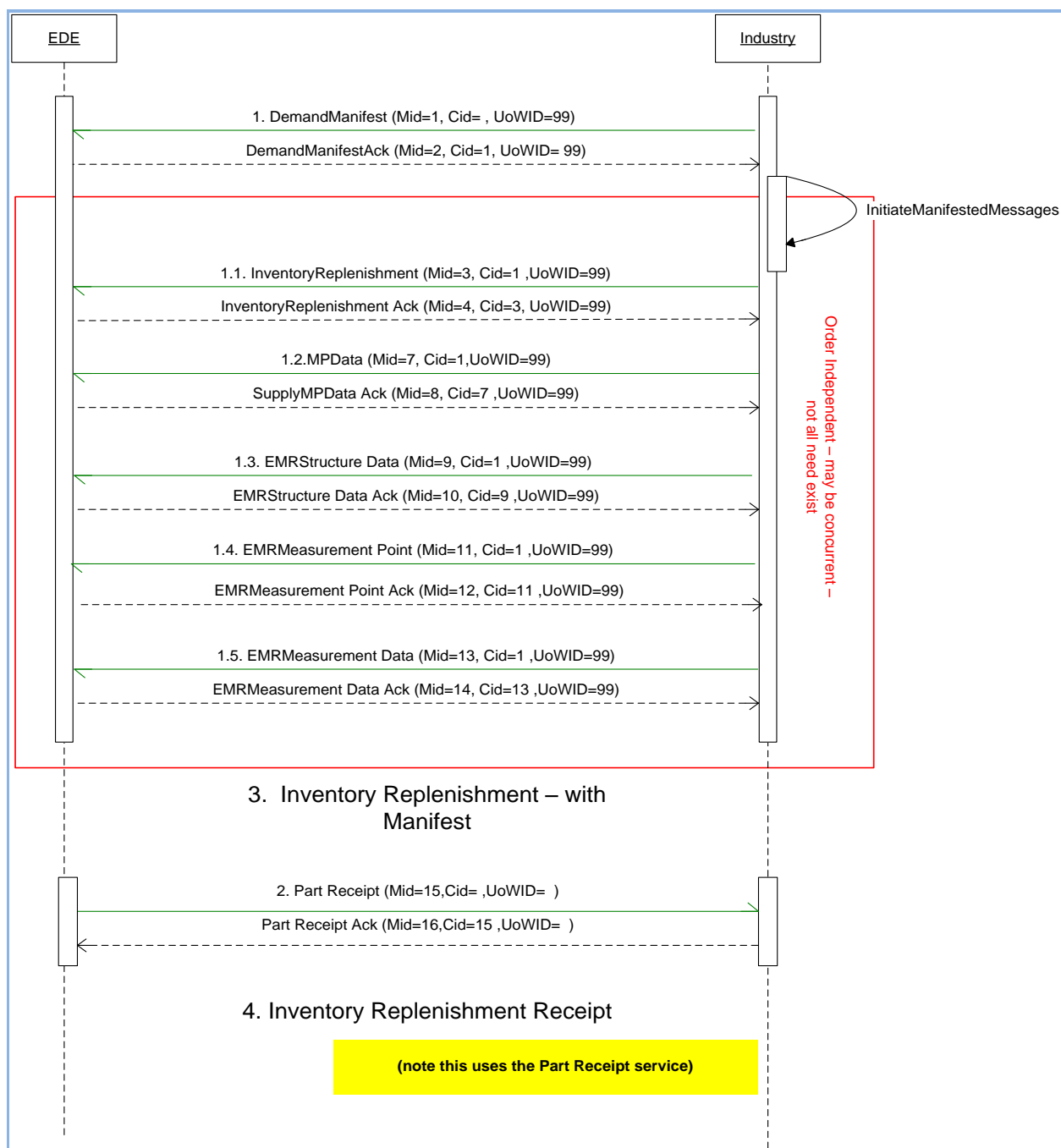


Figure 12-1 Inventory Replenishment and receipt – with manifest

The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.



## 12.1 Business Rules Manifest Message (Industry ->EDE)

The business rules for Inventory Replenishment with Manifest are essentially the same as those for Mobility Kit Issuance with manifest. They are defined below:

- The Unit of Work Manifest message is consumed by EDE, and used to govern delivery to CSS and CMMS as applicable.
- The manifest must declare included message types and object counts (Inventory Replenishment, EMR Structure, EMR Measurement, Measurement Point and MP<sup>22</sup>)
- A Manifest will contain an Inventory Replenishment message, and may be comprised of any combination of the remaining four message types.
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Manifest messageID and UOW ID.
- Industry will not send any Manifest-related messages (Inventory Replenishment, EMR Structure, EMR Measurement, Measurement point and MP) until EDE returns an acknowledgement for the initial Manifest message through the Manifest output message definition.
- All subsequent messages that reference the Manifest must include Manifest message ID in their Correlation ID as well as the UOW ID that was initially declared in the Manifest message.
  - EDE will validate that the CorrelationID and UOW ID are known, and that it aligns to a Manifest message type.
- For each subsequent message type, EDE will count message business objects, and verify against Manifest business object count.
- Error conditions
  - Manifest error conditions are the same as those described for Mobility Kit Issuance with Manifest.

## 12.2 Send Inventory Replenishment Message (Industry -> EDE)

Processing rules for Inventory Replenishment message are the same as those described for manifested Mobility Kit Issuance message. These are identical to the rules defined for Part Issuance with Manifest.

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<sup>22</sup> Not all platforms require all of the these data sets

### 12.3 EMR Structure Message (Industry ->EDE)

Refer to section 9.3, EMR Structure Message. These are identical to the rules defined for Part Issuance with Manifest.

### 12.4 EMR Measurement Point<sup>23</sup> Message (Industry ->EDE)

Refer to section 9.4, EMR Measurement Point Message. These are identical to the rules defined for Part Issuance with Manifest.

### 12.5 EMR Measurement Document<sup>24</sup> Message (Industry ->EDE)

Refer to section 9.5, EMR Measurement Document Message. These are identical to the rules defined for Part Issuance with Manifest.

### 12.6 Maintenance Plan<sup>25</sup> (MP) Message (Industry ->EDE)

Refer to section 9.6, Maintenance Plan Message. These are identical to the rules defined for Part Issuance with Manifest.

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<sup>23</sup> Where the weapon system/ platform requires these data sets be sent with part information

<sup>24</sup> Where the weapon system/ platform requires these data sets be sent with part information

<sup>25</sup> Where the weapon system/ platform requires these data sets be sent with part information

## 13 Part Return and Receipt

CSS will return to Industry repairable carcasses (generally damaged parts removed from the platform), or demanded parts that were not used. In these cases, CSS will initiate the part return process, and may return one or many parts under a Purchase order construct. Any Part History data (e.g., EMR Measurement data) are sent to CMMS through the Maintenance History channel and not as part of the Part Return service.

Upon receipt of the part(s) at the Industry warehouse or agreed point of handover, Industry will send a Part Receipt message which addresses all parts received.

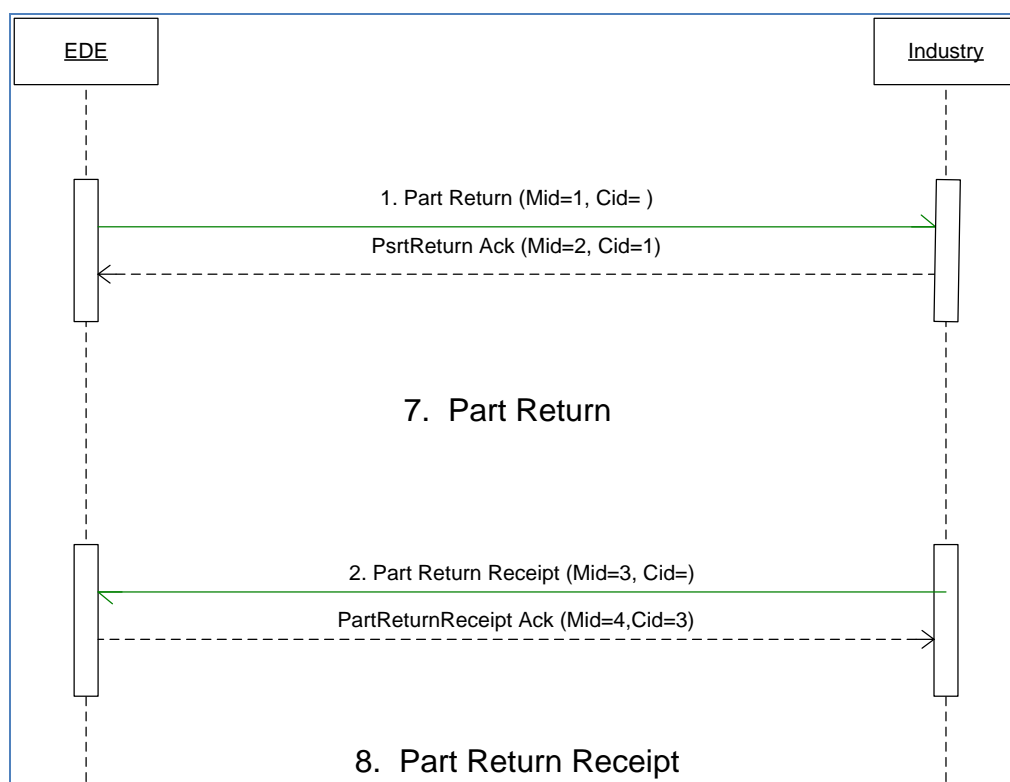


Figure 13-1 Part Return and Receipt

### 13.1 Business Rules Part Return Message (EDE->Industry)

- Part Return message will only be for one PO. The return message will use a new PO number unrelated to the original demand.
- The Part Return message may return parts from more than one Work Order.

The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.

- Industry will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Part Return messageID.

#### 13.1.1 Business Error Processing

- Industry will report errors on all line items within a Part Return Purchase Order in one message.
- Where possible, CSS will correct line item data based upon reported errors, and generate a new Part Return message with a new Purchase Order Number. CSS will not re-use the initial Purchase Order Number. CSS will do the following:
  - Send only corrected line items in the new Part Return message, with a new Purchase Order number. In this case, only some of the line items in the original Part Return message are considered valid, while all items of the new Part Return message are expected to be receipted.

### 13.2 Part Return Receipt Message (Industry -> EDE)

- The Part Return Receipt message will address all parts referenced in the Part Return message.
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Part Return Receipt messageID.

#### 13.2.1 Business Error Processing

- Canada will report errors through the interface.
- Where possible, Industry will correct line item data based upon reported errors, and generate a new Part Return Receipt message using the same Purchase Order number.

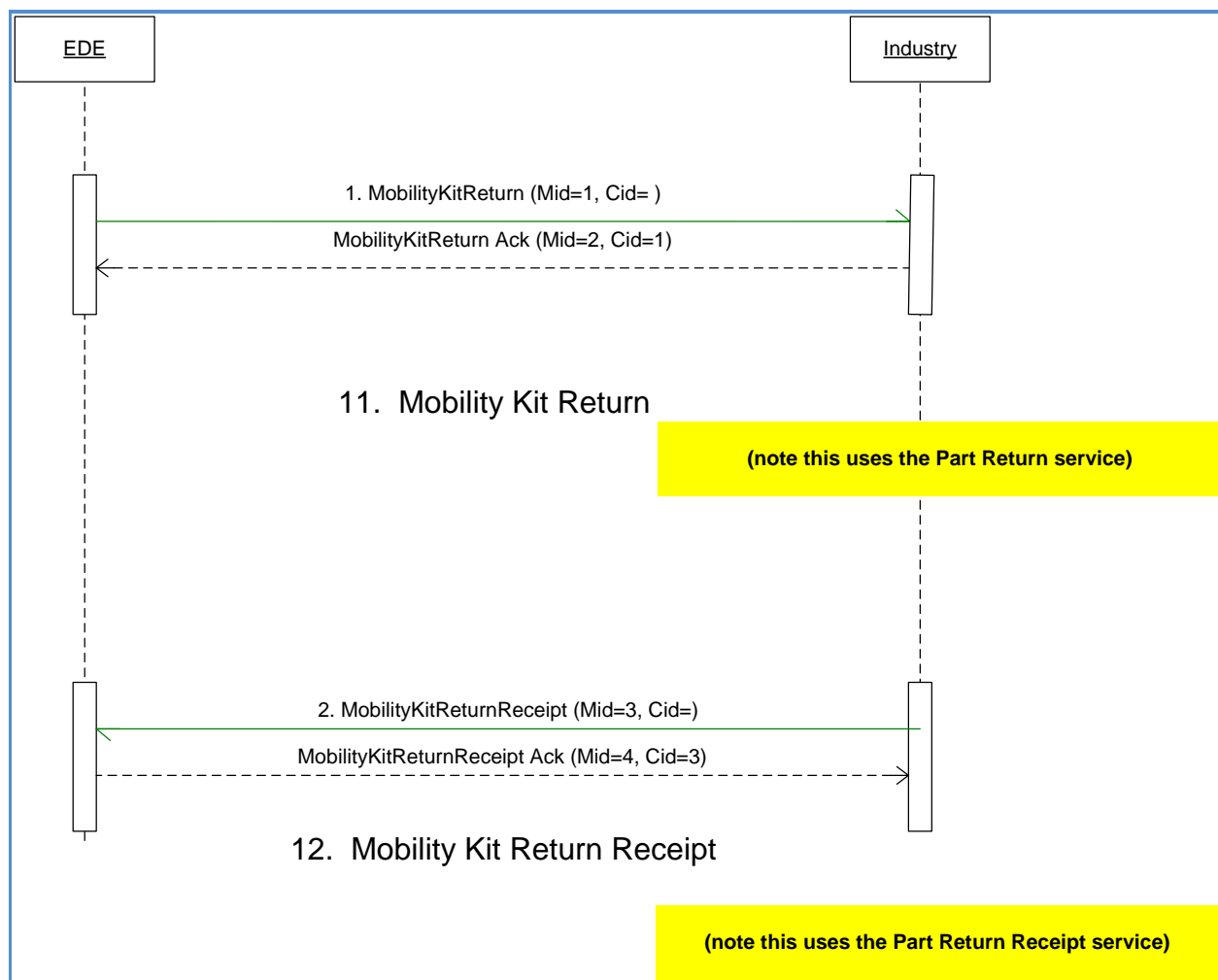
## 14 Mobility Kit Return and Receipt

For platforms that support Mobility Kit, Pickup Kits or Ready-Pack kits, CSS may return unused or unserviceable parts from a Mobility Kit<sup>26</sup> upon return from deployment. In these cases, CSS will initiate the part return process, and may return one or many parts under a Mobility Kit construct. Any Part History data (e.g., EMR Measurement Data) are sent from CMMS through the Maintenance History channel, not as part of the Mobility Kit Return service.

Upon receipt of the Mobility Kit part(s), Industry will send a Mobility Kit Receipt message which addresses all parts received.

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<sup>26</sup> Mobility Kit is a generic term that encompasses Pickup Kits (PUK), Mobility Kits (MK), Ready Packs (RP)



**Figure 14-1 Mobility Kit Return and Receipt**

### 14.1 Business Rules Mobility Kit Return Message (EDE-> Industry)

- Mobility Kit Return will use the standard Part Return service.
- Mobility Kit Return message will only be for one Mobility kit.
- Industry will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Mobility Kit Return messageID.

The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.

#### 14.1.1 Business Error Processing

Mobility Kit Return business error processing is the same as Part Return business error processing. Please refer to prior description of Part Return [Business Error Processing](#).

#### 14.2 Mobility Kit Return Receipt Message (Industry -> EDE)

- Mobility Kit Return Receipt will use the standard Part Return Receipt service.
- The Mobility Kit Return Receipt message will address all returned parts referenced in the Mobility Kit Return message.
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the Mobility Kit Return Receipt messageID.

##### 14.2.1 Business Error Processing

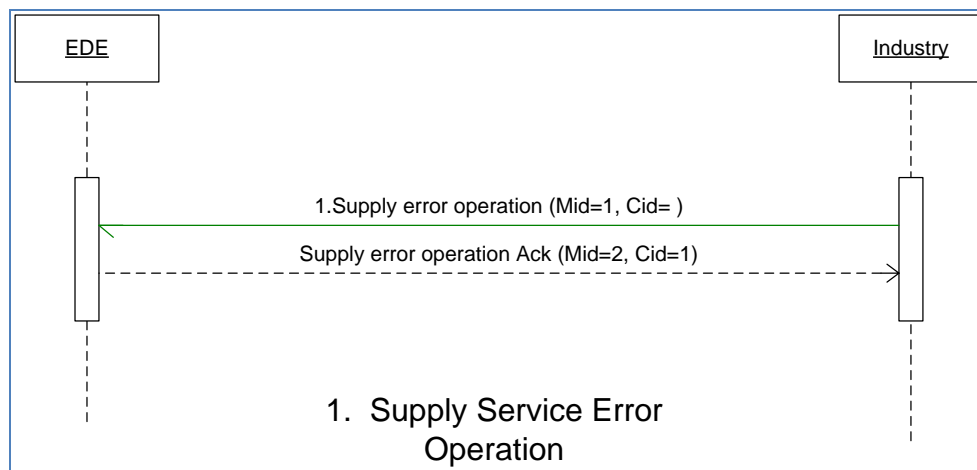
Mobility Kit Return Receipt business error processing is the same as Part Return Receipt business error processing. Please refer to prior description of the Part Return Receipt [Business Error Processing](#).

## 15 Industry Business Errors

Industry may report a business error on almost any message sent by CSS to Industry.

The actual content of the business error is dependent on Industry backend systems, and therefore follows a generic structure.

Each service will expose an error operation through which Industry can report business errors.



**Figure 15-1 Industry Business Error**

### 15.1 Business Rules Supply services business error message (Industry->EDE)

- An error message may report one or more errors.
- Canada will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the error messageID.



## 16 CSS Business Errors

CSS may report a business error on almost any message sent by Industry to CSS/CMMS.

The actual content of the business error is dependent on CMMS/CSS backend systems, and therefore follows a generic structure.

Each service will expose an error operation through which Canada can report business errors.

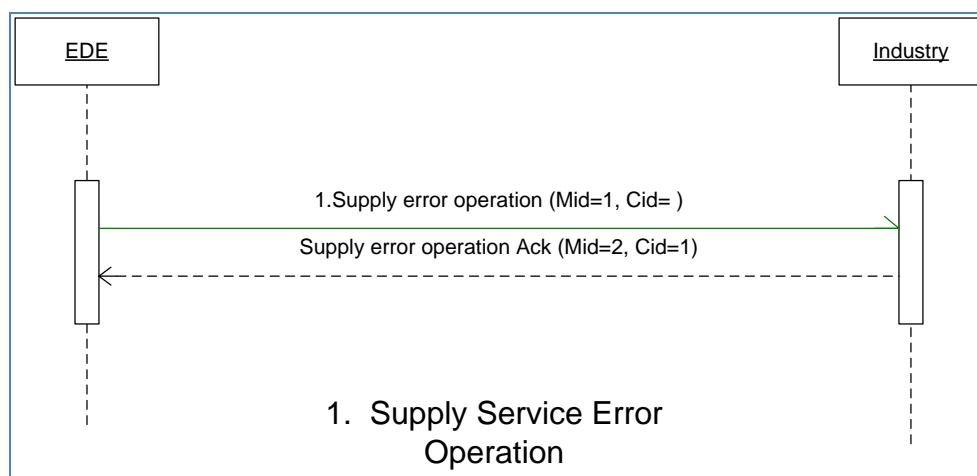


Figure 16-1 CSS/CMMS Business Error

### 16.1 Business Rules Supply service business error message (EDE-> Industry)

- An error message may report one or more errors.
- Industry will respond with a technical acknowledgement message, through the service Output message definition. This Output message will include a correlation ID that ties back to the error messageID.

## 17 Definitions, Acronyms, Abbreviations

Term	Description
ASN	Advanced Shipping Notice
CMMS	Canada Maintenance Management System
CSS	Canada Supply System
DND	Department of National Defence
EDD	Estimated Date of Delivery
EDE	Electronic Data Exchange
EIE	Electronic Information Environment
EMR	Equipment Master Record
HTTP	Hyper Text Transfer Protocol
ISS	In Service Support
ISSCF	In Service Support Contracting Framework
MER	Master Equipment Record
MK	Mobility Kit
MOB	Main Operating Base
MP	Maintenance Plan
PBC	Performance Based Contracting
PO	Purchase Order
PUK	Packup Kit
RP	Ready Pack
TTL	Time-to-Live
UOW	Unit of Work
WS	Weapon System

The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.

## 18 Document History

Revision Number	Description	Date
1.0	Baselined for release to Industry	24 October, 2011
1.1	Reformatted, added Definitions, Acronyms, Abbreviations table	2 April, 2012
1.2	Added depot terminology for Army platforms. Clarified Manifest constructs.	15 June 2012
1.3	Clarified requirement for EMR with an ASN based upon DRMIS Master Data Business Rules document	20 December 2012
1.4	Updated references for document to support Army programs. Clarified business rules throughout. Added inventory Replenishment service scenarios	03 February 2013
1.5	Removed PROTECTED-A markings from document and add proviso to page footer.	14 June 2013
1.6	Updated ASN, PUKASN and Inventory Replenishment processing to address partial processing model. (CQ2606)	01 May 2014
1.7	Updated to include Navy references, and new Part Request report	18 August 2015
1.8	Updated to include Navy perspective	30 September 2015

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