ICQ9DFR

Business Process Documentation for Non-Technical Users

Lines: 2067 | Functions: 4 | IBM i RPG Program

1. Business Context and Overview

Executive Summary: ICQ9DFR is an Item/Warehouse Inventory Inquiry program that displays detailed inventory information by production date, including quantities on-hand, scheduled orders, production tracking by shift, and age analysis. It provides warehouse managers real-time visibility into inventory status with toggle views for quantities vs. weights.

Business Purpose: This program enables warehouse operations to monitor inventory levels, track production by date and shift, analyze inventory age (current vs. aged), and reconcile inventory against open orders. It supports critical decisions about inventory management, order fulfillment, and production planning.

Key Business Functions: Display inventory details by label/production date with quantity on-hand, scheduled orders, picked quantities, production quantities by shift (1 & 2), inventory age analysis (current/aged split at 7 days), toggle between quantity and weight views (F13), and support multiple calculation modes (W/O Rework, W/ Rework-All, W/ Rework & Adj).

2. Inputs and Data Sources

Primary Data Sources

Database Files: CAB1REP (Item Balance Detail - inventory by label date), CAB0REP (Item Summary - total on-hand), OPBGWKP (Open Order Detail - scheduled shipments), CAB7CPP (Inventory Transactions - production receipts), PPBGCPP (Pick Tickets - picked quantities), CAADREP (Warehouse Master), CABZREP (Item Master with chill times), PMAECPP (In-Transit items).

Required Input Parameters

Required Parameters: Company Number (identifies which company's data to display), Warehouse Code (specifies which warehouse location), Item Code (identifies the specific inventory item), Application Code (used for screen heading - typically 'I/C' for Inventory Control).

Optional Parameters / Screen Inputs

Optional Inputs: None required - this is a display-only inquiry program. All filtering is determined by the required parameters passed in. Users cannot enter additional selection criteria on the screen itself.

User Interaction / Function Keys

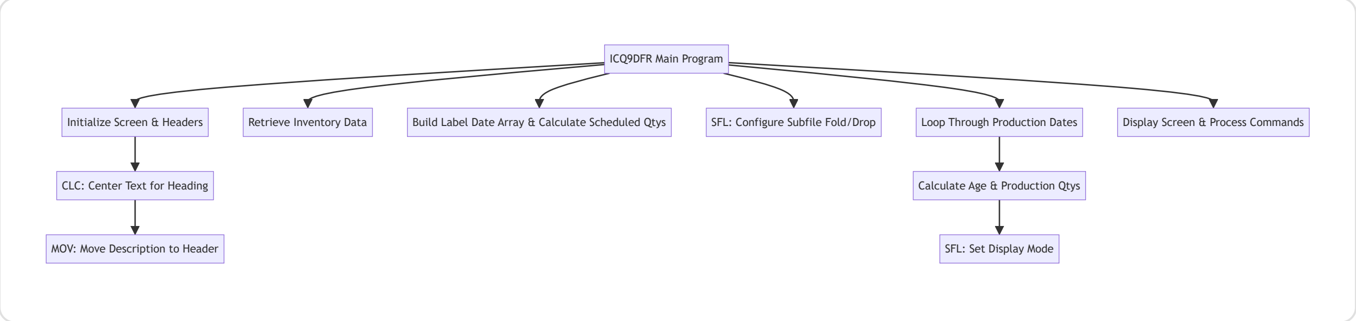
Available Commands: F13 (toggle quantity/weight view), F10 (switch to W/O Rework-PRD mode), F11 (switch to W/ Rework-All mode), F12 (switch to W/ Rework & Adj mode), F07 (fold/drop subfile display), F14 (drill down to detailed item orders inquiry), F03 (exit program).

3. Program Structure and Organization

How the Program is Organized

Function Structure: The program uses 4 utility functions: (1) CLC at line 58 - centers text strings for screen headings, (2) MOV at line 83 - moves application description to company heading, (3) SFL at line 102 - configures subfile fold/drop display behavior for the inventory list, (4) SFL at line 1980 - controls subfile display mode indicator. The main program logic handles initialization, data retrieval, age calculations, and subfile building.

Program Call Tree


ICQ9DFR Main Program
Initialize Screen & Headers
Retrieve Inventory Data
Build Label Date Array & Calculate Scheduled Qtys
SFL: Configure Subfile Fold/Drop
Loop Through Production Dates
Display Screen & Process Commands
CLC: Center Text for Heading
MOV: Move Description to Header
Calculate Age & Production Qtys
SFL: Set Display Mode

Coordination: The program follows a standard inquiry pattern: initialize display elements using utility functions (CLC/MOV), build an array of label dates with scheduled quantities, loop through inventory records calculating production and age data, populate subfile records, then display the screen responding to user function keys for different views and calculation modes.

4. Business Logic Summary

Primary Business Workflow

Main Process: Retrieve item/warehouse inventory organized by production/label date, calculate scheduled quantities by matching order line items to production age dates (considering age days and delivery dates), accumulate production quantities by shift and transaction type (receipts, rework, adjustments), calculate inventory age (7+ days = aged, <7 days = current), display detailed subfile with on-hand, scheduled, picked, available, and production quantities, allow users to toggle quantity/weight views and switch between calculation modes.

Key Business Rules

Business Rules: Inventory age determined by production date vs. current date (7-119 days = aged); Production quantities filter by transaction type (RR=Receipt Production) and reason code (PRD=Production, RWZ=Freezer Transfer) based on selected mode; Scheduled quantities match to production dates by calculating label dates from scheduled ship dates minus age days; Weight calculations use actual stored weights not estimated conversions; Only invoice (1) and transfer (4) billing activity types included in scheduled quantities.

Decision Points

Key Decisions: (1) Calculation Mode Selection - determines which transactions count as production (W/O Rework=PRD+RWZ only, W/ Rework-All=all RR receipts, W/ Rework & Adj=RR+Adjustments); (2) Quantity vs Weight Display - F13 toggles between showing quantities or actual weights; (3) Age Classification - splits inventory into current (<7 days) vs aged (7+ days) for inventory freshness monitoring; (4) Shift Reporting - tracks production separately by Shift 1 and Shift 2 for production performance analysis.

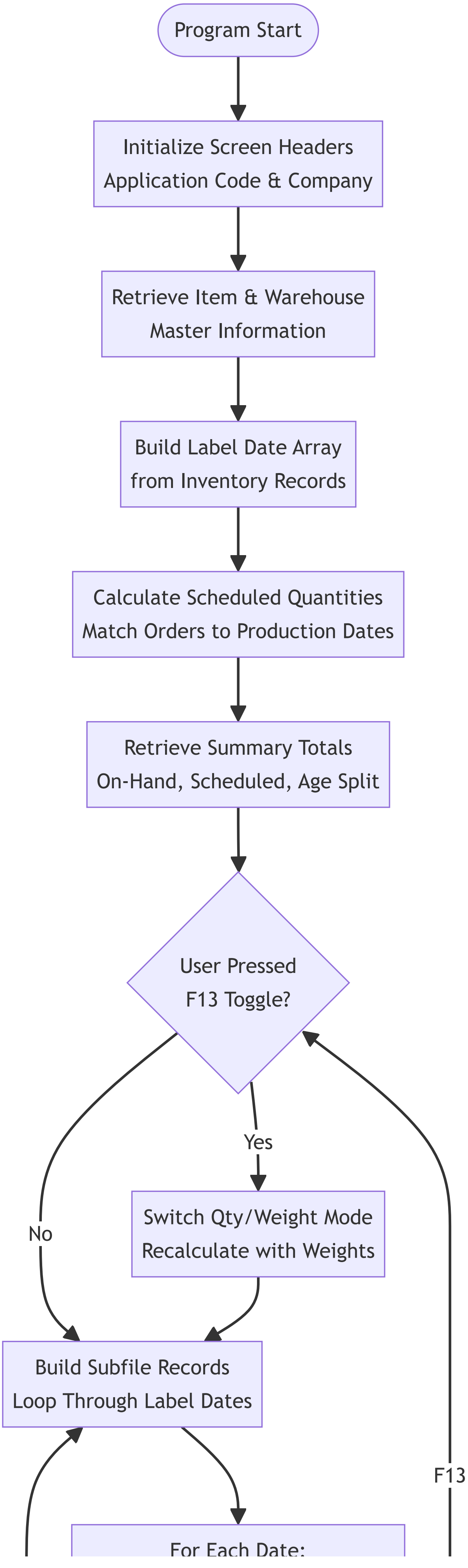
5. Detailed Business Process Flow

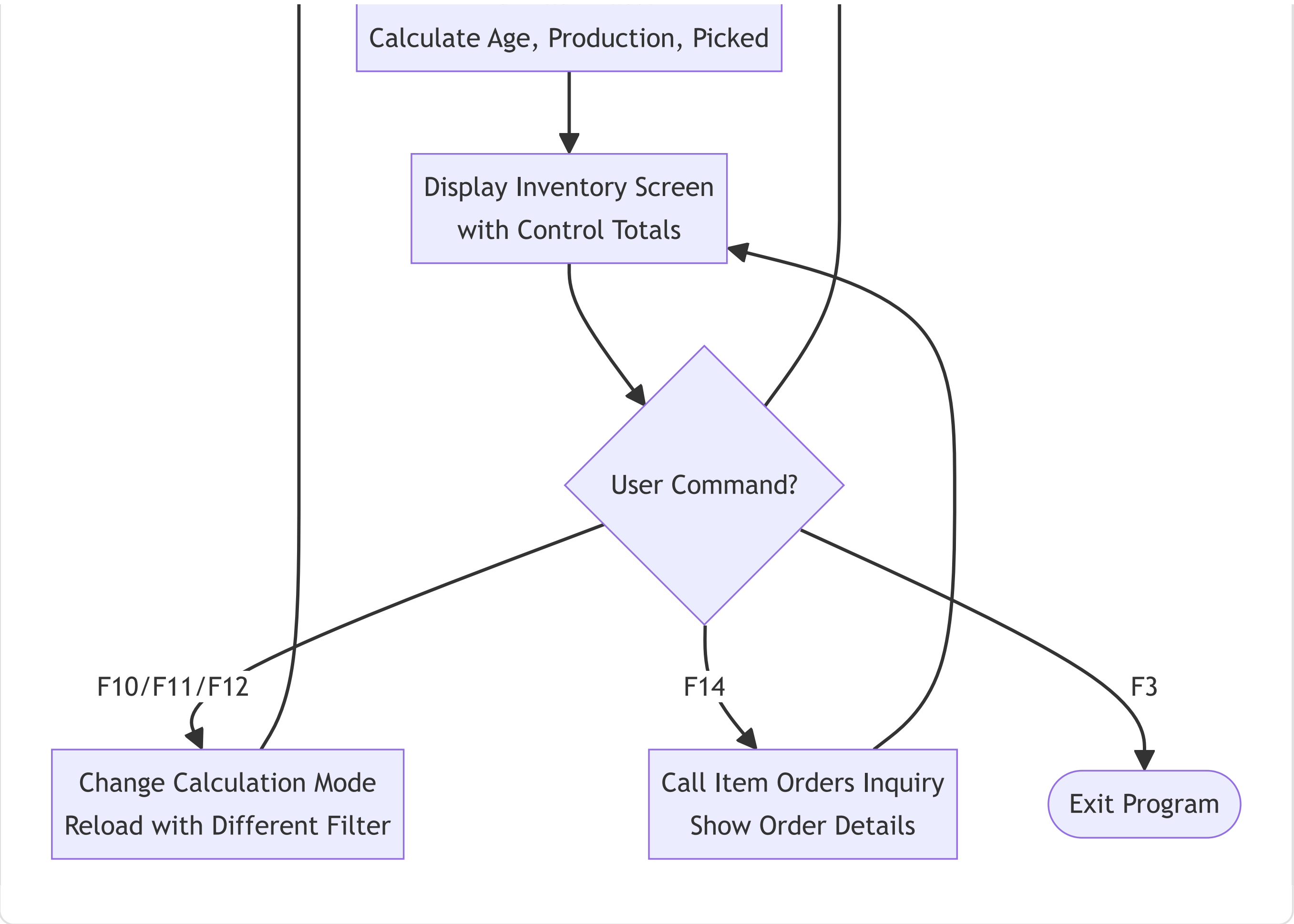
Business Process Narrative

> **Initialization Phase:** The program begins by retrieving screen heading information based on the application code, centering the heading text for proper display formatting, and initializing control totals to zero. It sets the initial calculation mode to "W/O Rework-PRD" (production only, excluding rework transactions) and prepares toggle text fields to display

> "Qty" (quantity mode). The program retrieves warehouse and item master information including chill times for frozen warehouses.
>
> **Data Processing Phase:** The program builds an array of all label dates that have inventory on-hand by scanning the item balance detail file. For each open order, it calculates which production date the inventory should come from by validating age information (requested delivery date, scheduled ship date, age days, and production date overrides), then adds the scheduled quantity to the corresponding label date bucket. Next, it retrieves summary-level data including total quantity on-hand, total scheduled orders, current vs aged inventory split, and picked quantities. When the user presses F13, the program switches to weight mode and recalculates all values using actual stored weights instead of quantities. For each label date record in the subfile, the program calculates number of days to age, retrieves scheduled quantity from the array, looks up picked quantity, calculates available quantity (on-hand minus picked), and accumulates shift 1 and shift 2 production quantities by reading inventory transaction history filtered by the selected calculation mode.
>
> **Display and User Interaction Phase:** The program displays the subfile showing one row per production/label date with columns for production date, age (in days), quantity on-hand, scheduled orders, picked quantity, available quantity, shift 1 production, and shift 2 production. The control footer shows catch weight status, total on-hand, total scheduled orders, inventory/order difference, current inventory, aged inventory, picked quantity, and in-transit quantity. Users can press F10/F11/F12 to switch calculation modes (which reloads the subfile with different production totals), F13 to toggle quantity/weight display, F07 to fold/drop the subfile, or F14 to drill into detailed item order information. The program loops back to process each function key command until the user exits (F3).

Visual Process Flow Diagram


Program Start
Initialize Screen Headers
Application Code & Company
Retrieve Item & Warehouse
Master Information
Build Label Date Array
from Inventory Records
Calculate Scheduled Quantities
Match Orders to Production Dates
Retrieve Summary Totals
On-Hand, Scheduled, Age Split
User Pressed
F13 Toggle?
Yes
No
Switch Qty/Weight Mode
Recalculate with Weights
Build Subfile Records
Loop Through Label Dates
F13
For Each Date:


Calculate Age, Production, Picked
Display Inventory Screen with Control Totals
User Command?
F10/F11/F12
F14
F3
Change Calculation Mode Reload with Different Filter
Call Item Orders Inquiry Show Order Details
Exit Program

Process Explanation

Process Flow: The program starts by setting up the screen display with company and application headings. It reads all inventory records to build an array of production dates, then matches open orders to those dates by calculating label date requirements based on delivery schedules and age specifications. Summary totals are retrieved showing overall on-hand, scheduled, and age analysis. The program builds a detailed subfile showing one line per production date with quantities for on-hand, scheduled, picked, available, and production by shift. Users interact through function keys to switch between quantity and weight views, change production calculation modes (affecting which transactions are included), or drill down to order details. The program continuously responds to user commands until they exit.

6. Data Operations and Information Flow

Business Data Access

Database Files: CAB1REP (Item Balance Detail by label date - READ to get on-hand quantities and build label date array), CAB0REP (Item Warehouse Summary - READ for total on-hand), OPBGWKP (Open Order Detail - READ for scheduled shipments with validation of header status and billing activity type), CAB7CPP (Inventory Transaction History - READ for production receipts by shift and transaction type), PPBGCPP (Pick Ticket Detail - READ for picked quantities by label date), CAADREP (Warehouse Master - READ for warehouse description and type), CABZREP (Item Master - READ for chill time specifications), CAABREP (Company Master - READ for company name), CADNREP/CADNREP (Application group descriptions - READ for screen headings), PMAECPP (In-Transit Inventory - READ to count transfer staging quantities). All operations are READ-ONLY inquiry access.

Information Processing

Data Flow: Input parameters (company, warehouse, item) drive database queries. Application descriptions are retrieved and centered for screen headings. Label date array is built from inventory detail records. Open order records are validated (exclude completed/cancelled, include only invoice/transfer types) and scheduled quantities are matched to production dates via age calculation logic. Summary totals accumulate on-hand, scheduled, current/aged splits. For each label date, production transaction history is filtered by calculation mode (production only, with rework, or with adjustments) and accumulated by shift. Picked quantities are retrieved and subtracted from on-hand to calculate available. All numeric data flows into display fields - either as quantities or weights based on toggle mode. No data updates occur - this is pure inquiry reporting.

7. System Dependencies and Integration Points

External Program Calls

Called Programs: (1) PNO6XFR "CLC Age Code #ofDays" - calculates number of days aged based on production date and company/warehouse/item context, used for age classification logic; (2) PDO7DFR "Zzz Item Orders" - detailed item order inquiry program, called via F14 to drill down from inventory summary to order details; (3) PNQNXFR "Val Age information" - validates age information including requested delivery date, scheduled ship date, age days, and production date overrides, calculates production date range for order fulfillment. These are all inquiry/calculation utilities that support the inventory reporting logic.

Integration Architecture

System Integration: ICQ9DFR is part of the Inventory Control (I/C) application group within the broader ERP system. It integrates with Order Processing (reading open order details and scheduled ship dates), Warehouse Management (reading pick tickets and transaction history), and Item Master data. The program serves as a central inquiry point where warehouse managers can see real-time inventory status reconciled against production activity and order commitments. It provides drill-down capability to order details (F14) and supports the FP1309

Inventory Age enhancement. The program references external system values (FZNCHLTME for frozen warehouse chill time) and maintains integration with production tracking, order management, and warehouse execution systems.

Modernization Opportunities

Modernization Path: Convert green-screen subfile display to web-based responsive dashboard with real-time refresh, replace function key navigation with point-and-click drill-downs, add graphical charts showing inventory age distribution and production trends over time, implement alerts for aged inventory exceeding thresholds, create mobile-friendly views for warehouse floor access, add export capability to Excel/CSV for offline analysis, implement saved view preferences (default to quantity or weight mode), enhance with predictive analytics showing projected stockouts based on scheduled orders vs. on-hand inventory, integrate with barcode scanning for production date verification.

8. Detailed Business Functions Analysis

For Business Users: This section provides detailed analysis of each function with clear explanations and visual diagrams.

> **Coverage:** All 4 functions documented with 4-part analysis and visual flowcharts

Function 1: CLC - Center Txt Str 40 US

Source Code Line: 58 | Business Function Analysis

1. Parameters and Business Data

Input: 40-character description text (WRK.USR_Description_40) containing the application group description that needs to be centered.

Output: Centered 40-character text (WRK.USR_Description_40_2) with the text positioned in the middle of the 40-character field with leading spaces.

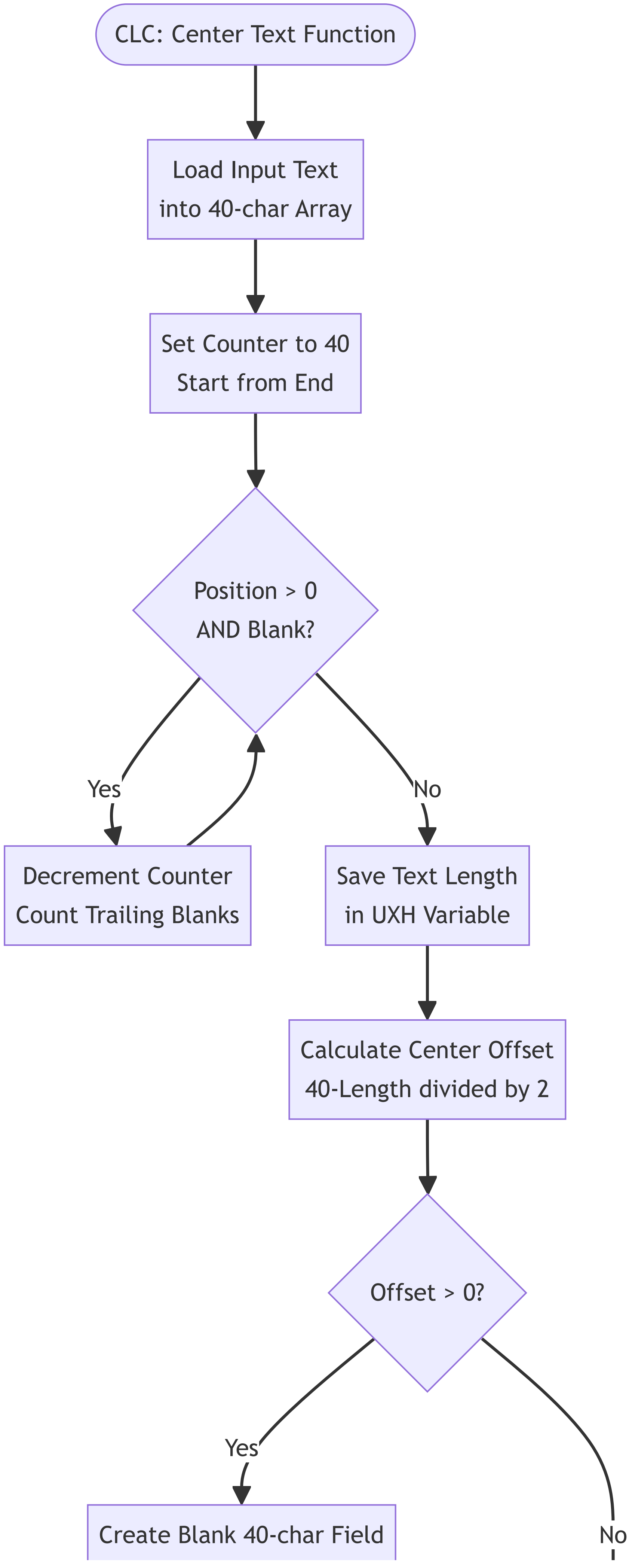
Key Data: Uses an RPG user source function (PDYJUFR) that implements centering algorithm by counting trailing blanks, calculating offset, and moving text to center position.

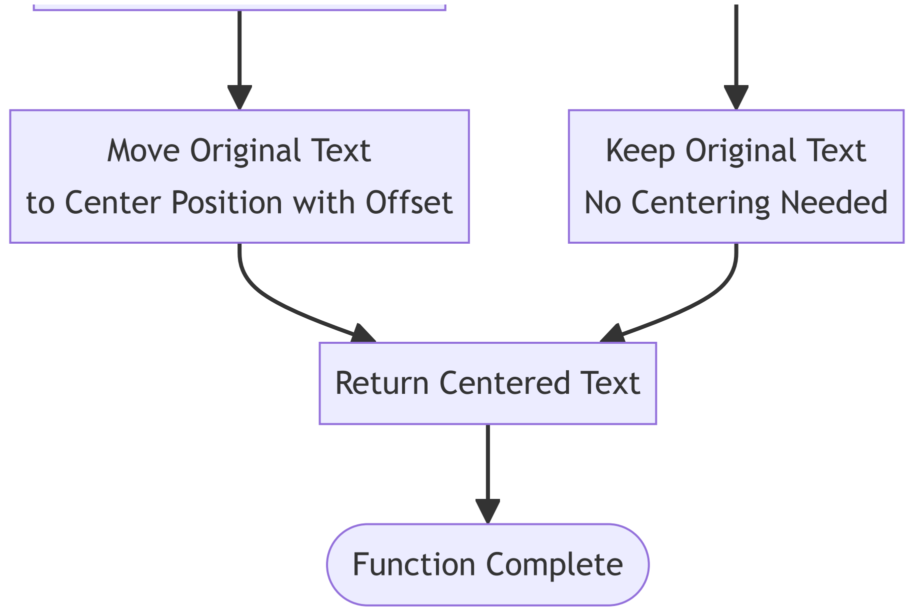
2. Business Logic Summary

The CLC function centers text strings for display on the inquiry screen heading. It takes a 40-character application description, counts the trailing blank spaces to determine text length, calculates the number of leading spaces needed to center the text, and returns the centered result. This ensures screen headings appear professionally formatted and visually balanced on the user interface, improving readability and user experience.

3. Business Process Flow

Process Explanation: The function loads the input text into a 40-character array, loops through from position 40 down to 1 counting trailing blanks, calculates the center offset by dividing remaining space by 2, creates a blank 40-character field, then moves the original text into the center position with leading spaces.


CLC: Center Text Function
Load Input Text into 40-char Array
Set Counter to 40 Start from End
Position > 0 AND Blank?
Yes
Decrement Counter Count Trailing Blanks
No
Save Text Length in UXH Variable
Calculate Center Offset 40-Length divided by 2
Offset > 0?
Yes
Create Blank 40-char Field
No



4. Data Interaction and Business Impact

Database Operations: None - this is a pure string formatting utility function with no database access.

External Calls: Calls RPG user source function PDYJUFR which contains the low-level RPG text centering logic.

Business Impact: Improves user interface professionalism and readability by ensuring screen headings are visually centered. While a small detail, proper formatting enhances user experience and reduces eye strain when reading inquiry screens throughout the day.

Function 2: MOV - Appl Desc-Co Head US

Source Code Line: 83 | Business Function Analysis

1. Parameters and Business Data

Input: Centered 40-character application description text (WRK.USR_Description_40_2) that was output from the CLC function.

Output: Updates the company heading field (##CMP) with the centered application description to display on the inquiry screen header.

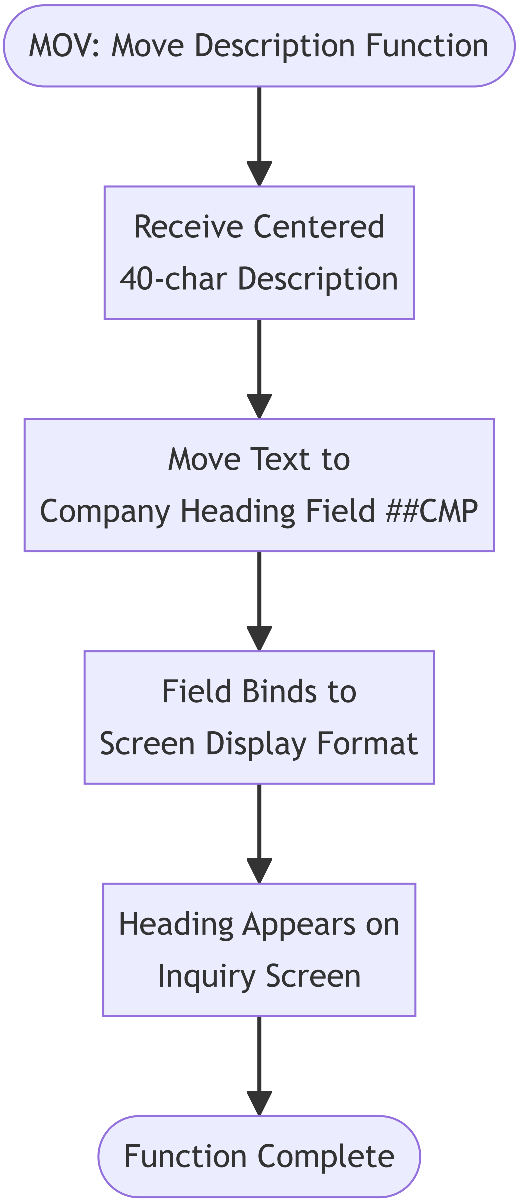
Key Data: Uses RPG user source function (PDYKUFR) to move the centered text into the screen display field designated for company heading information.

2. Business Logic Summary

The MOV function moves the centered application description into the company heading display field on the screen. After the CLC function centers the text, this function takes that formatted text and places it into the specific screen position where the company/application heading will appear to users. This completes the screen heading setup process, ensuring the inquiry screen displays the proper application context (e.g., "Inventory Control") at the top of the display.

3. Business Process Flow

Process Explanation: The function performs a simple data move operation using RPG logic. It takes the input parameter (centered description) and moves it directly into the company heading output field (##CMP) which is bound to the screen display format.


MOV: Move Description Function
Receive Centered 40-char Description
Move Text to Company Heading Field ##CMP
Field Binds to Screen Display Format
Heading Appears on Inquiry Screen
Function Complete

4. Data Interaction and Business Impact

Database Operations: None - this is a simple data movement function with no database interaction.

External Calls: Calls RPG user source function PDYKUFR which contains the RPG MOVE operation logic.

Business Impact: Completes the screen heading setup, ensuring users see proper context about which application/function they're using. Clear screen headings help users confirm they're in the correct program and reduce navigation errors, particularly important in large ERP systems with hundreds of screens.

Function 3: SFL - Fold/Drop RPG US

Source Code Line: 102 | Business Function Analysis

1. Parameters and Business Data

Input: Numeric parameter value 6 passed to configure the subfile fold/drop behavior.

Output: Modifies the DDS (Data Description Specifications) to enable SFLDROP attribute on command key CF07, allowing users to press F7 to fold/drop the subfile display.

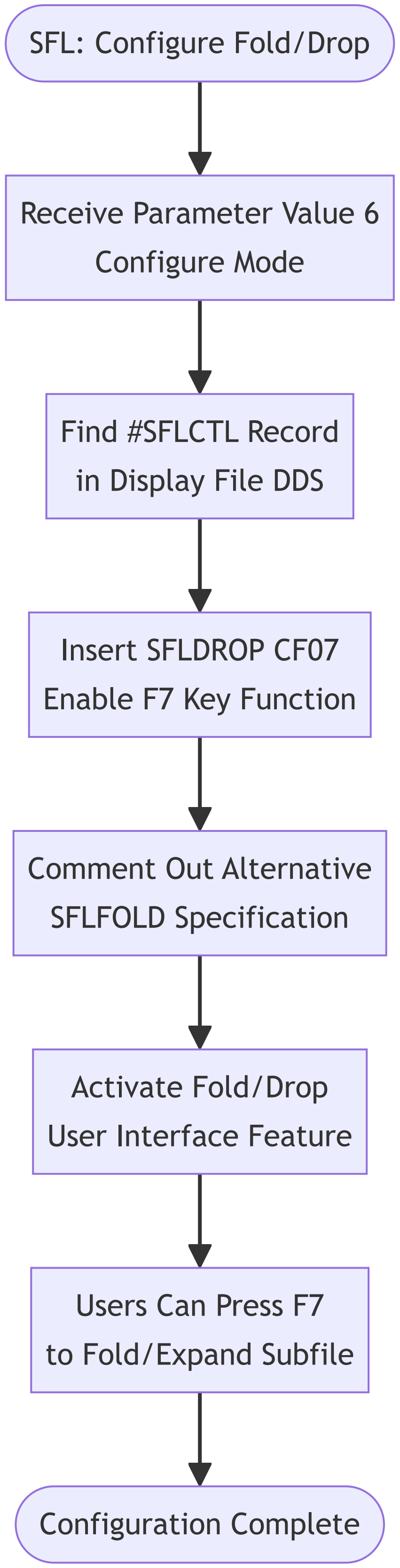
Key Data: Uses RPG user source function (POBHUFU) to dynamically modify the screen file DDS attributes at runtime, inserting the SFLDROP keyword associated with F7 function key.

2. Business Logic Summary

The SFL function configures the subfile fold/drop feature for the inventory list display. This allows users to press F7 to toggle between expanded view (showing all subfile records) and folded view (showing fewer records per screen). The function modifies the screen file definition to enable this interactive display feature. This capability is important for users who may have many inventory records to review and need to control screen density based on their preference and the amount of data to analyze.

3. Business Process Flow

Process Explanation: The function finds the #SFLCTL (subfile control) record format in the DDS, inserts a new line with the SFLDROP(CF07) keyword which binds the fold/drop action to the F7 key, and comments out an alternative SFLFOLD specification to ensure only the drop behavior is active.



4. Data Interaction and Business Impact

Database Operations: None - this modifies screen display file attributes, not database records.

External Calls: Calls RPG user source function POBHUFU which contains DDS modification logic for subfile control records.

Business Impact: Enhances user experience by giving users control over screen real estate. When viewing many inventory records, users can fold the subfile to see fewer records per page (reducing scrolling fatigue) or expand to see more records at once (for quick scanning). This flexibility improves productivity for warehouse staff who use this inquiry screen frequently throughout their workday.

Function 4: SFL - Fold/Drop RPG 2 US

Source Code Line: 1980 | Business Function Analysis

1. Parameters and Business Data

Input: MODE variable that determines whether the subfile is in folded (MODE='0') or expanded (MODE≠'0') display state.

Output: Sets indicator 89 which controls the visual display state of the subfile. When indicator 89 is ON, the subfile shows in folded view; when OFF, it shows in expanded view.

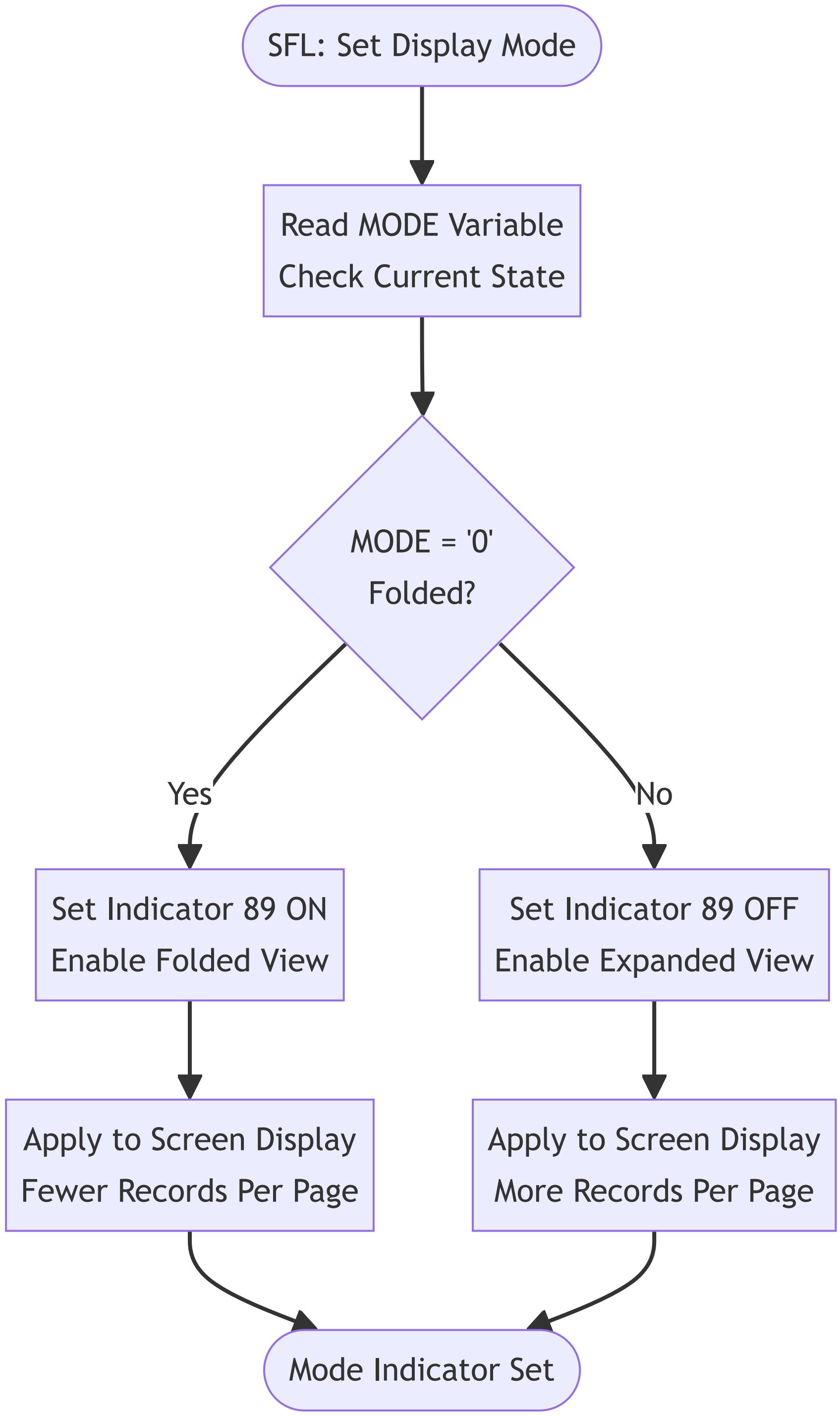
Key Data: Uses RPG user source function (POBKUFR) containing conditional logic that reads the MODE variable and sets/clears indicator 89 accordingly.

2. Business Logic Summary

The second SFL function controls the current display mode indicator for the subfile. It checks the MODE variable to determine if the user has requested folded or expanded view, then sets indicator 89 to turn on folded mode (89 ON) or turn off folded mode for expanded view (89 OFF). This indicator is bound to the screen display file and controls how many records appear on screen at once. The function executes each time the screen refreshes to ensure the display matches the user's most recent fold/drop command (F7 key press).

3. Business Process Flow

Process Explanation: The function reads the MODE variable, performs a simple IF-ELSE comparison (if MODE='0' set indicator 89 ON, else set indicator 89 OFF), and returns control to the main program with the indicator properly set to control the subfile display format.



4. Data Interaction and Business Impact

Database Operations: None - this controls display indicator settings, not database access.

External Calls: Calls RPG user source function POBKUFR which contains the conditional logic for indicator 89 management.

Business Impact: Works in conjunction with Function 3 to provide the complete fold/drop user experience. By properly managing the display mode indicator, users get immediate visual feedback when they press F7, seeing the subfile change from showing 6 records per page (folded) to perhaps 12 or 15 records (expanded), or vice versa. This responsive behavior makes the inquiry screen feel interactive and user-controlled, improving satisfaction and efficiency for warehouse personnel reviewing inventory data.

Function Summary

Function	Line	Business Purpose
CLC	58	Centers application description text for professional screen heading display
MOV	83	Moves centered description into company heading field on inquiry screen
SFL	102	Configures F7 key to enable fold/drop toggle for subfile display control
SFL	1980	Sets display mode indicator controlling folded vs. expanded subfile view

Documentation Status: All 4 functions analyzed for business users

This documentation focuses on business value and process understanding