Activity Pool

Repository: IDEF0 Process Analysis & Modeling; Date: 10/9/2009

Assemble parts

Description

The process of using parts, tools, and equipment to assemble widgets. Includes reworking widgets that do not yet meet design specifications.

Assemble widgets

Description

The process of assembling and inspecting widgets and the logistics to support widget assembly.

Determine which parts to restock

Description

Use immediate part demand plus reordering policies and proce to determine which parts to request and restock.

Get widget parts

Description

The process of getting widget parts from the stock areas so that widgets may be assembled.

Hold widget base for assembly

Description

The process of holding the base part of the widget securely so that other parts may be attached to it. In the case of rework, the base may already be attached to the other parts.

Identify parts to be installed

Description

Determine which parts are to be installed on the widget base.

Inspect new parts

Description

Inspect the newly arrived parts to make sure that they meet specifications in the part inspection procedures. Reject and dispose of those that do not.

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Inspect widgets

Description

The process of inspecting widgets to make sure that they meet design specifications.

Install widgets in test fixture

Description

Place each widget in the test fixture and secure it.

Locate parts in storage

Description

Determine where the proper parts are stored. If a part is not available or the supply is nearly depleted, note that it must be restocked

Manage work

Perform functional test

Description

Apply power to each widget, observe functioning widget, and assure that it functions properly. Widgets not in compliance are released from the test fixture and sent to rework.

Position parts in place

Description

The process of placing (or re-placing, in the case of rework) parts on the widget base so that they may be secured.

Prepare and send part requests

Description

Write up the part requests and send them to the central warehouse.

Re-inspect parts

Description

Quickly re-inspect the parts to make sure that they are suitable for installation.

Receive and unpackage new parts

Description

Recieve packages of parts from the central warehouse and remove the packaging.

Release assembled widget

Description

The process of releasing the assembled widget from its securings so that it can be moved out of the workstation.

Remove widgets from test fixture

Description

Remove each widget from test fixture.

Restock parts

Description

The process of ordering and restocking parts needed for widget assembly.

Retrieve parts from storage

Description

Retrieve the proper parts from their storage locations.

Secure parts to base

Description

The process of using fasteners to secure the other parts to the base part. In the case of rework, this may involve removing original fasteners and replacing them, or loosening and re-tightening the original ones.

Store new parts

Description

Store the newly received parts in their proper storage containers at the workstation.

Unpackage parts

Description

Remove individual packaging material from the parts themselves.

Verify fasteners & tightness

Description

Verify that the proper fasteners have been used to secure the parts on each widget and that they are tight. Widgets not in compliance are released from the test fixture and sent to rework.

Verify part locations, orientations

Description

Verify that each proper parts are in the proper locations on each widget. Widgets not in compliance are released from the test fixture and sent to rework.

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Concept Pool

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Assembled widgets

Description

Widgets that have been assembled and are ready for inspection.

Assembly procedure

Assembly tools & equipment

Description

Tools and equipment specifically used for widget assembly: [TBC].

Completed widgets

Description

WIdgets that have been assembled and pass inpection and are ready for delivery.

Defective widgets

Description

Widgets that not only do not meet design specifications, but are so defective that they cannot be reworked and must be scrapped or their materials recycled.

Environment factors

Description

Factors of the work environment that may affect worker performance: illumination, noise, temperature, humidity [TBC].

Held bases

Description

The widget base part, held in the fixture so that other parts may be attached.

Held, assembled widgets

Description

Repository: IDEF0 Process Analysis & Modeling; Date: 10/9/2009

The assembled widget, still held in place in the fixture, but ready to be released for inspection.

Inspection procedures

Description

Specific procedures for inspecting widgets to see that they conform to design specifications. Includes part location and orientation information and fasterner specifications.

Inspection tools

Inspection tools & equipment

Description

Tools and equipment used for widget inspection: [TBC].

Location of parts

Description

Knowledge of where the parts are stored in the workstation.

Other widget parts

Description

Non-base parts of the widget, not including fasteners.

Packaged parts to be inspected

Description

Parts to be installed, still in packaging materials.

Part demand

Description

The need for parts to assemble ordered widgets. If stock is insufficient, part requrests are generated.

Part inspection procedures

Description

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Procedures for inspecting parts, with specifications and standards for each part.

Part request procedure

Description

The procedure for preparing and sending part requests.

Part requests

Description

Requests for more widget parts. When the parts come in, they will b4e restocked.

Part storage policy

Description

Instructions on how and where each part is to be stored in the workstation.

Parts

Description

Parts used to assemble widgets.

Parts for widgets

Description

Parts retrieved from the workstation stock areas and ready to be used in assembly.

Parts to be installed

Parts to be unpackaged

Description

Retrieved parts that must be unpackaged and inspected before installation.

Parts to request

Description

IDs of the parts to be requested and restocked.

Parts to restock

Description

Parts that have passed inspection and are ready to be placed in storage in the workstation.

Policies & procedures

Description

Company policies and procedures for assembling and inspecting widgets as well as support processes, like restocking.

Positioned parts

Description

The non-base parts of the widget, positioned in place so that they may be secured with fasteners.

Received parts

Description

Parts just received that have been removed from packaging and are ready to inspect.

Rejected parts

Description

Parts that fail to meet specifications and are therefore discarded for rework or recycling.

Reorder level policies

Description

Specifications as to when to reorder parts.

Restocking policies & procedures

Description

Policies and procedures dealing specifically with the ordering and restocking of parts for widgets.

Stock levels

Description

The current levels of part stocks available at the workstation for assembly.

Stocked parts

Description

Parts available at the workstation for assembly.

Test fixture

Tools & equipment

Description

The tools, equipment, facilities, etc. the worker uses to assemble and inspect widgets. These include the the workstation itself.

Unpackagead parts to be inspected

Description

Parts that must be inspected prior to installation.

Used packaging from assembly

Description

Packaging materials removed from the parts themselves that are to be discarded or recycled.

Used packaging from restocking

Description

Empty boxes, crates, etc. from which widget parts are removed when they come in for restocking.

Waste, recycles

Description

Materials produced during assembly, inspection, and logistics that are not (re)usable: packaging waste, scrap, etc.

Repository: IDEF0 Process Analysis & Modeling; Date: 10/9/2009

Which parts to be installed

Description

Knowledge of which parts to be installed on the widget base, according to assembly procedures.

Widget assembly procedure

Description

Specific procedures for assembling widgets.

Widget base part

Description

Base part of widget to which others are attached.

Widget fasteners

Description

Nuts, bolts, screws, washers, etc. for securing non-base parts to the widget base.

Widget fixture

Description

Equipment that holds a widget base in place so that other parts may be attached.

Widget orders

Description

Customer orders for widgets.

Widgets for rework

Description

Widgets that do not meet design specifications but can be reworked so that they do.

Widgets in test fixture

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Description

Widgets ready to be inspected.

Widgets passing fastener inspection

Description

Widgets whose fasteners are correct and tight.

Widgets passing part inspection

Description

Widgets whose parts are in the proper locations and orientations.

Worker

Description

The worker who assembles and inspects widgets and performs the logistic activities of restocking parts, etc.

Worker factors

Description

Factors of the worker her/himself that affect performance: knowledge, experience, visual acuity, fatigue, ... [TBC].

Wrenches & screwdrivers

Description

Wrenches and screwdrivers used to fasten the fasteners to secure the non-base parts to the base part.

Repository: IDEF0 Process Analysis & Modeling; Date: 10/9/2009

Model Summary

Name: Widgets

Purpose

To illustrate IDEF0 modeling for the Work Systems Engineering process.

Viewpoint

Industrial/manufacturing engineer.

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Activities in Diagram"Widgets"

A0: Assemble widgets

Description:

The process of assembling and inspecting widgets and the logistics to support widget assembly.

Repository: IDEF0 Process Analysis & Modeling; Date: 10/9/2009

Concepts in Diagram"Widgets"

Parts

Description:

Parts used to assemble widgets.

Completed widgets

Description:

WIdgets that have been assembled and pass inpection and are ready for delivery.

Widget orders

Description:

Customer orders for widgets.

Policies & procedures

Description:

Company policies and procedures for assembling and inspecting widgets as well as support processes, like restocking.

Environment factors

Description:

Factors of the work environment that may affect worker performance: illumination, noise, temperature, humidity [TBC].

Worker factors

Description:

Factors of the worker her/himself that affect performance: knowledge, experience, visual acuity, fatigue, ... [TBC].

Worker

Description:

The worker who assembles and inspects widgets and performs the logistic

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activities of restocking parts, etc.

Tools & equipment

Description:

The tools, equipment, facilities, etc. the worker uses to assemble and inspect widgets. These include the the workstation itself.

Waste, recycles

Description:

Materials produced during assembly, inspection, and logistics that are not (re)usable: packaging waste, scrap, etc.

Part requests

Description:

Requests for more widget parts. When the parts come in, they will b4e restocked.

Repository: IDEF0 Process Analysis & Modeling; Date: 10/9/2009

Activities in Diagram"A0: Assemble widgets"

A1: Restock parts

Description:

The process of ordering and restocking parts needed for widget assembly.

A2: Get widget parts

Description:

The process of getting widget parts from the stock areas so that widgets may be assembled.

A3: Assemble parts

Description:

The process of using parts, tools, and equipment to assemble widgets. Includes reworking widgets that do not yet meet design specifications.

A4: Inspect widgets

Description:

The process of inspecting widgets to make sure that they meet design specifications.

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Concepts in Diagram"A0: Assemble widgets"

Parts

Description:

Parts used to assemble widgets.

Widget orders

Description:

Customer orders for widgets.

Policies & procedures

Description:

Company policies and procedures for assembling and inspecting widgets as well as support processes, like restocking.

Environment factors

Description:

Factors of the work environment that may affect worker performance: illumination, noise, temperature, humidity [TBC].

Worker factors

Description:

Factors of the worker her/himself that affect performance: knowledge, experience, visual acuity, fatigue, ... [TBC].

Completed widgets

Description:

WIdgets that have been assembled and pass inpection and are ready for delivery.

Waste, recycles

Description:

Materials produced during assembly, inspection, and logistics that are not (re)usable: packaging waste, scrap, etc.

Repository: IDEF0 Process Analysis & Modeling; Date: 10/9/2009

Worker

Description:

The worker who assembles and inspects widgets and performs the logistic activities of restocking parts, etc.

Tools & equipment

Description:

The tools, equipment, facilities, etc. the worker uses to assemble and inspect widgets. These include the the workstation itself.

Widget assembly procedure

Description:

Specific procedures for assembling widgets.

Restocking policies & procedures

Description:

Policies and procedures dealing specifically with the ordering and restocking of parts for widgets.

Inspection procedures

Description:

Specific procedures for inspecting widgets to see that they conform to design specifications. Includes part location and orientation information and fasterner specifications.

Stocked parts

Description:

Parts available at the workstation for assembly.

Parts for widgets

Description:

Parts retrieved from the workstation stock areas and ready to be used in assembly.

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Assembled widgets

Description:

Widgets that have been assembled and are ready for inspection.

Widgets for rework

Description:

Widgets that do not meet design specifications but can be reworked so that they do.

Defective widgets

Description:

Widgets that not only do not meet design specifications, but are so defective that they cannot be reworked and must be scrapped or their materials recycled.

Assembly tools & equipment

Description:

Tools and equipment specifically used for widget assembly: [TBC].

Inspection tools & equipment

Description:

Tools and equipment used for widget inspection: [TBC].

Used packaging from restocking

Description:

Empty boxes, crates, etc. from which widget parts are removed when they come in for restocking.

Used packaging from assembly

Description:

Packaging materials removed from the parts themselves that are to be discarded or recycled.

Stock levels

Description:

The current levels of part stocks available at the workstation for assembly.

Part demand

Description:

The need for parts to assemble ordered widgets. If stock is insufficient, part requrests are generated.

Part requests

Description:

Requests for more widget parts. When the parts come in, they will b4e restocked.

Activities in Diagram"A1: Restock parts"

A11: Determine which parts to restock

Description:

Use immediate part demand plus reordering policies and proce to determine which parts to request and restock.

A12: Prepare and send part requests

Description:

Write up the part requests and send them to the central warehouse.

A13: Receive and unpackage new parts

Description:

Recieve packages of parts from the central warehouse and remove the packaging.

A14: Inspect new parts

Description:

Inspect the newly arrived parts to make sure that they meet specifications in the part inspection procedures. Reject and dispose of those that do not.

A15: Store new parts

Description:

Store the newly received parts in their proper storage containers at the workstation.

Repository: IDEF0 Process Analysis & Modeling; Date: 10/9/2009

Concepts in Diagram"A1: Restock parts"

Parts

Description:

Parts used to assemble widgets.

Restocking policies & procedures

Description:

Policies and procedures dealing specifically with the ordering and restocking of parts for widgets.

Part demand

Description:

The need for parts to assemble ordered widgets. If stock is insufficient, part requrests are generated.

Environment factors

Description:

Factors of the work environment that may affect worker performance: illumination, noise, temperature, humidity [TBC].

Worker factors

Description:

Factors of the worker her/himself that affect performance: knowledge, experience, visual acuity, fatigue, ... [TBC].

Used packaging from restocking

Description:

Empty boxes, crates, etc. from which widget parts are removed when they come in for restocking.

Part requests

Description:

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Requests for more widget parts. When the parts come in, they will b4e restocked.

Stock levels

Description:

The current levels of part stocks available at the workstation for assembly.

Stocked parts

Description:

Parts available at the workstation for assembly.

Worker

Description:

The worker who assembles and inspects widgets and performs the logistic activities of restocking parts, etc.

Reorder level policies

Description:

Specifications as to when to reorder parts.

Part request procedure

Description:

The procedure for preparing and sending part requests.

Part inspection procedures

Description:

Procedures for inspecting parts, with specifications and standards for each part.

Part storage policy

Description:

Instructions on how and where each part is to be stored in the workstation.

Repository: IDEF0 Process Analysis & Modeling; Date: 10/9/2009

Parts to request

Description:

IDs of the parts to be requested and restocked.

Received parts

Description:

Parts just received that have been removed from packaging and are ready to inspect.

Rejected parts

Description:

Parts that fail to meet specifications and are therefore discarded for rework or recycling.

Parts to restock

Description:

Parts that have passed inspection and are ready to be placed in storage in the workstation.

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Activities in Diagram"A2: Get widget parts"

A21: Identify parts to be installed

Description:

Determine which parts are to be installed on the widget base.

A22: Locate parts in storage

Description:

Determine where the proper parts are stored. If a part is not available or the supply is nearly depleted, note that it must be restocked

A23: Retrieve parts from storage

Description:

Retrieve the proper parts from their storage locations.

A24: Unpackage parts

Description:

Remove individual packaging material from the parts themselves.

A25: Re-inspect parts

Description:

Quickly re-inspect the parts to make sure that they are suitable for installation.

Repository: IDEF0 Process Analysis & Modeling; Date: 10/9/2009

Concepts in Diagram"A2: Get widget parts"

Stocked parts

Description:

Parts available at the workstation for assembly.

Stock levels

Description:

The current levels of part stocks available at the workstation for assembly.

Environment factors

Description:

Factors of the work environment that may affect worker performance: illumination, noise, temperature, humidity [TBC].

Widget assembly procedure

Description:

Specific procedures for assembling widgets.

Worker factors

Description:

Factors of the worker her/himself that affect performance: knowledge, experience, visual acuity, fatigue, ... [TBC].

Widget orders

Description:

Customer orders for widgets.

Part demand

Description:

The need for parts to assemble ordered widgets. If stock is insufficient, part requrests are generated.

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Used packaging from assembly

Description:

Packaging materials removed from the parts themselves that are to be discarded or recycled.

Parts for widgets

Description:

Parts retrieved from the workstation stock areas and ready to be used in assembly.

Worker

Description:

The worker who assembles and inspects widgets and performs the logistic activities of restocking parts, etc.

Which parts to be installed

Description:

Knowledge of which parts to be installed on the widget base, according to assembly procedures.

Location of parts

Description:

Knowledge of where the parts are stored in the workstation.

Parts to be unpackaged

Description:

Retrieved parts that must be unpackaged and inspected before installation.

Unpackagead parts to be inspected

Description:

Parts that must be inspected prior to installation.

Repository: IDEF0 Process Analysis & Modeling; Date: 10/9/2009

Activities in Diagram"A3: Assemble parts"

A31: Hold widget base for assembly

Description:

The process of holding the base part of the widget securely so that other parts may be attached to it. In the case of rework, the base may already be attached to the other parts.

A32: Position parts in place

Description:

The process of placing (or re-placing, in the case of rework) parts on the widget base so that they may be secured.

A33: Secure parts to base

Description:

The process of using fasteners to secure the other parts to the base part. In the case of rework, this may involve removing original fasteners and replacing them, or loosening and re-tightening the original ones.

A34: Release assembled widget

Description:

The process of releasing the assembled widget from its securings so that it can be moved out of the workstation.

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Concepts in Diagram"A3: Assemble parts"

Parts for widgets

Description:

Parts retrieved from the workstation stock areas and ready to be used in assembly.

Widgets for rework

Description:

Widgets that do not meet design specifications but can be reworked so that they do.

Environment factors

Description:

Factors of the work environment that may affect worker performance: illumination, noise, temperature, humidity [TBC].

Widget assembly procedure

Description:

Specific procedures for assembling widgets.

Worker factors

Description:

Factors of the worker her/himself that affect performance: knowledge, experience, visual acuity, fatigue, ... [TBC].

Assembled widgets

Description:

Widgets that have been assembled and are ready for inspection.

Worker

Description:

The worker who assembles and inspects widgets and performs the logistic

activities of restocking parts, etc.

Assembly tools & equipment

Description:

Tools and equipment specifically used for widget assembly: [TBC].

Widget base part

Description:

Base part of widget to which others are attached.

Other widget parts

Description:

Non-base parts of the widget, not including fasteners.

Held bases

Description:

The widget base part, held in the fixture so that other parts may be attached.

Positioned parts

Description:

The non-base parts of the widget, positioned in place so that they may be secured with fasteners.

Held, assembled widgets

Description:

The assembled widget, still held in place in the fixture, but ready to be released for inspection.

Widget fixture

Description:

Equipment that holds a widget base in place so that other parts may be attached.

Wrenches & screwdrivers

Description:

Wrenches and screwdrivers used to fasten the fasteners to secure the non-base parts to the base part.

Widget fasteners

Description:

Nuts, bolts, screws, washers, etc. for securing non-base parts to the widget base.

Widget orders

Description:

Customer orders for widgets.

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Activities in Diagram"A4: Inspect widgets"

A41: Install widgets in test fixture

Description:

Place each widget in the test fixture and secure it.

A42: Verify part locations, orientations

Description:

Verify that each proper parts are in the proper locations on each widget. Widgets not in compliance are released from the test fixture and sent to rework.

A43: Verify fasteners & tightness

Description:

Verify that the proper fasteners have been used to secure the parts on each widget and that they are tight. Widgets not in compliance are released from the test fixture and sent to rework.

A44: Perform functional test

Description:

Apply power to each widget, observe functioning widget, and assure that it functions properly. Widgets not in compliance are released from the test fixture and sent to rework.

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Concepts in Diagram"A4: Inspect widgets"

Assembled widgets

Description:

Widgets that have been assembled and are ready for inspection.

Worker factors

Description:

Factors of the worker her/himself that affect performance: knowledge, experience, visual acuity, fatigue, ... [TBC].

Environment factors

Description:

Factors of the work environment that may affect worker performance: illumination, noise, temperature, humidity [TBC].

Inspection procedures

Description:

Specific procedures for inspecting widgets to see that they conform to design specifications. Includes part location and orientation information and fasterner specifications.

Defective widgets

Description:

Widgets that not only do not meet design specifications, but are so defective that they cannot be reworked and must be scrapped or their materials recycled.

Completed widgets

Description:

WIdgets that have been assembled and pass inpection and are ready for delivery.

Widgets for rework

Repository: IDEF0 Process Analysis & Modeling; Date: 10/9/2009

Description:

Widgets that do not meet design specifications but can be reworked so that they do.

Worker

Description:

The worker who assembles and inspects widgets and performs the logistic activities of restocking parts, etc.

Inspection tools & equipment

Description:

Tools and equipment used for widget inspection: [TBC].

Test fixture

Inspection tools

Widgets in test fixture

Description:

Widgets ready to be inspected.

Widgets passing part inspection

Description:

Widgets whose parts are in the proper locations and orientations.

Widgets passing fastener inspection

Description:

Widgets whose fasteners are correct and tight.

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