

**VOLVO**

**Volvo Car Corporation**

**Application Of Odette**

**ENGDAT V1**

9308-2 (2004-03-01)

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# Application of engineering data (ENGDAT Ver. 1) within Volvo Car

## 1 General

This document describes Volvo Car's application of ODETTE message for engineering data (ENGDAT).

The specification includes a detailed description of the data elements used.

The Odette ENGDAT message version 1, issued by the odette secretariat in June 1992, will constitute the basis for the application.

For information listed below see the "Technical annex e to the frame agreement for deliveries to Volvo Car" regarding:

- ? General information
- ? Explanation of codes used in the segment description.
- ? General arrangement
- ? Communication
- ? Application of ISO/EDIFACT
- ? Service segments
- ? Instruction for implementation

## 2 The purpose of the message

The purpose of the message is to provide the end-receiver with information on the technical documents included in the transmission

The ENGDAT message is distinguishable from other Odette messages by the fact that the information about the constituent documents and the actual information itself are sent as separate files. The technical documents do not include address information, nor any MID segment. The virtual file name is thus used to hold together the logical package, i.e. ENGDAT and associated documents.

## 3 Structure of the file names

A virtual file is created as follows:

ENG<EXCHANGE REFERENCE><NUMBER OF FILES><FILE NUMBER>

Example: ENGBP2TA000VCC-35271003001 (The EDI message)  
ENGBP2TA000VCC-35271003002 (A model or drawing)  
ENGBP2TA000VCC-35271003003 (A model or drawing)

<b>ENG</b> (an3)	Message identification.
<b>Exchange reference</b> (an17)	Transmission identification. Set by the sender and must be unique for each transmission between the sender and the receiver
<b>Number of files</b> (n3)	Number of files in the transmission, including the ENGDAT message.
<b>File number</b> (n3)	Sequence number i.e. the serial number that is put on every file. The sequence number of the ENGDAT is always 001. Technical documents in a transmission have a sequence number between 002 and 999.

## ***4 Quality demands in respect to implementation of ENGDAT.***

Volvo has some basic demands on the supplier's applications for exchanging engineering documents. The applications and the ENGDAT messages must fulfil the following requirements:

### **ODDC Codes**

Volvo uses the ODDC codes in order to decrease error occurrences and to make automatic processing of the ENGDAT messages and the Engineering documents possible. The use of ODDC codes at Volvo, demands that our supplier's EDI applications must be able to read and create ENGDAT messages containing ODDC codes.

(ODDC code tables; see appendix 2)

### **E-mail**

E-mail is used at Volvo for reaching the ultimate receiver. A unique Volvo ID is used for every person at Volvo (e.g. PC12345). Do not use the "normal" e-mail address since the internal system at Volvo can not handle this in the context of ENGDAT. When Volvo is the sender, the sending person's Volvo ID is always included in the message. When Volvo is the receiver the sending supplier must always include the Volvo ID of the ultimate receiver at Volvo.

The same principal as stated above, can be used for our suppliers, if they so wish. If our suppliers wish to use the e-mail address for their internal addressing, it must be agreed upon in advance with the person responsible for implementation at Volvo. Ultimate receivers at both sites must initially exchange their respective e-mail address.

The E-mail address is limited to 27 characters at Volvo and must conform to the ODETTE-ISO/EDIFACT, 9735 standard

E.g. @ will be replaced by (A) by Volvo if the receiving supplier use an e-mail address containing this character.

### **Compression according to the ZIP - de facto standard**

Volvo uses compression according to ZIP on all engineering documents.

### **File format:**

Volvo sends and receives CAD files in record format 'U', (U= unstructured format).

Volvo sends and receives ENGDAT files in accordance with the 'Application Agreement'

## 6 Examples of application

### From Volvo Car:

UNH+1061409+ENGDAT:1::OD'	Message header
MID+BP2TA000VCC-35271+010123:0916'	Document number, date and time
SDE+:VOLVO CAR CORPORATION:::::BP2TA++97840:MICHAEL SMITH:46 31 7650000:::::PC12345'	Sender information. Party name, Volvo Car's supplier number, department, employee, telephone number and the designer's internal electronic address.
RDE+:DESIGN COMP:::::ABCD1++ DEP:JOHN JONES:46 31 7540000'	Receiver information. Party name, Supplier number, Department, employee and telephone
EFC+002+TXT+ASC+EXTER:2.9+ENC++FILE+ODZIP001'	Engineering File characteristics
DSD+++DELNOTE.PO++FOLJESEDEL MED POSITIONS-INFORMATIO:DELIVERY NOTE WITH POSITIONAL INFOR+:::010123'	Drawing specification details
EFC+003+NAT+885+CATIA:V4R2M2+ENC++2D+ODZIP001'	Engineering File characteristics
DSD+++0501++WHEEL+03:01:010123'	Drawing specification details
TOT+003'	Totals of files including the ENGDAT message
UNT+10+1061409'	Message trailer

### To Volvo Car:

UNH+1+ENGDAT:1::OD'	Message header
MID+000000000000941999+010420:1249'	Document number, date and time
SDE+:DESIGN COMP:::::ABCD1++DEP:JOHN JONES:46 31 7540000'	Sender information. Party name, Volvo Car's supplier number, department, employee and telephone number.
RDE+:VOLVO CAR CORPORATION:::::BP2TA++97840:MICHAEL SMITH:46 31 7650000:::::PCC12345'	Receiver information. Party name, Supplier number, Department, employee, telephone and the designer's internal electronic address.
EFC+002+NAT+BIN+CATIA V4:V4R1+INF++3D/2D+ODZIP001'	Engineering File characteristics
DSD+++12345'	Drawing specification details
TOT+2::PCE'	Totals of files including the ENGDAT message
UNT+8+1'	Message trailer

## ***5 Detailed application***

The following section includes only those segments and data elements, which are included in Volvo's requirements.

The supplier may of course include any other additional information he considers necessary. Volvo will however, not process such information.

### **Segments**

Under each segment heading, we are giving instructions of when to use it.

### **Data elements and component element**

Under each element heading we specify the valid conditions.

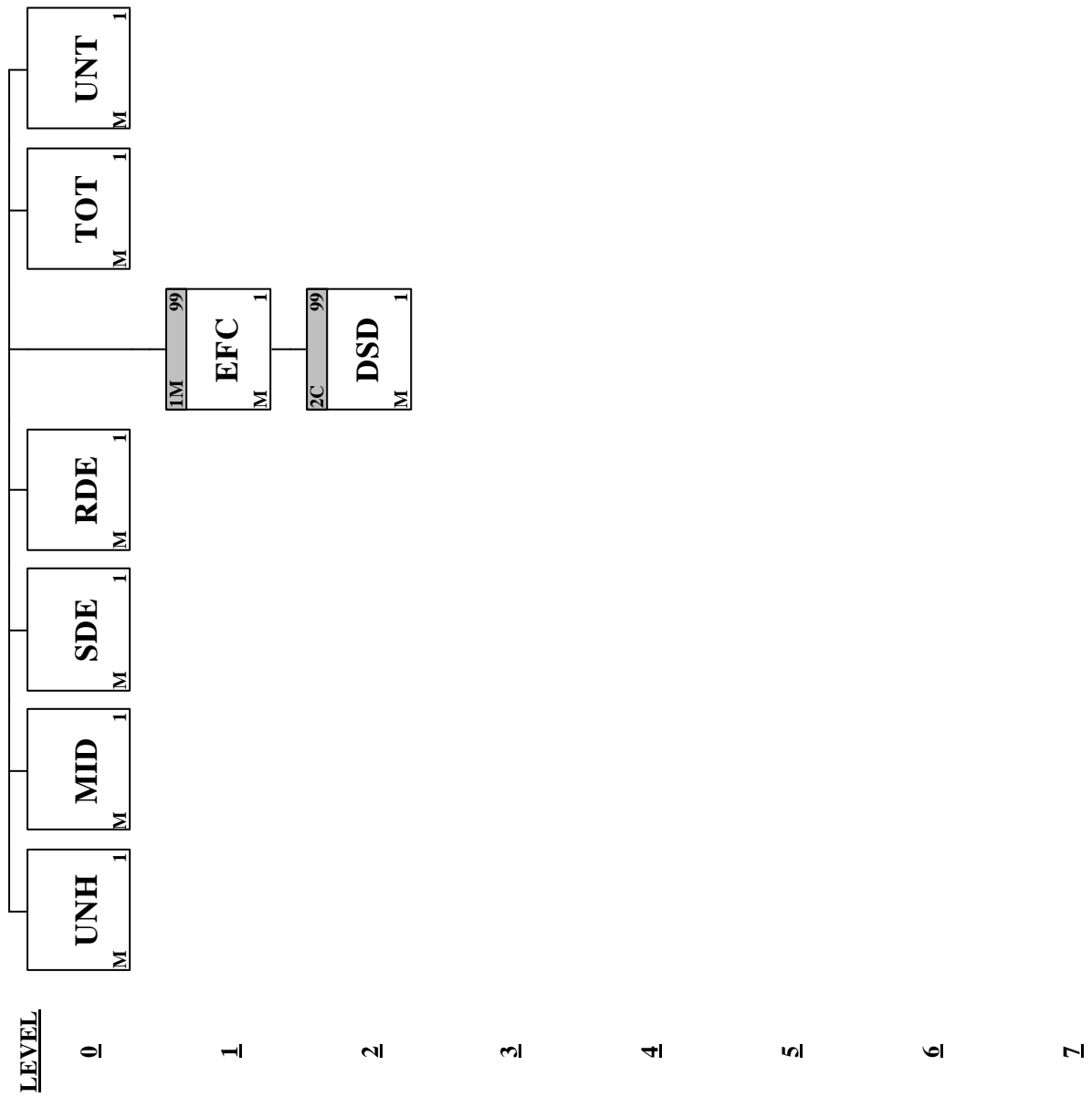
Many data elements are subject to special agreements and any Volvo unit is free to make an individual agreement with any supplier in order to fulfil the needs for information of the company.

## 6 ENGDAT Engineering Data

### Introduction:

This document defines the Odette ENGDAT (Engineering data) message to be used in Electronic Data Interchange (EDI) and on physical media between trading partners.

Page No.	Pos. No.	Seg. ID	Name	Base Status	User Status	Max.Use	Group Repeat	Notes and Comments
9	005	UNH	Message Header	M	M	1		
10	010	MID	Message Identification	M	M	1		
11	015	SDE	Sender Details	M	M	1		
12	020	RDE	Receiver Details	M	M	1		
Segment Group 1: EFC-SG2				M	M		99	
14	028	EFC	Engineering File Characteristics	M	M	1		
Segment Group 2: DSD				C			99	
17	040	DSD	Drawing Specification Details	M	M	1		
18	065	TOT	Totals	M	M	1		
19	070	UNT	Message Trailer	M	M	1		



**Segment:** **UNH** Message Header  
**Position:** 005  
**Group:**  
**Level:** 0  
**Usage:** Mandatory  
**Max Use:** 1  
**Purpose:** To head, identify and specify a message.  
**Comments:**  
**Notes:** Example: UNH+1061409+ENGDAT:1::OD'

### Data Element Summary

<u>Data Element</u>	<u>Component Element</u>	<u>Name</u>	<u>Base Attributes</u>	<u>User Attributes</u>
0062		<b>MESSAGE REFERENCE NUMBER</b> Unique message reference assigned by the sender. Must be unique in conjunction with 0020 values in UNB. The reference number assigned should be unique not only within a single interchange but across many interchanges from the same sender for a sufficient time to avoid any confusion.	<b>M an..14</b>	<b>M</b>
S009		<b>MESSAGE IDENTIFIER</b> Identification of the type, version etc. of the message being interchanged.	<b>M</b>	<b>M</b>
	0065	<b>Message type identifier</b> Code identifying a type of message and assigned by its controlling agency. Refer to individual ODETTE message specifications. ENGDAT Engineering data	<b>M an..14</b>	<b>M an..6</b>
	0052	<b>Message Version Number</b> Version number of a message type. 1 Version	<b>M n..3</b>	<b>M</b>
	0051	<b>Controlling Agency</b> Code identifying the agency controlling the specification, maintenance and publication of the message type. Use OD for ODETTE. OD Odette	<b>C an..2</b>	

**Segment:** **MID** Message Identification  
**Position:** 010  
**Group:**  
**Level:** 0  
**Usage:** Mandatory  
**Max Use:** 1  
**Purpose:** Segment which must contain the unique reference number of the basic data message and the date/time of its generation.  
**Comments:**  
**Notes:** Example: MID+BP2TA000VCC-35271+010123:0916'

### Data Element Summary

<u>Data Element</u>	<u>Component Element</u>	<u>Name</u>	<u>Base Attributes</u>	<u>User Attributes</u>	
Composite	2007	<b>DOCUMENT NUMBER</b>	<b>M an..17</b>	<b>M</b>	
		Reference number assigned to the document by the issuer. The document number shall correspond to the exchange reference. See structure of file name.			
		<b>DOCUMENT DATE AND TIME</b>	<b>M</b>	<b>M</b>	
	2007	<b>Document Date, coded</b>	<b>C n6</b>	<b>R</b>	
Date when the document is issued and - when appropriate -signed or otherwise authenticated. Format YYMMDD					
	2002	<b>Time</b>	<b>C n4</b>	<b>R</b>	
Time of the day based on the 24 hours timekeeping system. Format HHMM					

**Segment:** **SDE** Sender Details  
**Position:** 015  
**Group:**  
**Level:** 0  
**Usage:** Mandatory  
**Max Use:** 1  
**Purpose:** A mandatory, single occurrence segment which gives details of the sender. A coded or uncoded sender information must be included and technical contact details may be given.

**Comments:**

**Notes:**

Example Volvo sending:  
 SDE+:VOLVO CAR CORPORATION::::BP2TA++97840:MICHAEL SMITH:46 31 7650000::::PC12345'  
 Example Volvo receiving:  
 SDE+:DESIGN COMP::::ABCD1++DEP:JOHN JONES:46 31 7540000'

### Data Element Summary

<u>Data Element</u>	<u>Component Element</u>	<u>Name</u>	<u>Base Attributes</u>	<u>User Attributes</u>
Composite		<b>SENDER</b>	<b>M</b>	<b>M</b>
	<b>3036</b>	<b>Party name</b> Name of a party involved in a transaction.	<b>C an..35</b>	
Composite	<b>3296</b>	<b>Internal Identification Number allocated to a Trading Partner</b> Internal Identification Number allocated to a Trading Partner.	<b>C an..17</b>	<b>R an..6</b>
		<b>CONTACT DETAILS</b>	<b>C</b>	
	<b>3412</b>	<b>Department or Empl oyee</b> The department or person, within an organisational entity, specified in a preceding data element, and referred to for action.	<b>C an..35</b>	
		Department of sender.		
	<b>3412</b>	<b>Department or Employee</b> The department or person, within an organisational entity, specified in a preceding data element, and referred to for action.	<b>C an..35</b>	<b>R</b>
	Name of sender.			
	<b>3928</b>	<b>Telephone Number</b> The telephone number of a party.	<b>C an..17</b>	
		Format; country code area code subscriber number Example: 46 31 7650000		
	<b>3896</b>	<b>Electronic mail address</b> Volvo's internal electronic address. Format: PCnnnnn, PCCnnnn i.e. XXXnnnn XXnnnnn. When Volvo is the sender, the internal electronic address is always given.	<b>C an..35</b>	

**Segment:** **RDE** Receiver Details  
**Position:** 020  
**Group:**  
**Level:** 0  
**Usage:** Mandatory  
**Max Use:** 1  
**Purpose:** A mandatory, single occurrence segment which gives details of the receiver. A coded or uncoded receiver information must be included and technical contact details may be given.

**Comments:**

**Notes:**

Example Volvo sending:  
RDE+:DESIGN COMP:::::ABCD1++DEP:JOHN JONES:46 31 7540000'

Example Volvo receiving:  
RDE+:VOLVO CAR CORPORATION:::::BP2TA++97840:MICHAEL SMITH:46 31 7650000:::::PCC12345'

### Data Element Summary

<u>Data Element</u>	<u>Component Element</u>	<u>Name</u>	<u>Base Attributes</u>	<u>User Attributes</u>
Composite		<b>RECEIVER</b>	<b>M</b>	<b>M</b>
	<b>3036</b>	<b>Party name</b> Name of a party involved in a transaction.	<b>C an..35</b>	
	<b>3296</b>	<b>Internal Identification Number allocated to a Trading Partner</b> Internal Identification Number allocated to a Trading Partner. <b>Business Rules:</b> Variable Name:3296IntId BP2TA Value for Design Department	<b>C an..17</b>	<b>R an..6</b>
Composite		<b>CONTACT DETAILS</b>	<b>C</b>	<b>R</b>
	<b>3412</b>	<b>Department or Employee</b> The department or person, within an organisational entity, specified in a preceding data element, and referred to for action. Department of receiver.	<b>C an..35</b>	
	<b>3412</b>	<b>Department or Employee</b> The department or person, within an organisational entity, specified in a preceding data element, and referred to for action. Name of receiver.	<b>C an..35</b>	
	<b>3928</b>	<b>Telephone Number</b> The telephone number of a party. Format; country code area code subscriber number Example: 46 31 7650000	<b>C an..17</b>	
	<b>3896</b>	<b>Electronic mail address</b> Volvo's internal electronic address. Format: PCnnnnn, PCCnnnn i.e. XXXnnnn XXnnnnn. When Volvo is the receiver, the internal electronic address must always be given.	<b>C an..35</b>	<b>R</b>

**Group:** **EFC** Segment Group 1  
**Position:** 028  
**Group:**  
**Level:** 1  
**Usage:** Mandatory  
**Max Use:** 99

### Segment Summary

	<u>Pos.</u>	<u>Seg.</u>	<u>Name</u>	<u>Req.</u>	<u>Max.</u>	<u>Group:</u>
	<u>No.</u>	<u>ID</u>		<u>Des.</u>	<u>Use</u>	<u>Repeat</u>
M	028	EFC	Engineering File Characteristics Segment Group 2	M C	1	99

**Segment:** **EFC** Engineering File Characteristics  
**Position:** 028 (Trigger Segment)  
**Group:** Segment Group 1 Mandatory  
**Level:** 1  
**Usage:** Mandatory  
**Max Use:** 1  
**Purpose:** A mandatory repeatable segment which is used to give detailed information about the engineering data files, such as details about the exchange format and generating system.  
 The file status data element provides information about the action the receiver is permitted to take with the information in the file, e.g. "for quotation", for "tool design" etc. This is contractual information only if related to a commercial document, e.g. a purchase order.  
 The file sequence number data element is the same as in the virtual file name

**Comments:**

**Notes:**

Example:

```
EFC+002+NAT+885+CATIA:V4R2M2+ENC++3D+ODZIP001'
EFC+005+NAT+885+CATIA:V4R2M2+ENC++3D/2D+ODZIP001'
EFC+002+NAT+BIN+CATIA V4:V4R1+INF++3D/2D+ODZIP001'
EFC+3:RX100243.DAT+IGS:IGES 5.0+ASC+PROENGINEER:200I2+ENC++3D+ODZ
IP001'
EFC+004+STP::AP203+ASC+CATIA:V4R2M2+ENC++3D+ODZIP001'
EFC+002:ICM-08-1.ZIP+DMO+ASC:ASCII++USP:UNSPECIFIED+++ODZIP001'
```

### Data Element Summary

Data Element	Component Element	Name	Base Attributes	User Attributes
Composite	1899	<b>FILE INFORMATION</b>	<b>M</b>	<b>M</b>
		<b>File Sequence Number</b>	<b>M n..3</b>	<b>M</b>
Sequense number of documents included in the transmission. The number must correspond to the number specified in the file name. The sequence number is always > 1 or 001.				
Composite	6913	<b>FILE FORMAT</b>	<b>M</b>	<b>M</b>
		<b>File Format, coded</b>	<b>C an..3</b>	<b>R</b>
Translation format of document included in the transmission.				
See appendix 2 or ODDC 77 for more codes.				
		DMI	DMIS Input	
		DMO	DMOS Output	
		IGS	IGES	
		NAT	Native	
		STP	Step	
		TXT	Text	
		VFS	VDAFS	
Composite	9906	<b>Format Version</b>	<b>C an..10</b>	<b>D</b>
		Version of translation format.		
<b>Business Rules:</b>				
1. If 6913FileFormCode NE 'NAT' or 6913FileFormCode NE 'TXT', then set Usage to 'Not Used'				
This data element must be specified if referring to a CAD/CAM document and the translation format is not native. Version refers to version of standard; IGES, VDAFS etc, and not the version of the processor.				
Composite	1939	<b>DATA CODE</b>	<b>M</b>	<b>M</b>
		<b>Data Code, coded</b>	<b>C an..3</b>	<b>R</b>
The character code of the documents included in the transmission.				
See appendix number 2 or ODDC 78 for more codes..				
		885	ISA 8859-1 Latin -1. Used for ASCII 8-bit	
		ASC	ASCII 7-bit	
		BIN	Binary	
		OTH	Other	
Composite		<b>GENERATING SYSTEM</b>	<b>C</b>	<b>D</b>

		<b>Business Rules:</b>			
		1. If 6913FileFormCode EQ 'NAT', then set Usage to 'Must Use'			
	<b>4882</b>	<b>Generating System</b>	<b>M</b>	<b>an..35</b>	<b>M</b>
		System used to generate technical document.			
		The generating system must be specified on those occasions where data element = native.			
	<b>4880</b>	<b>Generating Systems Version</b>	<b>C</b>	<b>an..35</b>	<b>D</b>
		Version of generation system.			
		<b>Business Rules:</b>			
		1. If 4882GenSystem EXISTS, then set Usage to 'Must Use'			
		If data element 4882 is used, data element 4880 must be specified. The method of specifying the version adapted according to each system's internal (official) way of doing this e.g. V4R1M3- (CATIA).			
	<b>4889</b>	<b>Generating Command</b>	<b>C</b>	<b>an..35</b>	
		Command used when the document (file) is created.			
<b>Composite</b>		<b>FILE STATUS</b>	<b>M</b>		<b>M</b>
	<b>9909</b>	<b>File Status, coded</b>	<b>C</b>	<b>an..3</b>	<b>R</b>
		Describes document status e.i. the processors in which they may be used.			
		See appendix 2 or ODDC 79 for more codes.			
		All CAD/CAM documents included in the transmission shall have the same status for Volvo.			
		ENC                      Engineering Consultation			
		INF                      For information only			
		TOD                      Toll design			
		USP                      Unspecified			
<b>Composite</b>		<b>DATA TYPE</b>	<b>C</b>		
	<b>4894</b>	<b>Data Type</b>	<b>M</b>	<b>an..35</b>	<b>M</b>
		Document type. Specifies whether the document is a drawing or a model.			
		Document type must be specified when the document is a CAD/CAM document. Valid document types for a CAD/CAM document:			
		2D DRAW			
		3D MODEL			
		3D/2D MIXED MODEL/DRAWING			
<b>4891</b>		<b>COMPRESSION</b>	<b>C</b>	<b>an..35</b>	<b>R</b>
		Specifies which of the authorised compression techniques has been used.			
		Data compression for CAD/CAE data files - recommended practices. (Odette Group 11, 19941127)			
		A compression tool can be downloaded on the internet <a href="http://www.download.com">www.download.com</a>			

**Group:** **DSD** Segment Group 2  
**Position:** 040  
**Group:** Segment Group 1 Mandatory  
**Level:** 2  
**Usage:** Conditional (Optional)  
**Max Use:** 99

### Segment Summary

	<b>Pos.</b>	<b>Seg.</b>		<b>Req.</b>	<b>Max.</b>	<b>Group:</b>
	<b><u>No.</u></b>	<b><u>ID</u></b>	<b><u>Name</u></b>	<b><u>Des.</u></b>	<b><u>Use</u></b>	<b><u>Repeat</u></b>
M	040	DSD	Drawing Specification Details	M	1	

**Segment:** **DSD** Drawing Specification Details  
**Position:** 040 (Trigger Segment)  
**Group:** Segment Group 2 Conditional (Optional)  
**Level:** 2  
**Usage:** Mandatory  
**Max Use:** 1  
**Purpose:** A mandatory, single occurrence segment used to identify the document sent or the item described in the engineering file (a drawing, a numerical description of a unique component, assembly etc.).  
The reference is given in tag DSD/1809, the description is given in tag DSD/1808, the revision number in tag DSD/7860 and the revision date in tag DSD/2001.

**Comments:**

**Notes:** Example: DSD+++0501++WHEEL+03:01:010123'

### Data Element Summary

<u>Data Element</u>	<u>Component Element</u>	<u>Name</u>	<u>Base Attributes</u>	<u>User Attributes</u>
1809		<b>DRAWING NUMBER</b> The number of the engineering drawing. This data element must be used when there is a unique document identification on the drawing/model.	C an..35	
Composite	1808	<b>DRAWING DESCRIPTION</b> <b>Drawing Description</b> Description of the subject matter of an engineering drawing.	C M an..35	M
Composite	7860	<b>TECHNICAL STATUS</b> <b>Design Revision Number</b> The revision number of the design specification for an ordered article. <b>Business Rules:</b> 1. If 1809DrawNum EXISTS, then set Usage to 'Must Use' Used when element 1809, Drawing number, is used.	C C an..35	D
	1376	<b>Engineering Change Number</b> Reference number assigned to an engineering change by the originator.	C an..17	
	2001	<b>Date, coded</b> A particular day of the calendar year, identified by its ordinal number within a calendar month of that year. Format YYMMDD	C n6	

**Segment:** **TOT** Totals  
**Position:** 065  
**Group:**  
**Level:** 0  
**Usage:** Mandatory  
**Max Use:** 1  
**Purpose:** A mandatory, single occurrence segment used to give the total number of files.  
**Comments:**  
**Notes:** The total number of files, including ENGDAT, included in the transmission.  
Example: TOT+2:PCE'

### Data Element Summary

<u>Data Element</u>	<u>Component Element</u>	<u>Name</u>	<u>Base Attributes</u>	<u>User Attributes</u>
Composite		<b>QUANTITY</b>	M	M
	<b>6060</b>	<b>Quantity</b> Numeric value of a quantity.	M n..15	M
	<b>6410</b>	<b>Measure Unit Specifier</b> Indication of the unit of measurement in which weight (mass), capacity, length, area, volume or other quantity is expressed. PCE Piece, Each, Single	C an..3	

**Segment:** **UNT** Message Trailer  
**Position:** 070  
**Group:**  
**Level:** 0  
**Usage:** Mandatory  
**Max Use:** 1  
**Purpose:** Message Trailer  
**Comments:**  
**Notes:** Example: UNT+5+1061409'

### Data Element Summary

<u>Data Element</u>	<u>Component Element</u>	<u>Name</u>	<u>Base Attributes</u>	<u>User Attributes</u>
0074		<b>NUMBER OF SEGMENTS IN A MESSAGE</b> Control count of number of segments in a message The count shall include the message header segment (UNH) and the message trailer segment (UNT).	M n..6	M
0062		<b>MESSAGE REFERENCE NUMBER</b> Unique message reference assigned by the sender. Must be unique in conjunction with 0020 values in UNB. The reference number assigned should be unique not only within a single interchange but across many interchanges from the same sender for a sufficient time to avoid any confusion.	M an..14	M