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United States Patent [19][11] **Patent Number:** **5,774,883****Andersen et al.**[45] **Date of Patent:** **Jun. 30, 1998**

[54] **METHOD FOR SELECTING A SELLER'S MOST PROFITABLE FINANCING PROGRAM**

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[51] **Int. Cl.**⁶ **G06F 17/60**

[52] **U.S. Cl.** **205/38; 705/35; 705/37**

[58] **Field of Search** 395/234, 235, 395/237, 238; 705/35, 37, 38

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Primary Examiner—Robert A. Weinhardt

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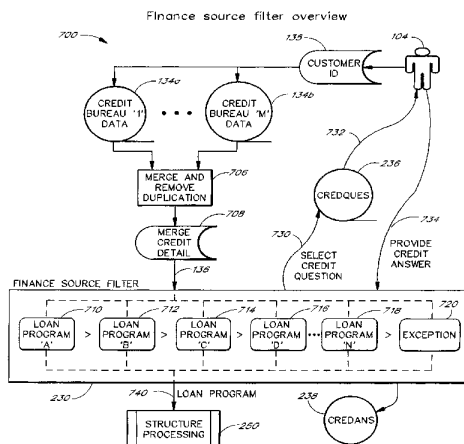
Attorney, Agent, or Firm—Knobbe, Martens, Olson & Bear, LLP

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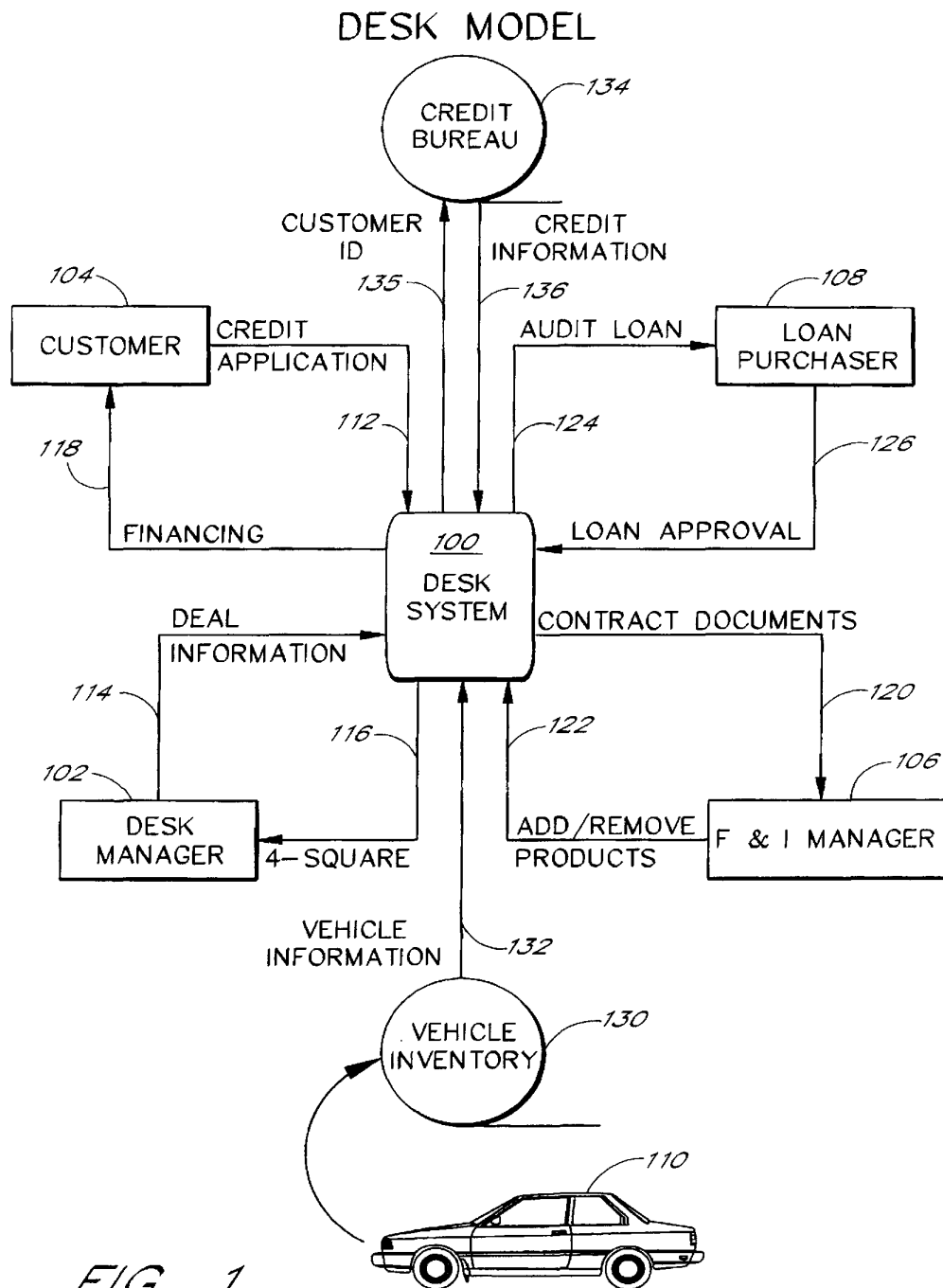
ABSTRACT

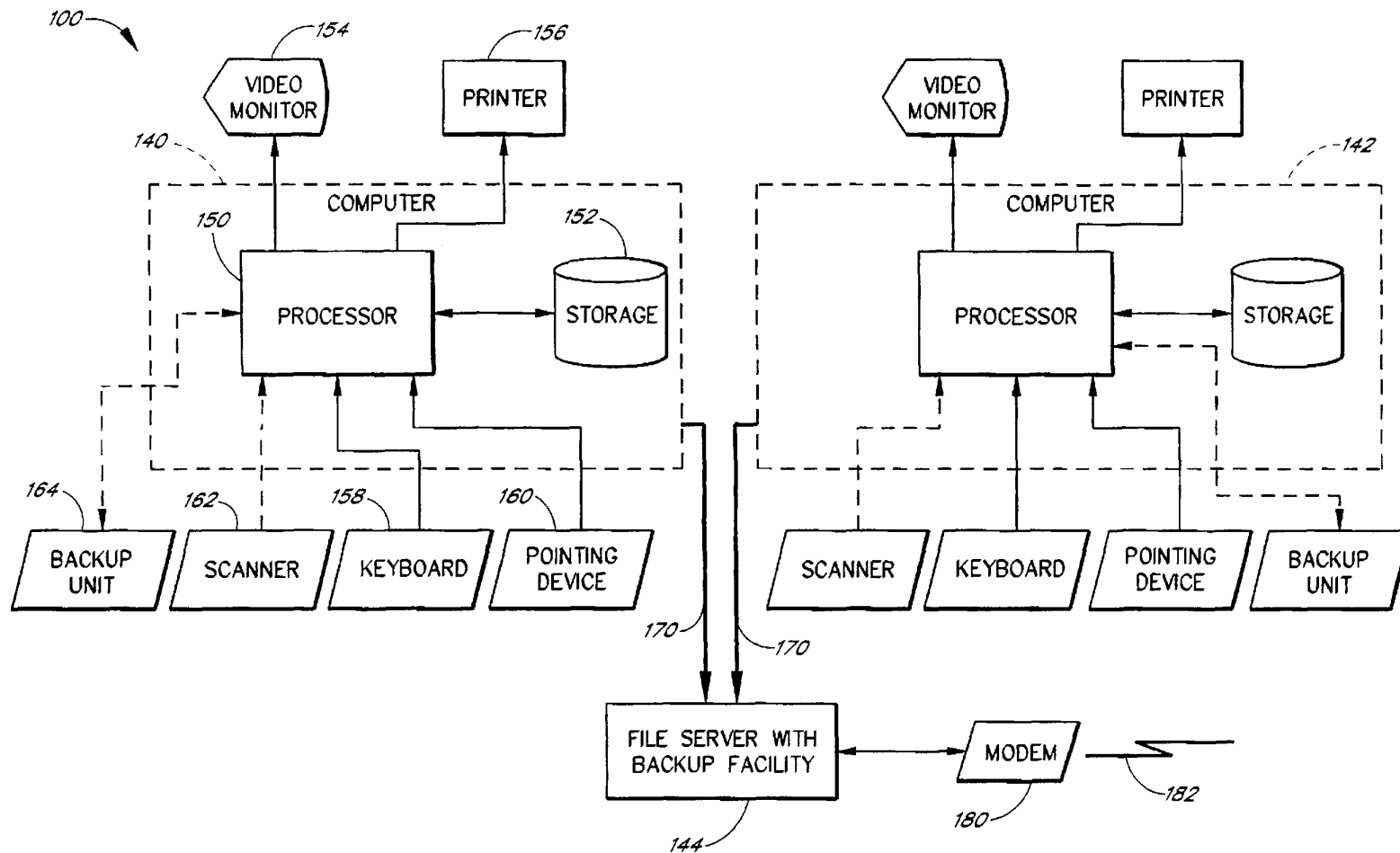
A transaction management system and method of validating the sale of an asset. The system may be used by a vehicle dealership to evaluate a customer's credit risk, budgetary factors, and profitability of the sale during negotiations for sale of a vehicle, thereby facilitating the sale from both the customer's and dealership's point of view by properly structuring the transaction. The system enables the dealer to pool front-end and back-end profit items to maximize profits. The system performs expert functions to funnel the customer's credit information into a best fit with one of a plurality of specific finance program tiers.

7 Claims, 23 Drawing Sheets



DS EXHIBIT 1008





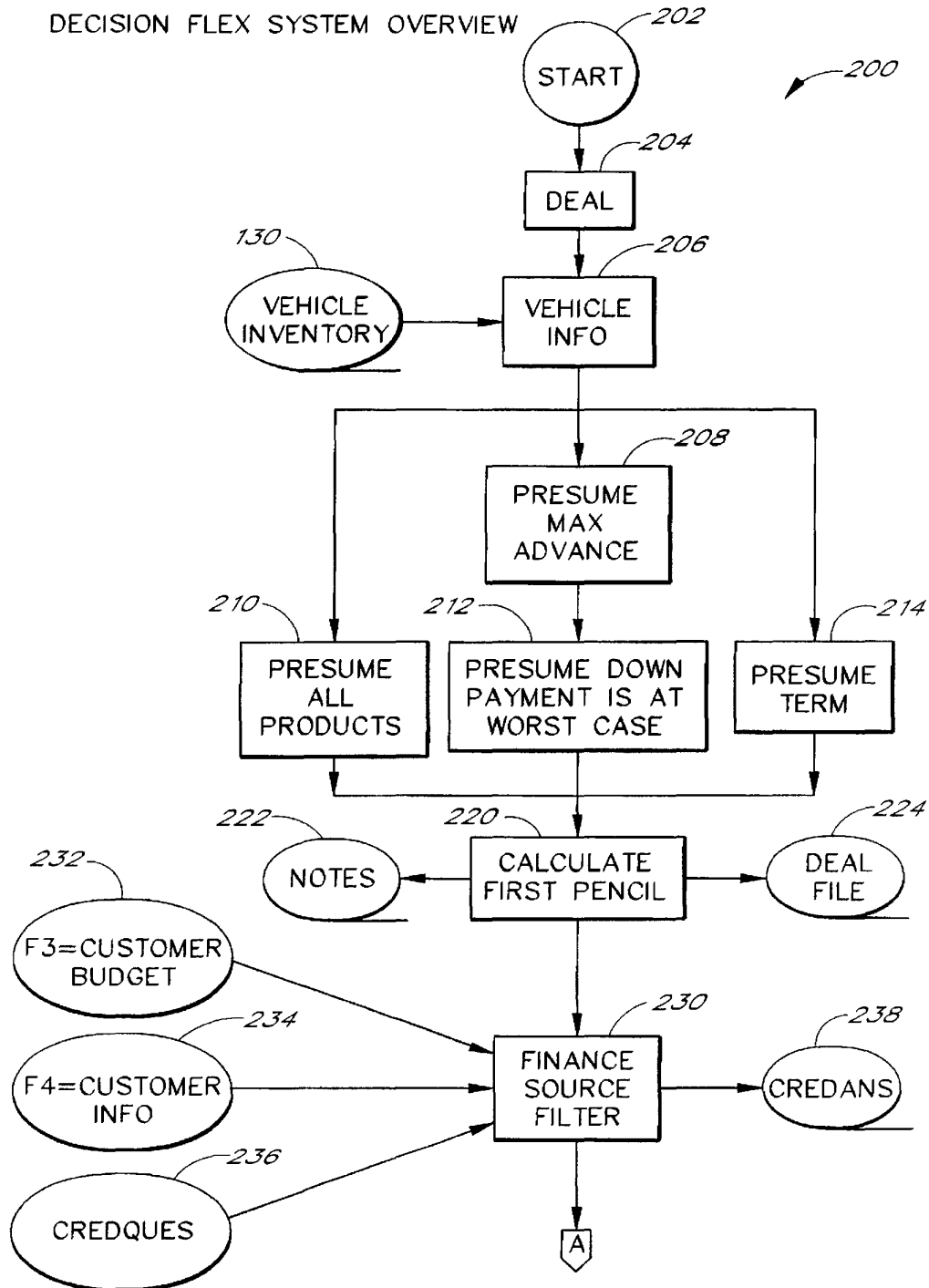


FIG. 3a

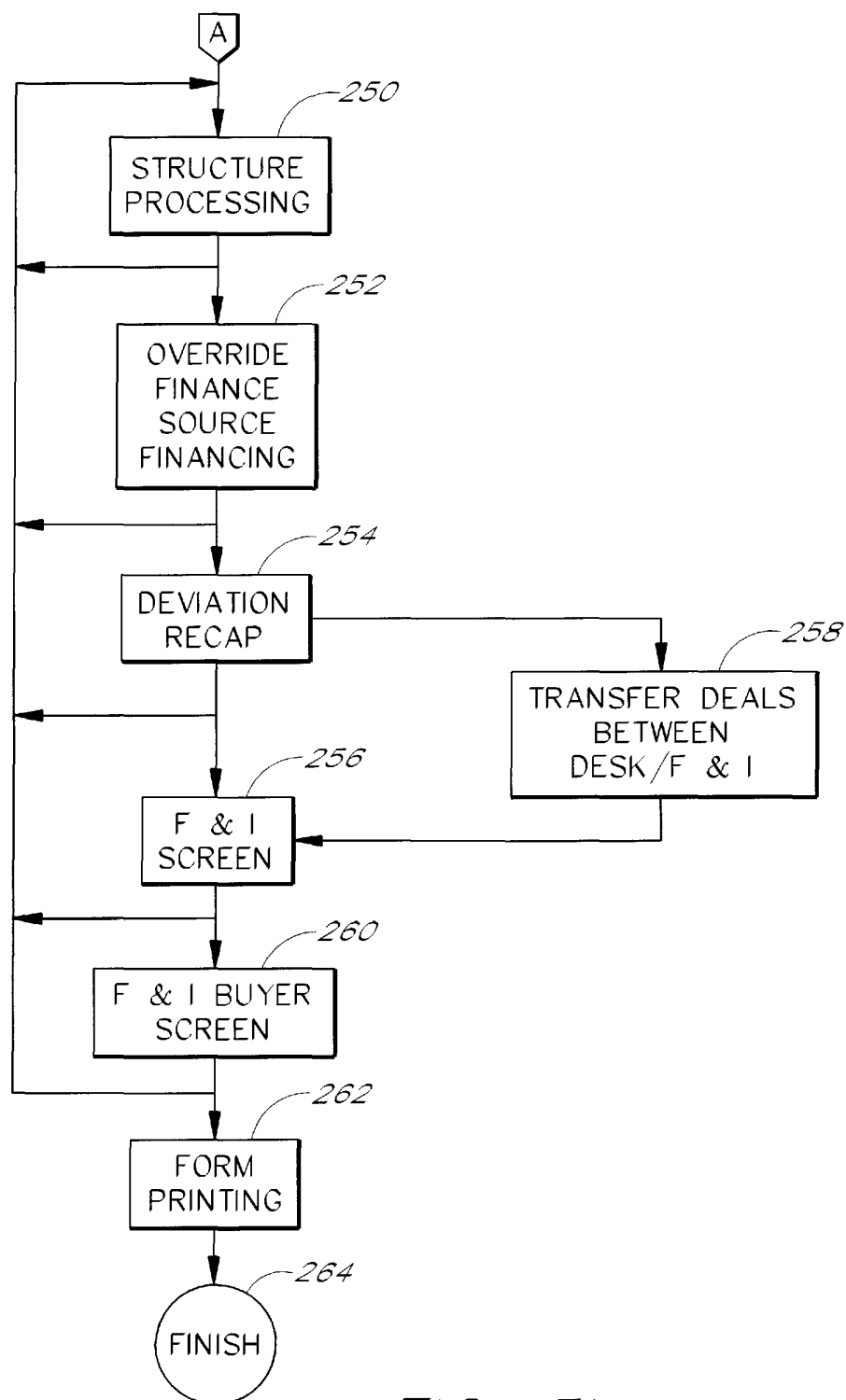
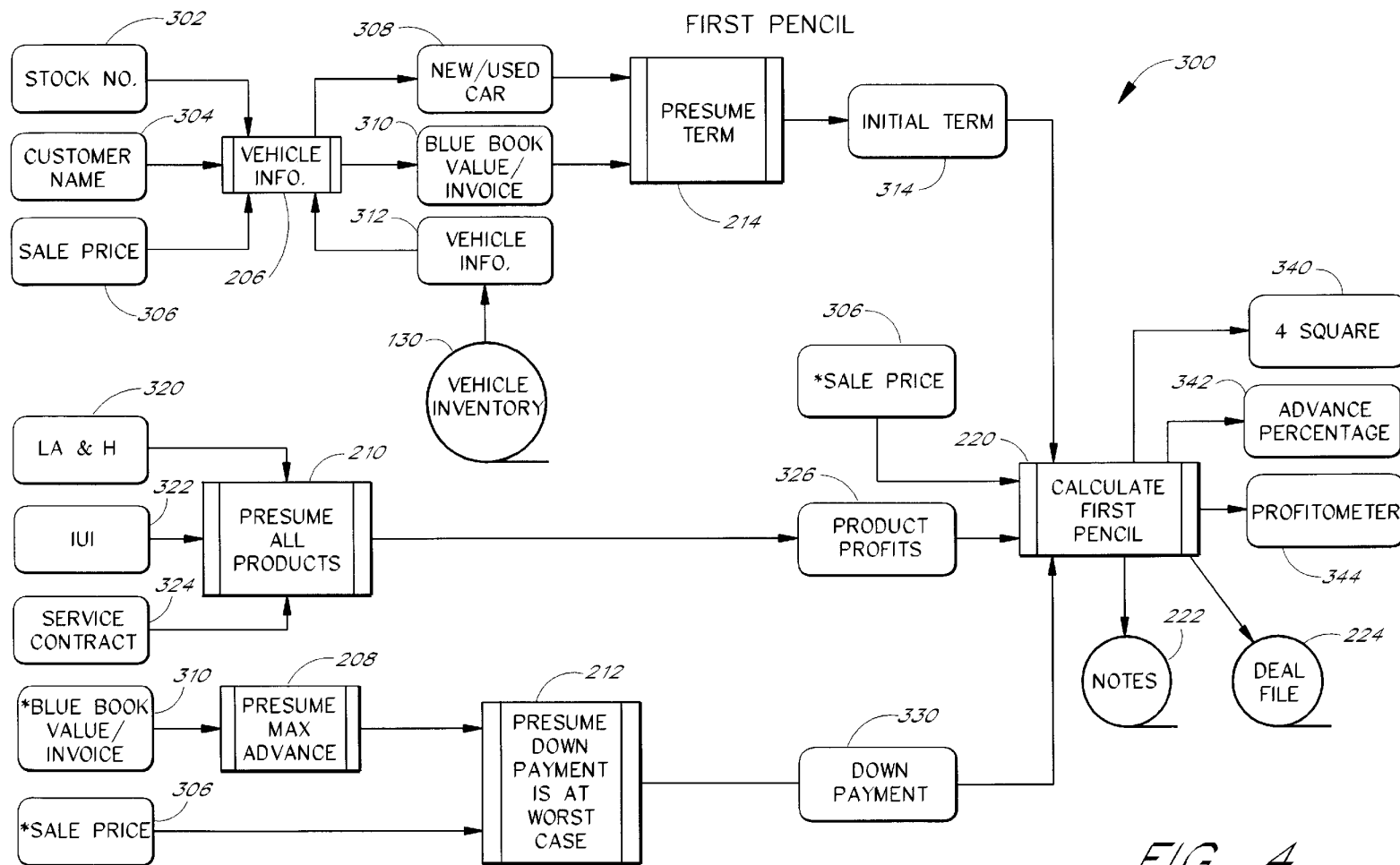


FIG. 3b



* SIGNIFIES INPUT HAS BEEN LISTED PREVIOUSLY

"FIRST PENCIL" EXAMPLE

TYPE	NEW	95 ACUR INTEGRA SDN	
SELLING PRICE	20,000.00	TERM (MONTHS)	48
ACCESSORIES	0.00	1st PAYMT 03/11/95	DAYS 45
DOC FEE	35.00	LIFE PREMIUM	586.97
DEALER SMOG FEE ...	0.00	AH PREMIUM	1,665.94
TAX (8.25%)	1,652.89	UNEMP PREMIUM	2,276.24
LUXURY TAX	0.00	PHY DMG PREMIUM ...	0.00
SERVICE CONTRACT ..	1,595.00	TRADE ALLOWANCE	0.00
LICENSE FEE	437.00	TRADE PAYOFF	0.00
WEIGHT FEE	0.00	PICK-UP PAYMENTS ..	0.00
STATE SMOG FEE	0.00	CUSTOMER REBATE ...	0.00
OTD PRICE	23,719.89	DOWN PAYMENT	5,960.00
PAYMT (JL+AH+IU)	687.27	TOTAL DOWN	5,960.00
ADD-ON (12.00)	APR 20.27	AMOUNT FINANCED ...	22,289.04
FIRST PENCIL	[80%adv]	g2485h0r0i1076s875t4436	

342

344

FIG. 5

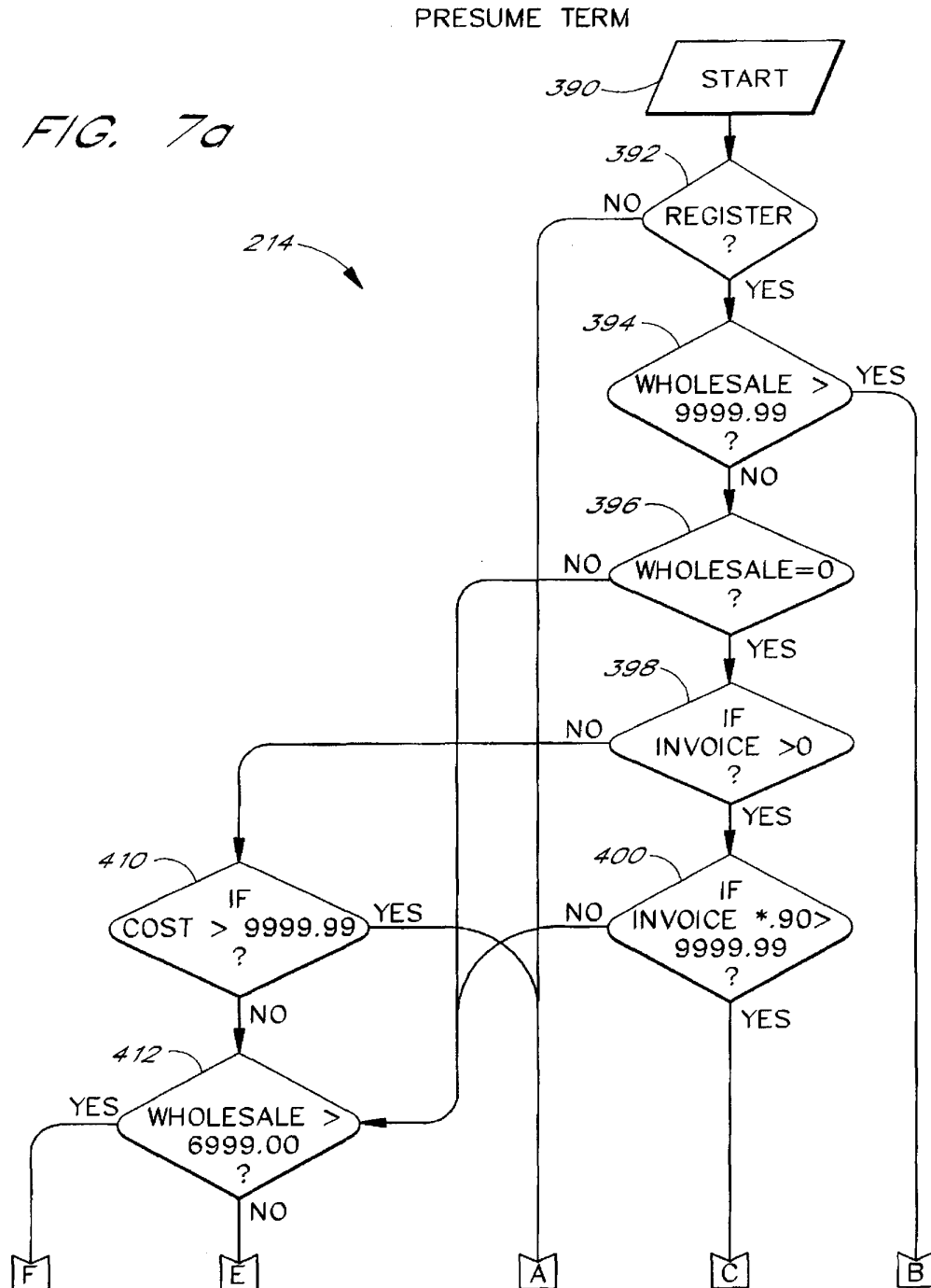
"FOUR SQUARE" EXAMPLE

340

SELLING PRICE..... 20,000.00	
CASH/TRADE EQUITY..... 5,960.00 <u>348</u>	TERM (MONTHS)..... 48 PAYMENT (JL+AH+IU).... 687.27 APR 20.27%

FIG. 6

FIG. 7a



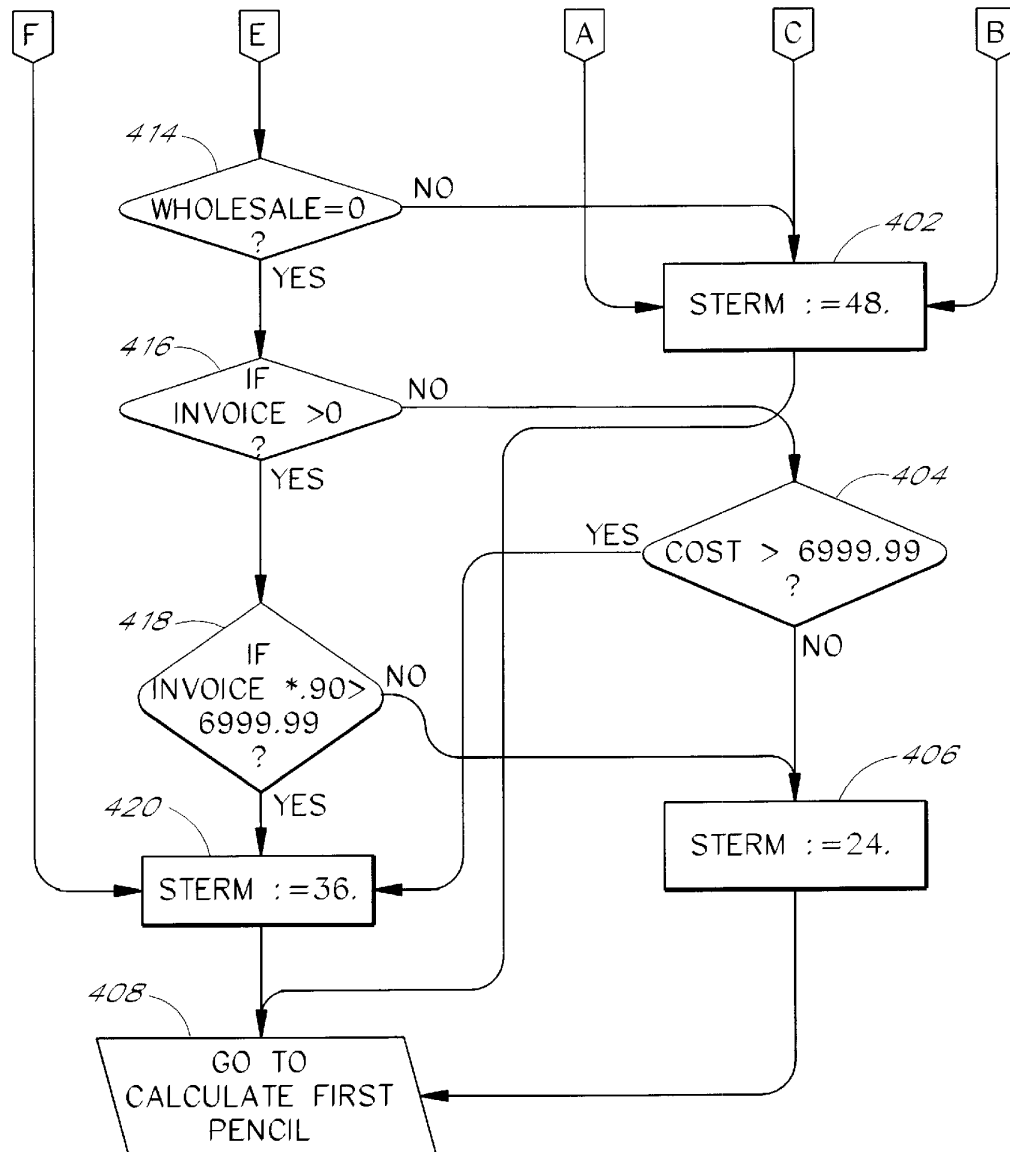


FIG. 7b

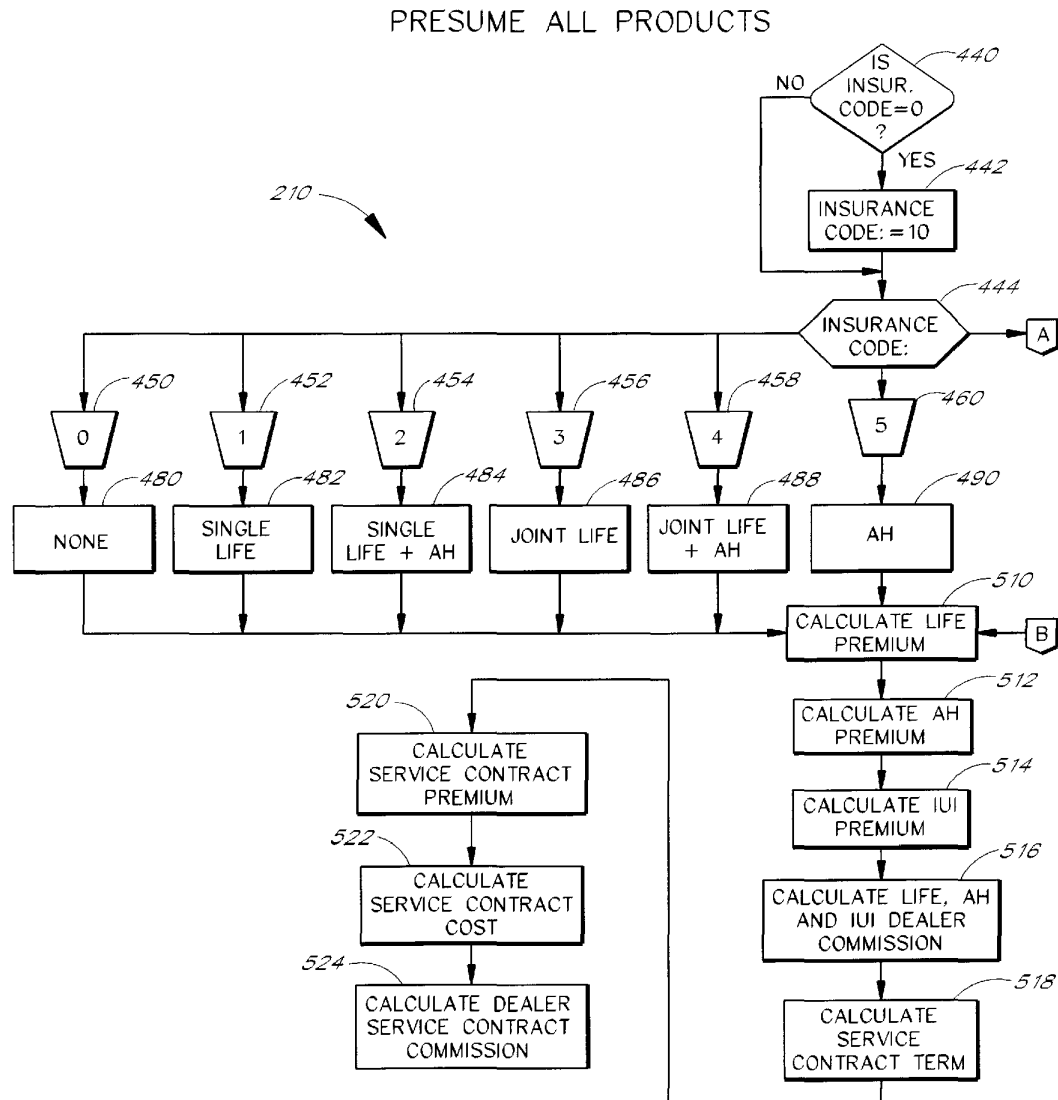
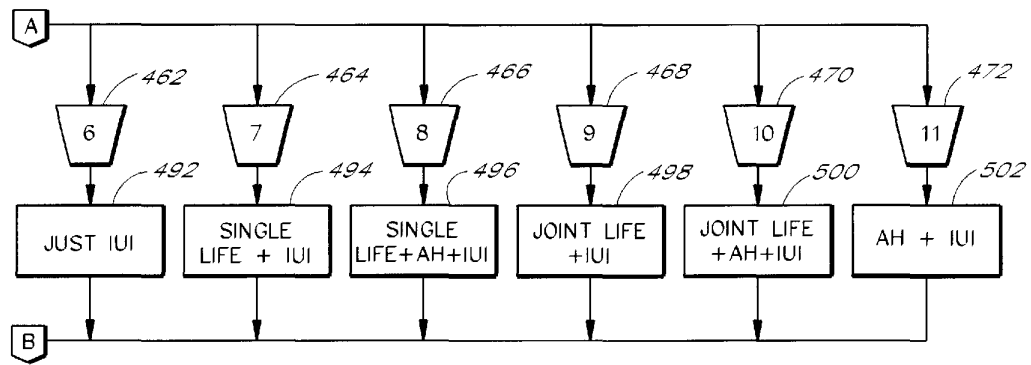


FIG. 8a

*FIG. 8b*

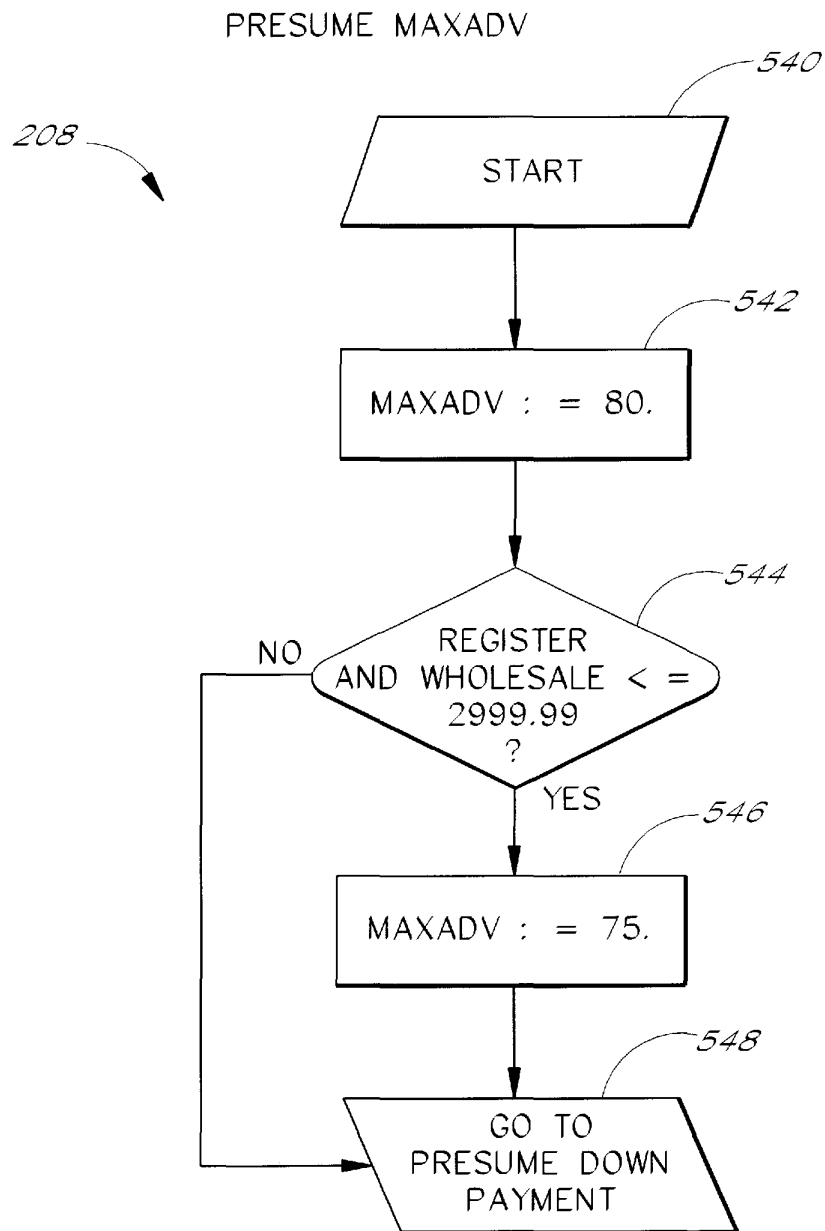


FIG. 9

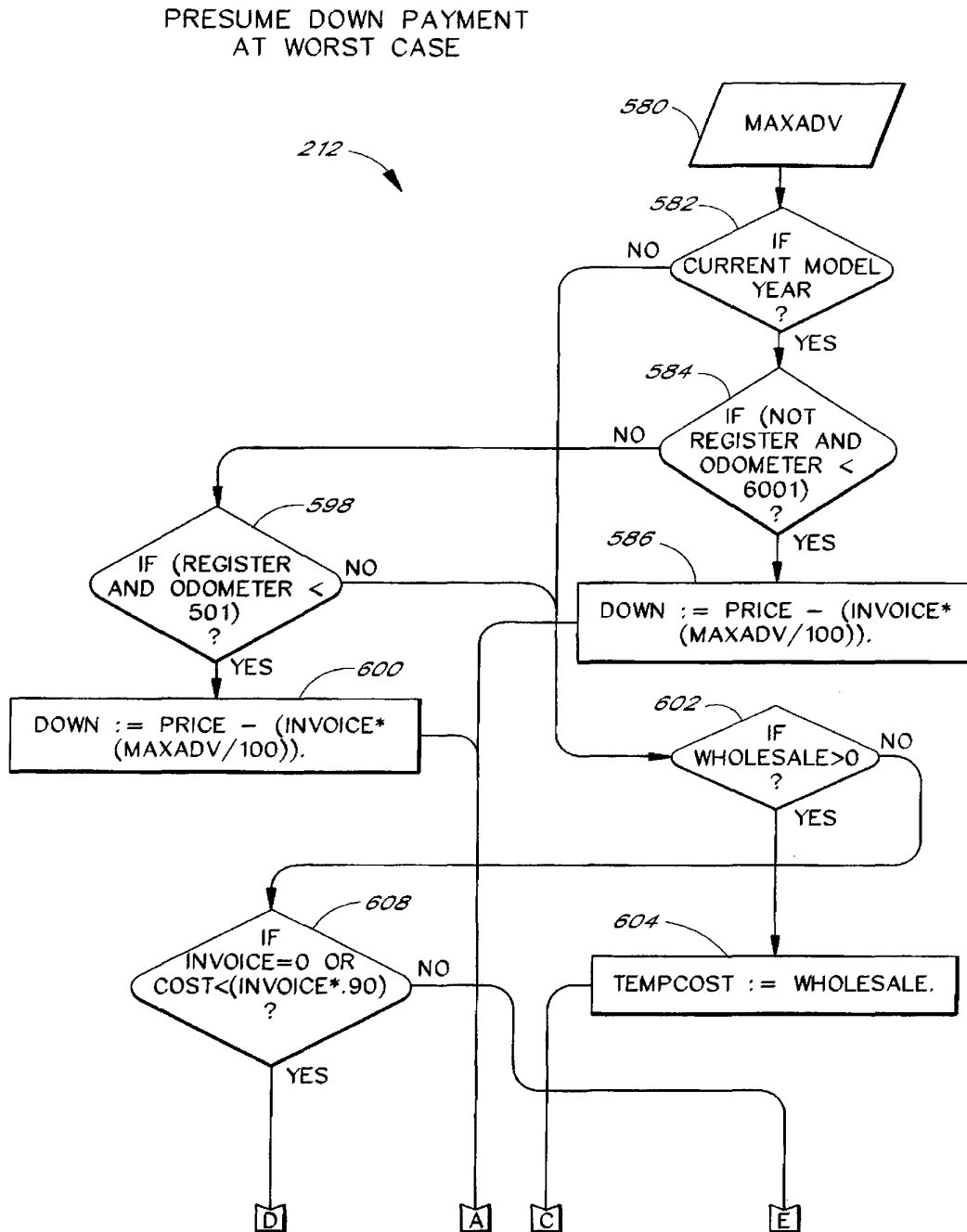


FIG. 10a

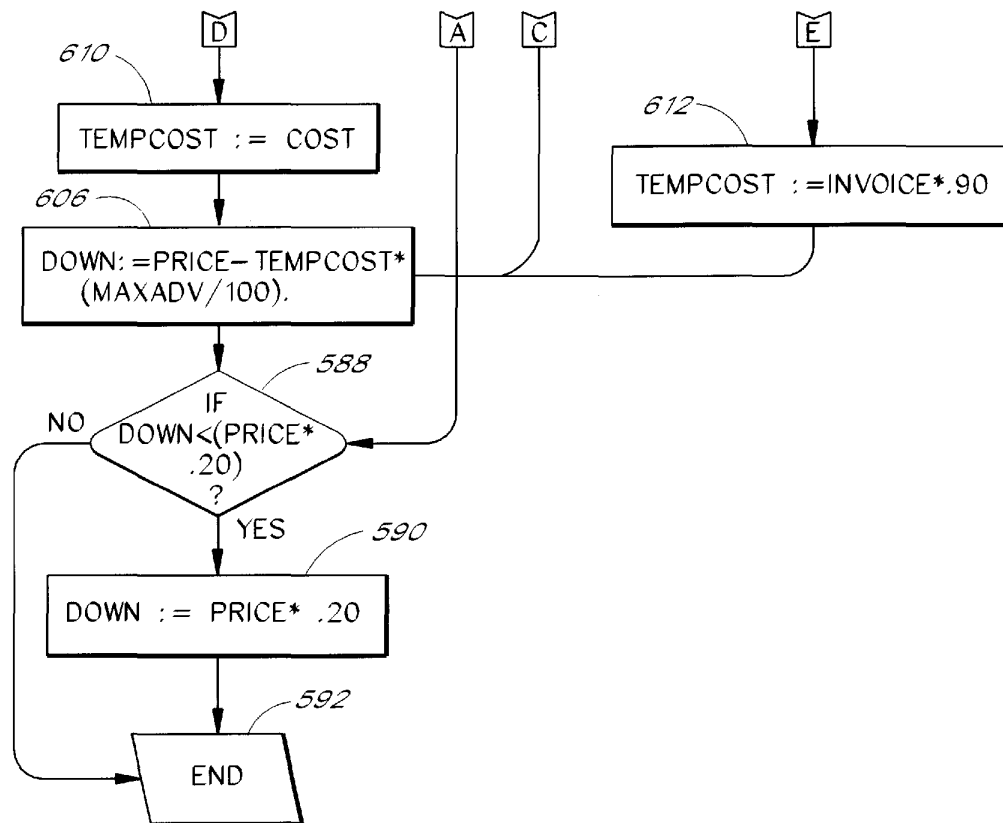


FIG. 10b

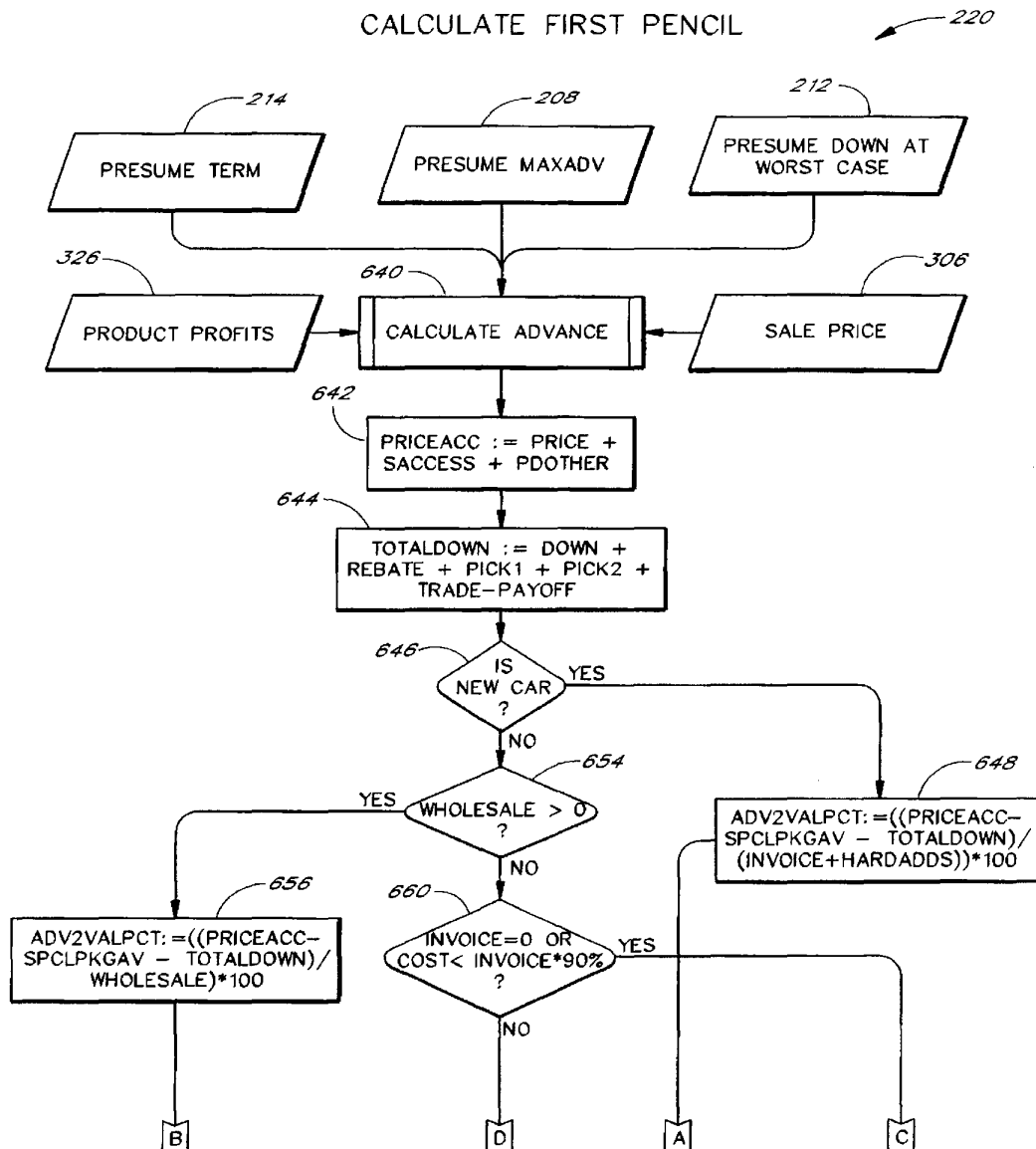


FIG. 11a

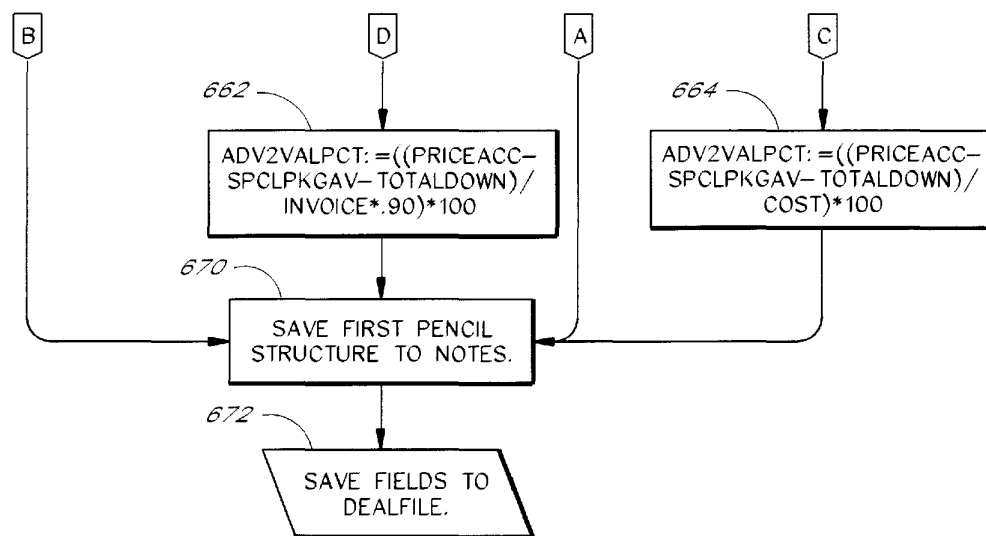


FIG. 11b

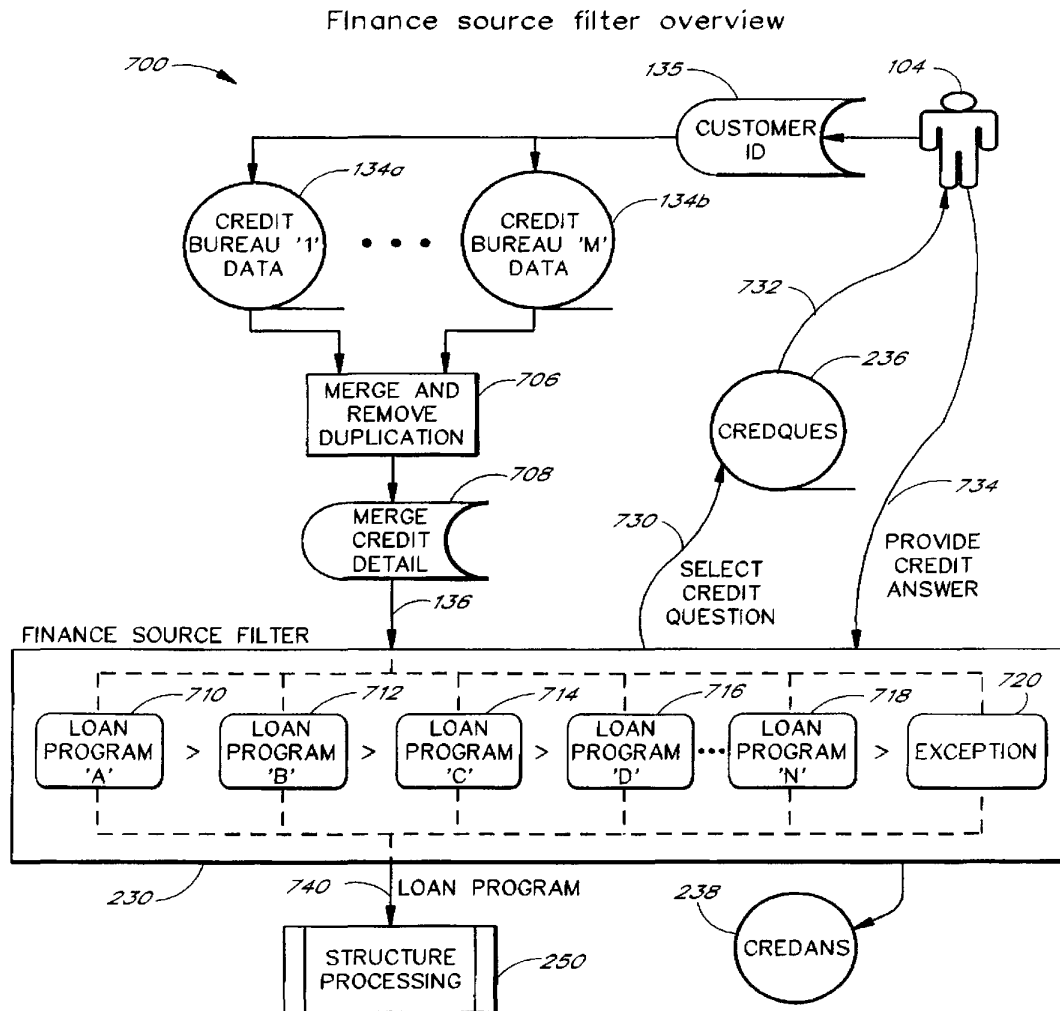


FIG. 12

FIG. 13

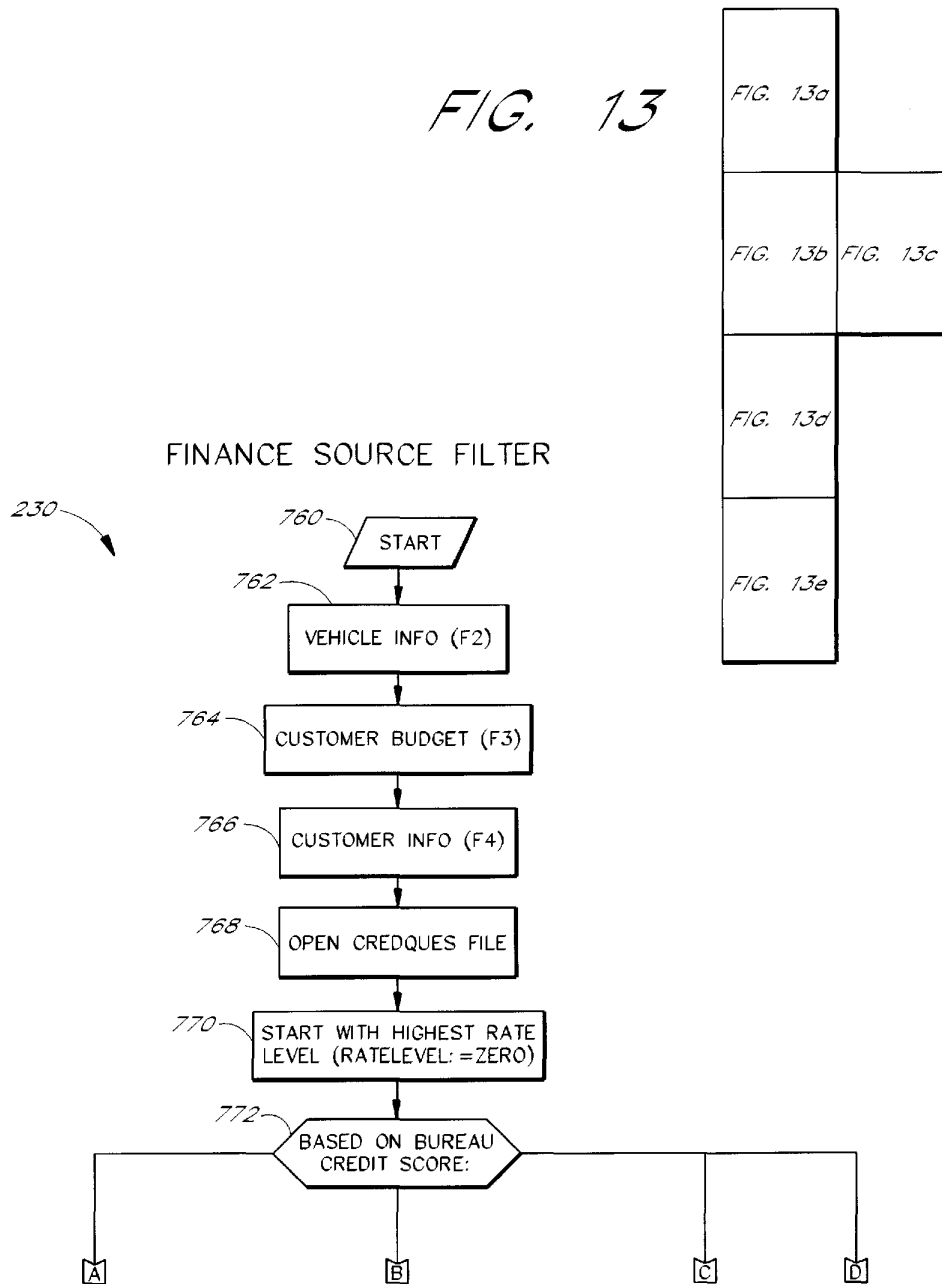


FIG. 13a

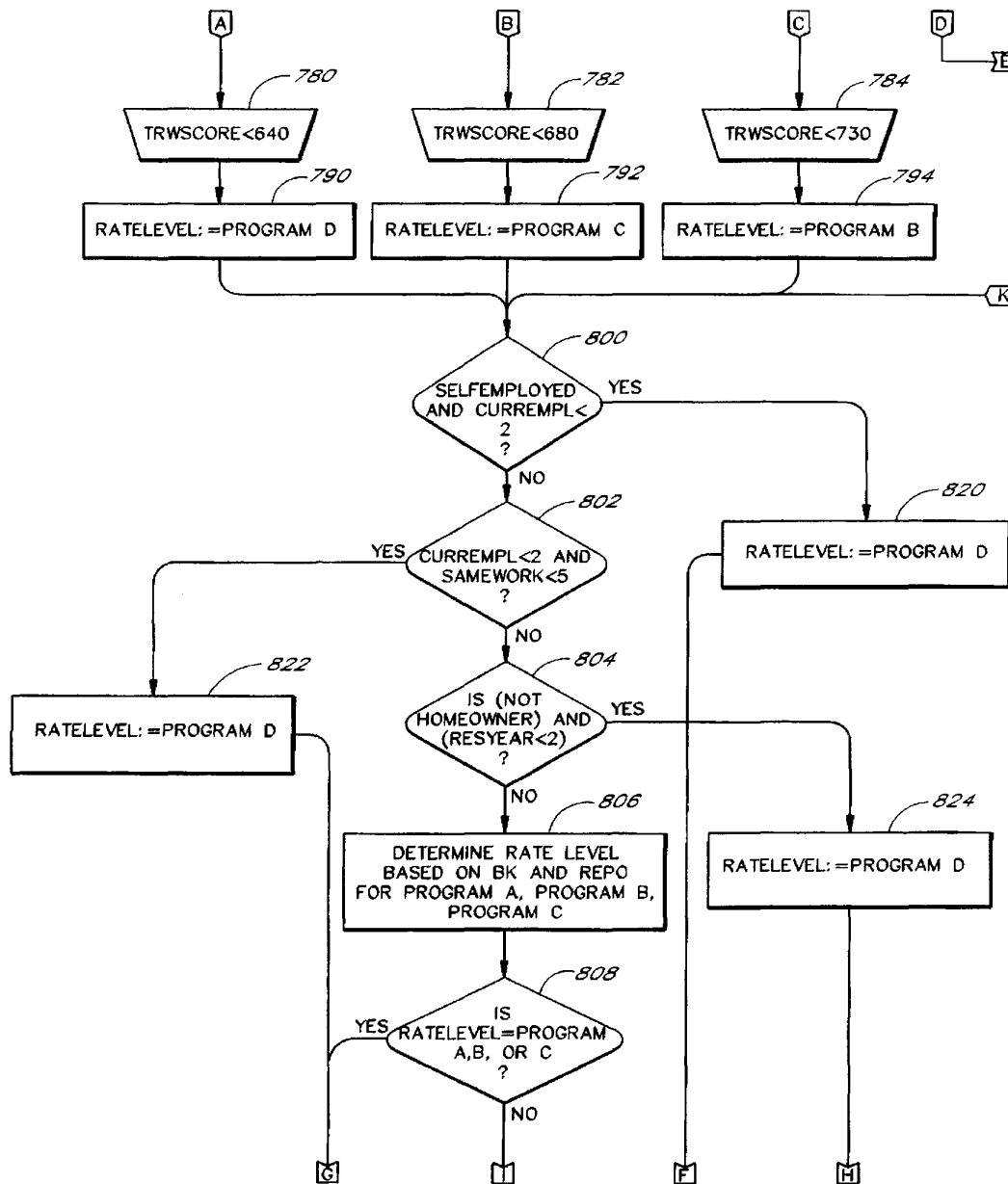
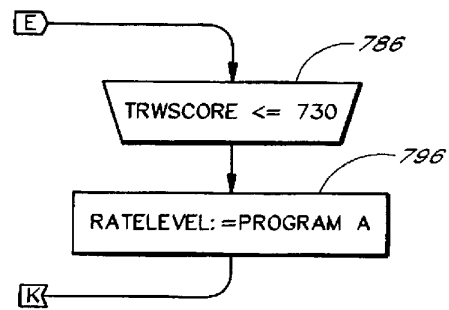


FIG. 13b

*FIG. 13c*

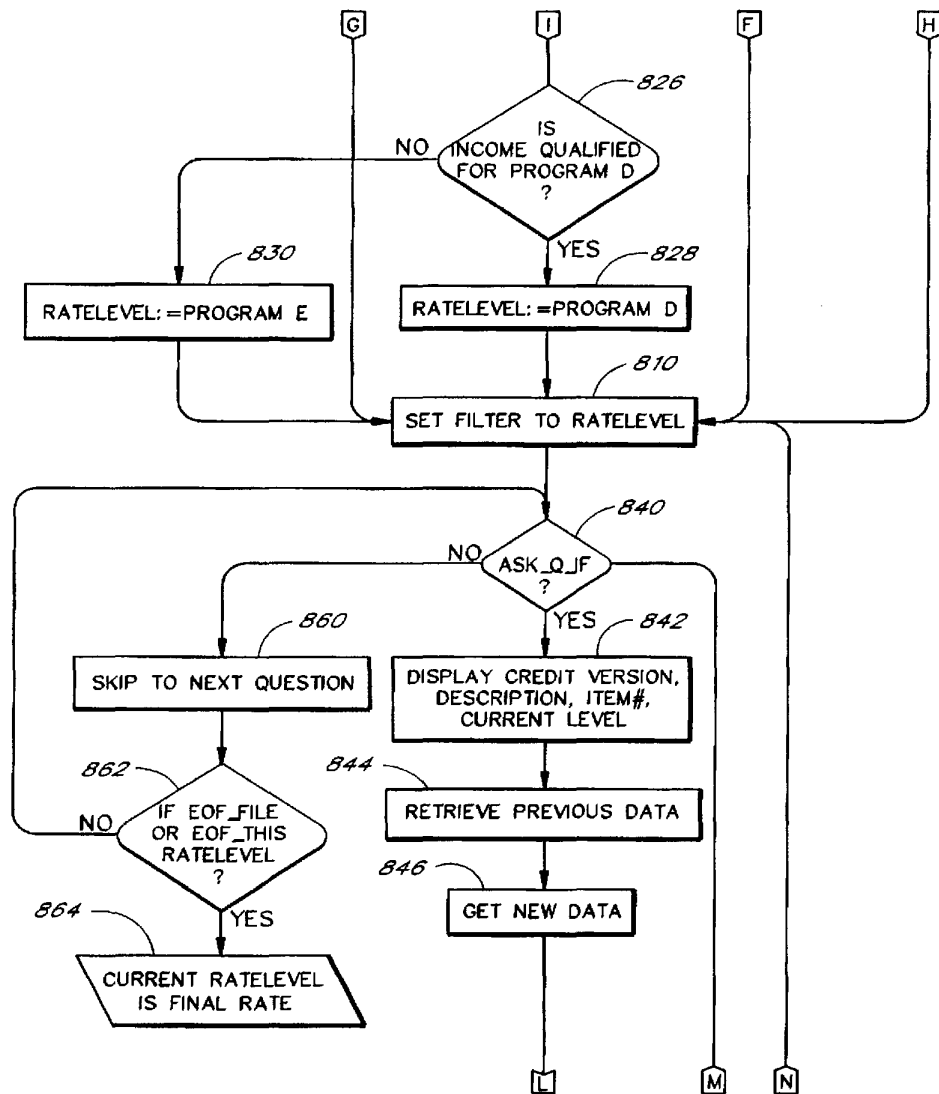
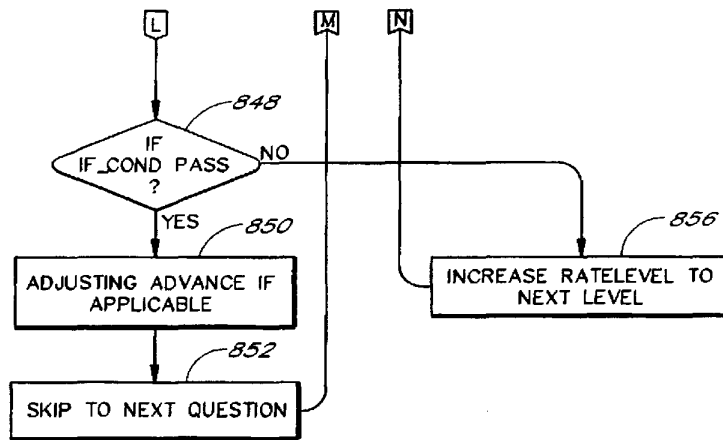
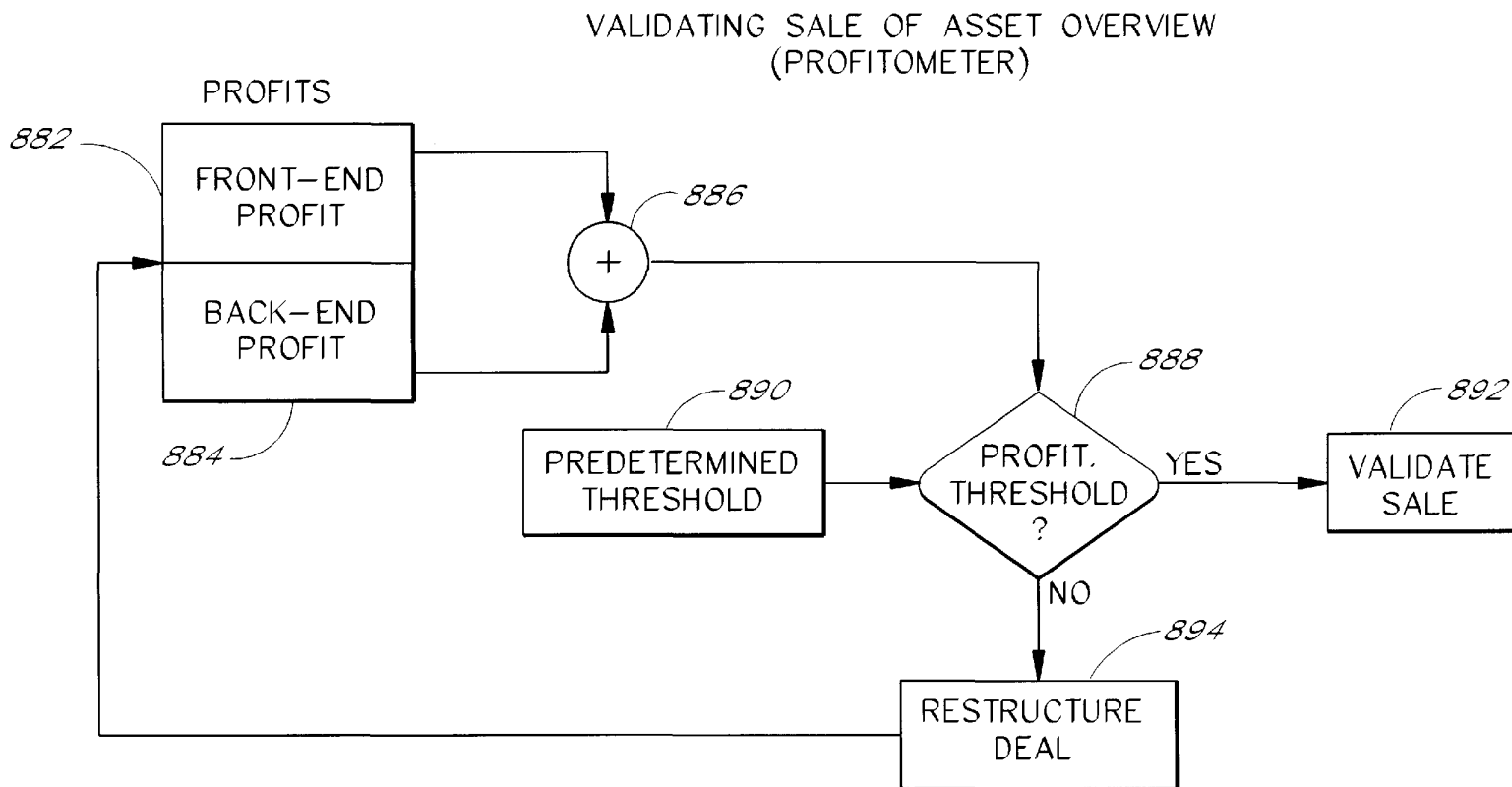


FIG. 13d

*FIG. 13e*

*FIG. 14*

METHOD FOR SELECTING A SELLER'S MOST PROFITABLE FINANCING PROGRAM

MICROFICHE APPENDIX

A microfiche appendix containing computer source code is attached. The microfiche appendix comprises twenty three (23) sheets of microfiche having 1266 frames, including one title frame.

The microfiche appendix contains material which is subject to copyright protection. The copyright owner has no objection to the reproduction of such material, as it appears in the files of the Patent and Trademark Office, but otherwise reserves all copyright rights whatsoever.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to transaction systems, and more particularly to a system and method for validating a sale of an asset.

2. Description of the Related Technology

The global economy has made the business of selling more competitive than ever. Businesses that do not maximize customer satisfaction and profitability will not survive in today's markets. Businesses are therefore demanding tools and methods to provide a competitive edge.

In many retail markets, advertising drives consumers to desire a product and purchase it as soon as possible. If anything stands in the way of immediate gratification, the customer may reconsider the purchase (delay or back-out), or may go to a competitor who can provide the product immediately. Thus businesses desire ways to streamline and quicken the sales process and increase customer satisfaction, while at the same time maximizing their profits.

Various types of transaction systems and programs have been created during the past decade. For instance, U.S. Pat. No. 4,346,442 to Musmanno describes a cash/brokerage management financial system which provides for automatic investment of free cash balances while, at the same time, integrating a margin brokerage account, a credit card account, a checking account and short term investment accounts. As another example, U.S. Pat. No. 4,774,664 to Campbell, et al., describes a financial data processing system having multiple terminals and a central processor which includes a data bank. Each terminal can write multiple loan payment data and loan application data into the data bank.

U.S. Pat. No. 4,742,457 to Leon, et al., describes a system for financial management for banks which adjusts deposit and loan accounts, along with respective rates, to the capital needs of an institution and related goals of a customer. Specifically, this investment management system adjusts the deposit and loan accounts for inflation.

U.S. Pat. No. 4,812,628 to Boston, et al., describes a transaction system with off-line risk assessment. The issuer of transaction cards in this system regulates the type of authorization requests transmitted from the point of transaction. The cards have risk assessment data, which is used to generate a pending transaction limit, associated with each cardholder. The amount of a transaction is compared to the pending transaction limit at a terminal used by the card holder.

U.S. Pat. No. 4,736,294 to Gill, et al., describes a system to administer and manage vehicle loan financing transactions wherein a vehicle dealership accepts a loan application from a customer and transmits it by computer to a bank

branch for analysis. A residual value of the vehicle at a predetermined option date, typically, 36 or 48 months from the date of purchase, is determined at the time of making the loan. The system uses aspects of leasing and aspects of a program where the loan is secured by a chattel mortgage on the car (large balloon payment at end of term). Using the Gill system, the customer makes low monthly payments, takes title to the vehicle, and the customer is ensured he can sell the car at a predetermined price at the end of the loan term. Adjustment is made of the residual value to account for excessive mileage driven, and then the original loan is either closed out or refinanced at the end of the term.

None of these prior systems address the problem of maximizing profits on every sale while eliminating the frequent guesswork and human error in structuring the financing of sales at a dealer level. In particular, it is desired to have the ability to guarantee approval for deals made within a lender's guidelines and to have guideline interpretation capabilities that work for the dealer's benefit. A system with such capability would allow more profit per sale by communicating to the manager the maximum possible loan advance on each sale and the maximum payment each borrower can make. The customer satisfaction index (CSI) would improve since dealer rewrites and unwinds of incorrectly structured deals outside of lenders' guidelines (as may now occur for certain sales such as those made in evenings and on weekends) would be eliminated. With the proper system, sales managers could maximize sales and deliver products with confidence.

In a vehicle dealership setting, namely, a car dealer, profits are typically made at the front-end of a deal by the sales department and at the back-end of a deal by the finance and insurance (F&I) department. Traditionally, these departments do not pool profits; rather, each department attempts to maximize its own profits. This lack of cooperation between departments can lead to a number of problems.

One problem is that a salesperson does not have an incentive to spend the time necessary to write up every customer and give their offer to the desk manager for consideration if there is not sufficient front-end profit for a reasonable commission. However, if there was a way to pay the salesperson on both the front-end gross profit and back-end gross profit, the salesperson would be encouraged and potentially rewarded for writing up every customer. The results are several-fold: the salespeople and desk manager will co-operate with the F&I manager and every one will work as a team, the salespeople can concentrate on their primary job function, the salespeople will make more vehicle sales and thus commissions, and the salespeople will have a larger customer base to call for referrals and repeat business.

What is needed, therefore, is a system which can give the desk manager the tools to structure the deal under dealer and lender guidelines and at the same time calculate the dealer's true profit (i.e., front- and back-end profit combined) so that it can be quickly determined if a deal is possible. This will allow a loan to be structured as lender approved and dealer profitable before the deal proceeds into the finance department. Thus, if the lender's guidelines are known by such a system, the desk manager knows how to get the customer's loan structured so that it will be approved. The desk manager will then be able to transfer the deal to the finance office knowing that the F&I manager will verify the information entered into the system to ascertain the approval. Once the information has been verified, the dealer knows that the customer will be financed and that the vehicle can be delivered to the customer. As an added benefit, a customer

cannot purchase a vehicle more expensive than he or she can afford, and may obtain delivery of the vehicle at any time the dealership is open, including evenings and weekends when most lending institutions are closed.

SUMMARY OF THE INVENTION

The present invention provides a transaction management system designed specifically for the Desk Manager, alternatively the sales manager, and the F&I Manager to sell more cars, generate the greatest possible profit on each sale and guarantee purchase by a lending institution. The system is pre-programmed with various lender guidelines and rates, and based upon the borrowers credit profile, automatically selects the "best fit" or most profitable finance program available to the dealership from a master list of finance programs. The system retrieves credit bureau reports and also allows the dealer to access merged credit bureau reports (i.e., reports from two or more credit bureaus) according to the requirements of the pre-programmed list of lenders. This feature speeds up time spent interpreting credit bureau reports by reducing the time spent analyzing customer credit, and reduces human errors or oversights which happen during busy times at a dealership. The ability to automatically select the "best fit" finance program at anytime the dealership is open, including accurate interpretation of credit reports, leads to quick progression of the deal and delivery of the product.

This system enables the Desk Manager to maximize profits on every sale while eliminating the frequent guesswork and human error in structuring the financing of sales at the dealership level. At any given instant while the Desk Manager is structuring a deal, the system displays a true total profit including each category of front-end and back-end profit. The Desk Manager can make more sales and deliver more cars knowing the total profit of the deal including back end income and sources from which the income is derived, such as front-end gross, finance reserve, insurance, and service contract. Because the Desk Manager has knowledge of the total profit, a deal that may have been unacceptable using prior techniques, e.g., a deal with no front-end gross profit, can be acceptable with the present system.

In one aspect of the present invention, in a data processing unit having a memory and a visual display, and capable of executing software code, a method of validating the sale of an asset, comprises the steps of providing a sales price of the asset in the memory; providing a cost of the asset in the memory; determining a gross profit from the cost and the sales price by execution of the software code; providing a back-end profit in the memory; comparing a total profit, summed from the gross profit and the back-end profit, with a predetermined threshold by execution of the software code; validating the sale of the asset if the total profit is greater than the threshold; and providing visual feedback on the visual display to a user in response to the validating step.

In another aspect of the present invention, in a data processing unit having a memory and capable of executing software code, a method of selecting a best financial program from a rank ordered, plurality of financial programs, comprises the steps of: (1) providing a sales price of an asset; (2) retrieving a credit score unique to a customer from the memory; (3) retrieving one or more credit questions from the memory; (4) receiving a credit answer, indicative of the customer, responsive to each of the credit questions; (5) selecting one of the financial programs based upon the credit score and the credit answers; and (6) iterating steps (3) through (5) until a best financial program is selected.

In yet another aspect of the present invention, in a data processing unit having a memory and a visual display, and capable of executing software code, a method of maximizing the profit of a sales transaction for an asset, comprises the steps of providing a sales price of the asset in the memory; providing a cost of the asset in the memory; determining a back-end profit by execution of the software code; providing a front-end profit in the memory; selecting a best financial program from a rank ordered, plurality of financial programs; and structuring the transaction based on said sales price, cost, and selected financial program so as to maximize the sum of the front-end profit and the back-end profit.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic model of the desk system, which is a preferred embodiment of the present invention;

FIG. 2 is a block diagram of an exemplary hardware configuration of the desk system shown in FIG. 1;

FIGS. 3a and 3b are a system overview flow diagram of the desk system software that operates on the desk system shown in FIGS. 1 and 2;

FIG. 4 is flow diagram of the Calculate First Pencil module and associated input modules shown in FIG. 3;

FIG. 5 is an exemplary first pencil screen display generated as part of the flow of FIG. 4;

FIG. 6 is an exemplary four-square screen display or printout generated as part of the flow of FIG. 4;

FIGS. 7a and 7b are a flow diagram of the Presume Term module shown in FIGS. 3 and 4;

FIGS. 8a and 8b are a flow diagram of the Presume All Products module shown in FIGS. 3 and 4;

FIG. 9 is a flow diagram of the Presume Max Advance module shown in FIGS. 3 and 4;

FIGS. 10a and 10b are a flow diagram of the Presume Down Payment module shown in FIGS. 3 and 4;

FIGS. 11a and 11b are a flow diagram of the Calculate First Pencil module shown in FIGS. 3 and 4;

FIG. 12 is an overview diagram of the Financial Source Filter module shown in FIG. 3;

FIG. 13 consisting of FIGS. 13a, 13b, 13c, 13d, and 13e are a flow diagram of the Financial Source Filter module shown in FIGS. 3 and 12; and

FIG. 14 is an overview diagram of one aspect of the operation of the desk system shown in FIGS. 1 and 2.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Reference is now made to the drawings wherein like numerals refer to like parts throughout.

For convenience, the following description will be organized into the following seven principal sections: System Model, Hardware Configuration, System Overview, First Pencil Overview, First Pencil Modules, Financial Source Filter, and Conclusion.

I. SYSTEM MODEL

As shown in FIG. 1, a transaction management system 100, comprising a computer and software, is also referred to as the "Desk System" or "Decision Flex". The system has applicability to vehicle transactions in general but will be described in conjunction with the embodiment directed to auto dealers.

The system **100** is an expert system that, based on an vehicle buyer's budget data, credit history, and vehicle information, automatically structures a transaction to qualify for the most appropriate finance or lease program tier known to the system **100**. At the same time, the system **100** provides an auto dealer with a variety of tools to quickly manipulate components of the deal structure, override program tiers (with resultant deviation indications), print transaction documents for buyer execution and accurately determine real profit. In the presently preferred system, real profit is broken out by vehicle, factory holdback, factory incentives, finance reserve and financed product profits. The computer and software provide all the important functions offered by the leading (Finance and Insurance) F&I computer systems in the industry, plus many more revolutionary features that are not available with any other system. This unique, system is "user friendly" with on-screen instructions, menus and hot keys to work deals step by step, and allows the user to move easily and speedily from one screen to the next.

In the auto industry there are several different sales systems. In these many sales systems certain terminology has been adapted to describe the job functions of different sales employees. The term "desk manager" is used in several of the different sales systems in the auto industry. The definition of the job function of the desk manager **102** as it pertains to the computer system **100** of the present invention is simple. The desk manager **102** is referred to as the individual who operates the desk system **100**. This is the person who structures the deal for the salesperson or "closer." The reader may consider anyone who does this function in the automobile agency to be a desk manager. In many dealerships, the sales manager is also the desk manager, but not always. The new car or used car manager can also be the desk manager. The only true "desk manager" **102** is the one who negotiates the deal through the salesperson or closer and creates the deal structure from the sales desk. In the majority of dealerships, the desk manager **102** will also perform another function, such as new car, used car or sales manager or, in some smaller stores, the general sales manager or the F&I manager will also be the desk manager **102**. But in every instance, the desk manager **102** is the person who has control of the structure and profitability of the sale. The desk manager **102** may also be referred to as a member of the sales management hereinbelow.

Returning to the overview and FIG. 1, within seconds of entering vehicle (or asset) information **132** (e.g., year, make, model, mileage, sales price and cost), the system **100** provides a "first pencil four-square" **116** for negotiation with the prospective buyer or customer **104**. In other embodiments, the system **100** may use other vehicle information, such as stock number and sales price to initiate the process of providing the first pencil four square. The "first pencil four-square" **116** is a structure display (see FIG. 6 for an example), which includes price, rate, term, down/trade, that indicates an acceptable deal for the worst-case finance program tier. A "pencil" is a term used to describe a structure that is offered to the customer **104**. An example of a first pencil screen display as processed by the system **100** is shown in FIG. 5. Traditionally, the four-square format is used as a means of communicating "pencils" between the sales management and the salespeople in auto dealerships, and is a simplified way of summarizing the information of the pencil.

After the salesperson is sent back to the customer **104** with the first pencil, sales management uses the customer's credit application **112** to derive customer identification **135** used to access one or more credit bureaus **134**. The custom-

er's credit application **112** and the received credit bureau information **136**, which includes a credit score, are then used to answer a series of questions prompted by the system **100** concerning budget, employment, residence and credit history (collectively, **114**). By the time the salesperson has returned with a counteroffer or acceptance from the customer **104** on the first pencil, the system will have determined if the customer **104** qualifies for a finance program or financing **118** other than the worst case scenario envisioned by the first pencil. In addition, the presently preferred system **100** provides profitability statistics for the front-end gross, the back-end profits, finance reserve amounts, insurance commissions, and service contract commission. Of course, other statistics may be provided in other embodiments of the system **100**. With this information, sales management **102** is able to quickly analyze counter-offers and determine the most profitable deal that fits the customer's budget and available finance program guidelines.

During the negotiation process, many variables may be manipulated (e.g., selling price, interest rate, down payment, financed products, trade allowance, loan term, etc.). The Decision Flex system **100** allows the sales management **102** to instantly track profit and finance program guideline adherence on a real-time basis so that when a deal is accepted, there is no question that it is profitable and that the sales contract will be purchased by a finance source, loan purchaser or lender **108**, which grants loan approval **126**. The system **100** assists the sales management **102** during negotiations by doing complex calculations via simple commands such as rolls to payments, price, out-the-door figures; calculates maximum advance and budget calculations to bring a sale within guidelines; and performs complex iterative calculations. The system **100** provides fast, seamless movement between different finance programs and tiers without re-entries or loss of the original input data.

The presently preferred system utilizes a plurality of finance program tiers which may be associated with one or more finance sources **108**. In an alternate embodiment of the invention, the system **100** interfaces with a finance source clearinghouse (not shown) instead of directly with a finance source **108**. In such an embodiment, after the dealer has structured an acceptable deal, an extract file representing the deal is sent to the clearinghouse. The clearinghouse selects an appropriate lender based on a best fit for the particular deal and then forwards the deal onto the selected lender. For example, the clearinghouse may have access to any of 50 or more finance sources. Thus, any one loan program could be associated with a number of different finance sources.

Because the Decision Flex system **100** dictates a structured approach to negotiation, every deal is worked in a consistent manner. This provides three major benefits: (i) maximum profitability can be attained without guessing during the heat of a negotiation, (ii) the vehicle **110** can be spot delivered to the customer **104** with confidence that the sales contract will be purchased by a finance source **108** indicated by the system **100**, and (iii) all customers **104**, regardless of budget or credit characteristics can be treated in an impartial, consistent, professional and legal fashion thus enhancing the dealer's Customer Satisfaction Index which is a key indicator to the vehicle manufacturers when evaluating dealerships. These benefits give dealership management real control over a sales force that might otherwise utilize a variety of ineffective or illegal sales techniques which can wreak havoc with the dealership's bottom line. An additional benefit is that sales experience becomes less of a factor when recruiting new personnel because the system **100** dictates the negotiation process.

The system **100** also stores a complete chronology of the negotiation process including a detailed structure, i.e., "pencil", of each counteroffer that is presented to the customer. If a deal has two, three, or more pencils, the sales management **102** can review the steps utilized by the salesperson while working the deal. This feature offers two significant advantages: (i) another salesperson can step into the process at anytime with the confidence of knowing what has transpired and (ii) the stored history is invaluable as an aid for correcting current personnel and training new hires.

The Desk System **100** allows the desk manager **102** to follow some very simple steps and answer a series of very simple questions to find out if he has the customer **104** in budget and in the right vehicle. The system **100** will determine if the loan advance percentage is correct for the finance program for which the customer **104** is eligible.

As the prime user of the desk system **100**, the objectives of the desk manager **102** will be briefly discussed. The desk manager **102** must structure the deals correctly the first time by collecting and checking all information on the credit application **112** and the credit bureau reports **136**, and inputting this information into the desk system **100** correctly. This will eliminate unwinds and customer rewrites that are embarrassing to the customer **104** and the dealership. The desk manager **102** also aids the F&I manager **106** in closing.

A major objective of the desk manager **102** is to increase the profits. This is accomplished by maximizing the total gross profit on every deal. To achieve this goal, the desk manager **102** must be concerned about the total profit rather than the front-end profit only (see FIG. **14**). For example, if a customer **104** is a "price buyer" (the selling price is the most important criteria), the desk manager **102** will lower the selling price of the car to retain the customer and then work the back-end profit to maximize the total profit of the deal. With this procedure, the desk manager **102** can structure a deal with an acceptable profit even if the customer **104** is only willing to pay invoice.

As a user of the desk system **100**, the objectives of the F&I manager job will be briefly discussed. The primary objective of the F&I manager **106** is to make sure that all customers are happy with their purchase and they understand the cost of the vehicle **110** and any additional accessories or aftermarket products **122**. The desk system **100** provides a set of contract documents **120** to facilitate the tasks of the F&I manager **106**.

The F&I manager **106** must ensure the customer **104** is satisfied with all aspects of the sale, so that the dealership retains a 100% CSI (customer satisfaction index). If the customer **104** is not completely satisfied with the purchase, the deal must be rewritten or re-negotiated. With this procedure, the dealership will always have a positive word-of-mouth reference in the marketplace and be sure all of their customers **104** are happy and are qualified to be considered for referrals or repeat business.

These objectives require that the desk manager **102** and the F&I manager **106** work in total harmony and cooperation as a team. By meeting these objectives the dealership will achieve its ultimate goals: a) 100% CSI, b) increased profits, and c) increased car sales.

By achieving these objectives, the sales management will create a happy customer base, a pleasant work environment based on total teamwork and cooperation between departments and healthier paychecks for salespeople and himself as well as fostering a closer relationship with the lenders **108** and the auto manufacturer.

II. HARDWARE CONFIGURATION

Referring to FIG. **2**, an embodiment of a transaction management system of the present invention is generally

indicated at **100**. As shown in FIG. **2**, the desk system **100** can be installed as part of a network configuration. Alternatively, the system **100** can be operated in a stand-alone configuration. In general terms, the inventive ideas underlying the system **100** could be used in other applications where it is desirable to conduct a transaction for an asset. One such application is shown in FIG. **2**, which shows the system **100** in a network configuration. Such a system preferably includes a workstation or computer **140** used by the desk manager **102**, a computer **142** used by the F&I manager **106**, and a file server **144**. The computers **140**, **142** include a server interface (not shown). The server **144** is typically part of a network, such as a LAN (local area network) **170**, that connects to each server interface in the computers **140**, **142**. Additional computers similar to computers **140** or **142**, along with their peripherals, may be added to the network as required by a dealership. The system **100** is an integrated system which transfers data from the sales department to the F&I department or visa versa. This elimination of time-consuming data re-entry by the F&I manager is especially helpful to the dealer during busy times.

The desk system **100** includes an advanced transaction management program operating in the MS-DOS, version 6.2 or later, operating system, available from Microsoft Corporation, on computers **140**, **142**. Although this embodiment is described using the MS-DOS environment on a personal computer, other embodiments may use a different operational environment or a different computer or both.

The presently preferred file server **144** operates under Netware, version 3.11 or later, network software available from Novell and supports up to 250 computers or workstations at a time. The file server **144** is configured as a standard file server and includes a backup facility, i.e., a second server identical to the server **144**. The architecture of the system **100** uses system fault tolerance technology to run both servers concurrently. In the unlikely event of a server failure, the failing server is dropped from the network and the remaining good server continues operation without losing valuable time or data. In another embodiment, other backup methods, such as disk mirroring techniques may be used in place of the second server.

The entire system **100** is linked by a high speed modem **180** to a dealer support center via a communications line **182** for quick software maintenance, upgrades, and continuous on-line support. The system **100** is also linked via modem **180** and line **182** to the lender(s) **108** utilizing an electronic mail (E-mail) system that runs under the network operating system. The presently preferred E-Mail system is Microsoft Mail Remote, version 3.2a. This maximizes a manager's time and productivity by allowing the F&I and desk managers to communicate with the lenders **108** via electronic mail instead of leaving telephone messages. If the lender **108** has a question about a deal and wants to ask the F&I manager **106** about it, the lender **108** types in the question and electronically transmits the question to the dealership without interrupting the F&I manager **106**. The F&I manager **106** reads and responds as time allows, thereby expediting the entire communication process. By using the E-mail system, every communication between dealer personnel and the lenders **108** is accumulated, eliminating misunderstandings on shift switching or other problem situations. The electronic communication capability can also be used within the dealership to free up phone lines, thus eliminating untimely interruptions between sales managers, F&I managers, general managers and business office personnel. Optionally, the E-mail system can also be used to communicate with other dealerships having the system **100**.

The modem **180** and line **182** may also be used as a dial-up, point to point connection, to enable a structured deal to be transferred to a loan purchaser **108**. Uploading a deal structure to a lender's host system allows a loan to be processed quicker than traditional methods.

In an alternate embodiment of the invention, either the computer **140** (in small dealerships without the server **144**) or the server **144** is connected via a wide area network (WAN) connection to the finance source or loan purchaser **108**. A WAN connection to the finance source's host system enables a completed deal structure to be uploaded to the finance source for quicker loan processing. As a variation of this embodiment, the deal structure is uploaded to a finance source clearinghouse, which then further processes and distributes the loan request to a selected loan source **108**.

Referring again to FIG. 2, the presently preferred system **100** includes a computer **140**, having a minimum of an Intel 80486 or similar microprocessor running at 33 MHz in the presently preferred embodiment. The discussion for computer **140** applies for computer **142** as well, i.e., in a typical dealership, both computers **140** and **142** will be similarly equipped or configured. The computer **140** includes a minimum of four megabytes (MB) of RAM memory (not shown). The system **100** includes a hard disk drive **152** connected to the processor **150**. The hard drive **152** is optional in the network configuration, i.e., the workstation uses a hard disk or other storage device in the file server **144**. If computer **140** is used in the stand-alone configuration, the hard drive **152** is preferably 240 Mbytes or more.

The computer **140** is integrated with a group of computer peripherals, and is connected to a VGA (video graphics array) display standard, or better, color video monitor **154**, which is required to use all the features of the system **100**. A keyboard **158** that is compatible with IBM AT type computers is connected to the computer **140**. A pointing device **160**, such as a two or three button mouse also connects to the computer **140**. Reference to use of the mouse is not meant to preclude use of another type of pointing device.

The computer **140** connects to a printer **156** to provide a way to produce hard-copy output, such as forms to be signed by the customer. The presently preferred printer is a model 320 dot-matrix printer available from Oki, although the system **100** could be adapted to use other available printers. This printer **156** supports multiple part forms necessary for the legal and financial transactions.

Several optional components that provide additional flexibility in use of the system **100** will now be described. An optional way to capture a form, such as a credit application, is by use of a scanner **162** connected to the computer **140**. The scanner can also be used to scan completed forms signed by the customer for electronic transfer to the loan purchaser or lender **108** of the documents necessary for a loan audit **124** (FIG. 1). Note, however, that the use of the scanner may be economically inefficient for smaller dealerships. If the forms are not scanned into the system and electronically forwarded, an alternate and preferred way to transfer the completed and signed forms for the loan audit **124** is via a mail service, such as Federal Express. One presently preferred scanner **162** for system **100** is a Scanjet 2c scanner available from Hewlett-Packard.

In small dealerships, especially where the desk manager may also have the job of F&I manager, the system **100** may be installed in a stand-alone configuration, wherein only one workstation is used, and thus the server **144** is not required. In this configuration, a backup device **164**, such as a Jumbo

250 Mb cartridge tape back-up unit, available from Colorado Memory Systems, is preferably connected to the computer **140**. A hard drive **152** or other similar device is required in the stand-alone configuration.

In an alternate embodiment of a stand-alone configuration, or as one of the workstations of a network configuration, the system **100** may include a portable computer, such as a laptop or notebook computer, e.g., a Premium Executive 386SX/20, available from AST Research, or other computers available from a plurality of vendors. The portable computer (not shown) is equipped with components similar to that described in conjunction with computer **140**.

A portion of the software programs that are performed on the hardware shown in FIG. 2 is included in the attached microfiche appendix. The source code is written in Clipper, version 5.2d, available from Computer Associates. Clipper compiles to object code that is linked by Exospace, version 1.0f, also available from Computer Associates. Clipper also creates and maintains the databases used by the programs. The structure of the Credques, Credans, Notes, and Dealfile databases is also included in the microfiche appendix.

It will be understood by one skilled in the technology that a programmed computer can also be implemented completely or partially with custom circuitry. Therefore, the chosen implementation should not be considered restrictive in any matter.

III. SYSTEM OVERVIEW

Referring to FIGS. 3a and 3b, an overview **200** of the Decision Flex system **100** will be given. The system **100** automates many tasks for the desk manager **102** previously performed using a scratch pad or a calculator. In addition, expert system features are incorporated into the system **100**. The primary output of the system **100** is a deal that will be accepted by a finance source or lender **108**. A unique feature of the system is that front-end and back-end profits are pooled and shared by the sales department and F&I department typical in nearly all dealerships. Thus, a dealership using system **100** will experience greater cooperation between the departments. Another unique aspect is that the system **100** utilizes a structure to direct the customer to the most appropriate finance source.

The process described by the overview **200** is performed by computer **140** or **142** executing the programs (mentioned above) in system **100**. The system overview **200** begins at a start state **202** on FIG. 3a and proceeds to a series of states or modules described hereinbelow and completes at a finish state **264** on FIG. 3b.

Deal Module **204**

The system supports various types of deal processing such as a new deal, recalling a deal and so forth. The discussion hereinbelow is primarily concerned with a New Deal and will concentrate on this aspect. New Deal is used when a customer is interested in a particular vehicle for the first time. If the same customer returns to the dealership at a later time and desires to continue negotiating a deal on the same vehicle, the desk or F&I manager would instead use a Recall Deal feature which essentially allows the manager to bypass initial modules **206** to **220** and continue at a Financial Source Filter module **230** described hereinbelow. In a New Deal situation, the manager determines whether the deal will be a cash, lease or finance transaction and enters that information into the computer **140** (FIG. 2). All the following modules apply to the finance transaction type. A cash

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transaction type only uses modules **206**, **256**, **260** and **262**. A lease transaction uses a different set of modules not shown in this embodiment.

Vehicle Information Module **206**

The Vehicle Information module **206** provides basic information about the vehicle to be purchased **110** and the customer **104**. A vehicle inventory database **130** which provides vehicle information is used by module **206**. Information, such as whether the vehicle is new or used and the manufacturer's invoice price or Wholesale Book value of the vehicle is used by subsequent modules of the system **100**. The Vehicle Information module **206** will be further described in conjunction with FIG. 4.

Presume Max Advance Module **208**

Using the worst case loan program, the Presume Max Advance module **208** utilizes the invoice price or Wholesale Book value of the vehicle provided by the Vehicle Information module **206** to determine a maximum advance percentage of the invoice price (new vehicle) or Wholesale Book value (used vehicle) to be the amount financed. The Wholesale Book value is utilized for used vehicles. The Presume Max Advance module **208** will be further described in conjunction with FIG. 4.

Presume All Products Module **210**

The Presume All Products module **210** presumes that the customer will choose to purchase life insurance, accident and health (AH) insurance, involuntary unemployment insurance (IUI) and a service contract on the vehicle. The module **210** initially assumes a co-buyer for the vehicle **110** and selects a joint life policy. The module **210** determines the premiums, costs and commissions for the insurance programs. The Presume All Products module **210** will be further described in conjunction with FIG. 4.

Presume Down Payment is at Worst Case Module **212**

The Presume Down Payment is at Worst Case module **212** determines the worst-case down payment based on information received from the Vehicle Information module **206** and Presume Max Advance module **208**. The Presume Down Payment is at Worst Case module **212** will be further described in conjunction with FIG. 4.

Presume Term Module **214**

The Presume Term Module **214** determines the initial loan term to be used by the system **100** in the determination of the first pencil. The module **214** uses information from the Vehicle Information module **206**. The Presume Term module **214** will be further described in conjunction with FIG. 4.

Calculate First Pencil Module **220**

The Calculate First Pencil module **220** utilizes information, either directly or indirectly, from modules **206** through **214** to determine the set of information known as the first pencil. The first pencil information can be displayed on the visual display **154** (example shown in FIG. 5), printed on the printer **156** or summarized in the four-square format (example shown in FIG. 6). The first pencil structure information is saved in a Notes file **222** for this deal and the field data or information corresponding to the first pencil structure is saved in a deal file **224**.

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After the system **100** generates the first pencil four-square **116**, the desk manager **102** gives it to the salesperson to use in negotiation of the deal. The Calculate First Pencil module **220** will be further described in conjunction with FIG. 4.

Financial Source Filter Module **230**

The Financial Source Filter (FSF) module **230** uses expert system techniques to determine the best finance program tier that the customer **104** qualifies for. The FSF module uses information provided by the customer **104** via the credit application **112** and the report provided by one or more credit bureaus **134**. The FSF module **230** requests information about the customer **104**, and then, based on the answers, determines the next question to be asked. This process continues until the finance program tier that is the best match for the past and present financial condition of the customer is determined. The output of the Financial Source Filter module **230** is used by Structure Processing **250** module to generate a second pencil. The FSF module **230** will be further described in conjunction with FIGS. 12 and 13.

Customer Budget Information **232**

The desk manager **102** extracts information related to the customer's budget from the credit application completed and signed by the customer **104**. This information is about the current status of the customer, such as gross income and current debts. This information is entered into the computer **140** during execution of the FSF module **230**.

Customer Information **234**

The desk manager **102** extracts information related to the customer's past credit history from the customer's credit report. As shown in FIG. 12 (and discussed hereinbelow), the desk manager **102** runs one or more credit reports **134** on the customer **104** based on the customer's identification. The credit information requested by the system **100** is entered into the computer **140** during the FSF module **230**.

CredQues Database **236**

The CredQues database **236** includes a set of questions that are asked of the desk manager **102** by the system **100** about the customer **104** during the FSF module **230**. The questions are categorized according to the finance programs available to the dealership. Each program is represented by a finance program tier and is associated with a rate level. In the presently preferred system **100**, the Credques database **236** utilizes rate levels 0, 10, 20, 30, 40, 50, 60, 70 and 80. Each of these rate levels may have an associated finance program tier. For the presently preferred system **100**, the questions at rate level 0 (zero) pertain to all tiers and are used for initial screening. Rate level 10 represents the best credit rating and corresponds with finance program tier A. The rate level to tier correspondence for the presently preferred system **100** is shown in Table 1.

TABLE 1

Rate Level	Finance Program Tier
0	all
10	A
20	B
30	C
40	
50	
60	D

TABLE 1-continued

Rate Level	Finance Program Tier
70	E
80	EA (Exception Application)

The questions for the database **236** are presently manually generated whenever the lender **108** issues new guidelines for the finance program. The guidelines are typically updated several times a year.

CredAns Database **238**

The CredAns database **238** includes a set of records for each customer **104** based on the answers to the questions asked by the system **100** from the CredQues database **236**. As defined in the system **100**, the set of records for each customer **104** is the customer's credit profile. The CredAns database **238** is written for one customer **104** during the operation of the FSF module **230**.

Structure Processing Module **250**

Structure Processing can be considered the main negotiation phase. The Structure Processing module **250** allows the desk manager **102** to generate a second pencil that is customized to the results of the output of the Financial Source Filter (FSF) module **230**. Thus, the customer's credit bureau information and credit application information are utilized by the system **100** to produce a more accurate deal structure than what the First Pencil module generated. The Structure Processing module **250** is similar in structure and processing to the Calculate First Pencil module **220**, but instead of utilizing the output of the Presume Term module **214**, Presume Max Advance module **208** and Presume Down Payment module **212**, the information processed during the FSF module **230** and the information stored in the Deal file **224** is utilized. Additionally, vehicle trade-in information is entered into the system **100** at this module. Dealership personnel will use the condition, age, mileage, and other factors to determine the wholesale value of the vehicle. The payoff amount, if any, is also determined to produce a net positive or negative amount that is considered the net trade value.

The desk manager can utilize this module **250** to maximize profits by adjusting one or more of the interest rate, the term of the loan (depending on the amount financed and the advance percentage), the down payment (to maximize the advance percentage), and products.

At the completion of the Structure Processing module **250**, a new four-square is generated and used by the salesperson to negotiate with the customer **104**. If the customer still does not accept the deal at this point, the system allows a counter-offer to be entered into the system **100** by looping back to the Structure Processing module **250** as shown in FIG. 3b as a third or subsequent pencil. Alternatively, after the completion of any of the modules **252**, **254**, **256** or **260**, including the case where the deal has been transferred between desk and F&I at decision state **258**, the system **100** could loop back to module **250** to generate a third or subsequent pencil.

Override Finance Source Financing Module **252**

A well-trained or experienced desk or F&I manager knows what will improve the finance program tier of a particular customer. With the proper documentation, an

answer to a credit question can be overridden and the financing request then becomes known as an exception application, i.e., a deal that does not meet criteria embedded in the FSF module guidelines. By performing an override of one or more criteria, a customer may be bumped to a more favorable finance program tier which also increases the profit to the dealership.

If an override is performed, credit questions for the new finance program tier, similar to those in the FSF module **230** are asked by the system **100**. The system will also request the desk or F&I manager to get approval from the lender **108**. In the presently preferred system, a message "Call for Approval" is displayed on part of the visual display **154** (FIG. 2). At the completion of module **252**, the desk manager has the option of sending the deal back to the Structure Processing module **250** to modify the deal or continuing at the Deviation Recap module **254** if the deal is to continue.

Deviation Recap Module **254**

The Deviation Recap module **254** lists the criteria or questions that were overridden by the desk or F&I manager in the form of a Deviation Summary, i.e., what caused the problem. For each deviation in the summary, the manager must give a reason for the deviation. If the desk manager is making the override, at the completion of module **254**, he has the option of transferring the deal to the F&I department. In a small dealership wherein one person handles both desk and F&I duties, the path is from module **254** to module **256**, whereas in a dealership having two people to handle the desk and F&I duties, the path is from module **254** to module **258**. As a further option at the completion of module **254**, the desk manager can send the deal back to the Structure Processing module **250** to modify the deal.

Transfer Deals Module **258**

When the desk manager **102** is satisfied with the current deal, the system **100** continues processing of the deal at the Transfer Deals Between Desk AND F&I module **258** by effecting a transfer of the deal to the F&I department. The desk manager **102** selects a "Transfer to F&I" menu item on the visual display **154** which then initiates the transfer of the deal to the F&I department. The desk manager **102** is then locked out from further changes so that the F&I manager can begin work on the deal knowing that the desk manager is satisfied with the deal and will not change the deal (unless the deal is not approved by the F&I manager, as described hereinbelow).

F&I Screen Module **256**

The F&I manager **106** handles various F&I type tasks during the F&I Screen module **256**, with a main goal being to sell products. During the operation of module **256**, the F&I manager reviews the deal received from the desk manager to determine if it is acceptable according to the F&I department's standards. If the deal is not acceptable, the F&I manager **106** sends the deal back to the Structure Processing module **250**, wherein the desk manager **102** restructures the deal with the customer **104** to make it acceptable. If the customer **104** has declined the insurance programs determined during the Presume All Products module **210**, the F&I manager **106** explains the benefits and advantages of each insurance program to the customer and requests reconsideration. The F&I manager **106** handles the service contract in a similar manner. A protection package which includes etching an identification number on key components of the

vehicle is also explained. If the customer **104** has previously accepted or just accepted the purchase of any of these products, the F&I manager **106** gets the necessary information from the customer to enter into the computer **142** that is running the software of process **200**. The F&I manager requests other miscellaneous information during this module **256**, such as bank references. If the deal includes a trade-in, the F&I manager requests the necessary information and paperwork from the customer **104** such as the vehicle title. At the completion of module **256**, the F&I manager has the option of sending the deal back to the desk manager at the Structure Processing module **250** (if the deal was not approved by the F&I manager) or continuing at the F&I Buyer Screen module **260**.

F&I Buyer Screen Module **260**

The F&I manager enters into the system **100** and verifies information about the customer **104**, such as address, telephone number, social security number. If a co-buyer is listed on the loan, information is verified on the co-buyer also. If the Desk Manager answers a guideline deviation, the F&I Manager must re-answer the deviations and state the reason in a F&I memorandum. At the completion of module **260**, the F&I manager has the option of sending the deal back to the desk manager at the Structure Processing module **250** or continuing to the Forms Printing module **262**.

Forms Printing Module **262**

The system **100** is capable of printing all desk and F&I forms and documents. The system provides the printing capabilities required of a desk manager and F&I manager, including specific internal forms for Department of Motor Vehicle (DMV) documents, product forms, and sales contracts. State-of-the-art "smart printers" are pre-programmed to align each form automatically and correctly for clean, professional paperwork in a fraction of the time previously needed. The Forms module **262** adjusts for physical differences of the form from lot to lot. Module **262** includes an "intelligent" forms routine that only shows the applicable forms necessary for the current deal. When a particular form is selected, information is requested for data not already saved in the system **100**. Each particular form is saved permanently in the system **100** for any future reference. After the forms have been completed, the deal information is transferred to the lender or loan purchaser **108**. At the completion of the module **262**, the process **200** has completed the deal for the vehicle **110** and customer **104** and proceeds to the finish state **264**.

Of course, in the network embodiment of the system **100**, other deals for other vehicles and customers may be handled concurrently with the above-described transaction for a single customer. In a single computer embodiment of the system **100** (wherein the desk and F&I manager are the same person), the system **100** is ready to work on another deal at the completion of a deal, or when the deal is saved for subsequent action, or when the deal is abandoned.

IV. FIRST PENCIL OVERVIEW

Referring to FIG. 4, a high level view of the first pencil process **300** is presented. FIG. 4 presents the modules **206–220**, previously described in conjunction with FIG. 3, and it shows the main inputs and outputs for each module.

A. Vehicle Information Module **206**

During the operation of the Vehicle Information Module **206**, the system **100** displays a Vehicle Information screen to

the desk manager **102** on the visual display **154**. At the Vehicle Information screen, the desk manager **102** enters the Dealer Stock Number **302** to automatically retrieve Vehicle Information **312** such as make, model, year, odometer, color, new or used **308**, and vehicle cost **310** from the Vehicle Inventory file **130**. A Customer's Name **304** and Target Selling Price **306** are also entered onto this screen.

In an alternate embodiment of the system **100**, the desk manager **102** could enter a Vehicle Identification Number (VIN) to uniquely identify the vehicle **110** for which the deal will be generated. Alternatively, by entering data corresponding to a subset of the following fields, which are part of the Vehicle Inventory database **130**, the desk manager **102** can identify all existing vehicles in the database with specified attributes.

A. Registered Vehicle—Enter "Y" if vehicle is used; "N" if new.

B. Vehicle Year—Enter last two numbers of vehicle year.

C. Vehicle Make—Enter four letter abbreviation for Vehicle Make. If the abbreviation is not known, the system provides a help facility wherein a list of manufacturers and the appropriate abbreviation appears in a window to the right of the display **154**.

D. Vehicle Model—Manually type the name of vehicle's model or use the help facility to access a list of models.

E. Vehicle Body—Acknowledge if the preselected three letter body designator is correct or else, if not, enter the appropriate body style.

F. Special Equip.—Select "yes" or "no" for the options of Diesel, 4 wheel drive, and Turbo.

G. Odometer—Enter current odometer reading.

H. Dealer Invoice—Enter invoice if car is new. If the vehicle is used, skip this line.

I. Wholesale Book—Kelly's Wholesale Blue Book value must be entered for used car sales.

J. Vehicle Cost—Vehicle cost must also be entered.

K. Vehicle Identification No.—Manufacturer's 17 digit Vehicle Information Number.

L. Vehicle Transmission Type—e.g., manual or automatic
In the absence of locating a vehicle because it doesn't exist in the database, a new record needs to be entered into the database. The record should include information for the above-identified fields.

Inputs and outputs of the Vehicle Information module **206**, some of which are shown in FIG. 4, e.g., Sale Price, are used by other modules of the system **100**.

B. Presume Term Module **214**

The Presume Term module **214** automatically calculates the finance TERM **314** depending upon worst case finance program guidelines. For example, in the guidelines for one of the finance programs, if the vehicle's wholesale blue book value is \$9300 (i.e., anywhere between \$6,999.99–\$9,999.99), the maximum term would be 36 months. The initial Term **314** is utilized by the Calculate First Pencil module **220**. The Presume Term module **214** will be further described in conjunction with FIGS. 7a and 7b.

C. Presume Products Module **210**

For the First Pencil, the Presume All Products module **210** presumes that the customer will purchase all products such as LA&H **320** (Life and Disability Insurance), IUI **322** (Involuntary Unemployment Insurance) and SERVICE CONTRACT **324**. It calculates the premiums and costs (i.e.,

product costs to the dealer) and generates the Product Profits **326** which are utilized by the Calculate First Pencil module **220**. The Presume All Products module **214** will be further described in conjunction with FIGS. **8a** and **8b**.

D. Presume Max Advance Module **208**

The Presume Max Advance module **208** utilizes the output (**310**) of the Vehicle Information module **206** to determine the maximum advance percentage as previously described in the System Overview section. This advance percentage is then passed onto the Presume Down Payment module **212**. The Presume Max Advance module **208** will be further described in conjunction with FIG. **9**.

E. Presume Down Payment Module **212**

After receiving the SALES PRICE **306**, the Presume Down Payment module **208** automatically calculates the DOWN PAYMENT value **330** at the greater percent of selling price or fixed value depending upon the applicable finance program guideline (e.g., depending on the finance program guideline used, the down payment could be computed as 20% of selling price or \$1500, whichever is greater). The Down Payment value **330** is utilized by the Calculate First Pencil module **220** (for worst case guideline only). The Presume Down Payment module **212** will be further described in conjunction with FIG. **10**.

F. Calculate First Pencil Process **220**

Once the SALES PRICE **306** has been entered and INITIAL TERM **314** has been determined, these figures automatically appear on the FIRST PENCIL (see FIG. **5**). The First Pencil is indicative of a structure of the deal and includes the "Out the Door Price" (including Document Fees, Tax, License Fee, etc.), the annual percentage rate (APR) of the loan, the Life, Accident/Health (AH) & Involuntary Unemployment Insurance (IUI) Premiums and Total Amount Financed.

On the bottom of the FIRST PENCIL screen, as displayed on the visual display **154**, the ADVANCE PERCENTAGE **342** is displayed as determined by the Presume Max Advance module **208**. The Advance Percentage **342** varies from finance program to finance program.

A PROFITOMETER **344** is also displayed on the FIRST PENCIL screen. It consists of a string of letters and numbers. The letters represent various profit types and the numbers represent the subsequent profit values. A sample profitometer reading could be "g2485h0r0i1076s875t4436", which is defined as:

g2485 = Gross Profit (i.e., \$2485.00 Gross Profit)

h0 = Holdback from Invoice—defined below (i.e., \$0.00 Holdback)

r0 = Reserve which is the difference between Dealer Rate & Customer Rate—rates defined below (i.e., \$0.00 Reserve)

i1076 = Insurance Profit (Life, A/H & IUI) (i.e., \$1076.00 Insurance Profit)

s875 = Service Contract Profit (i.e., \$875.00 Service Contract Profit)

t4436 = Total Dealer Profit (i.e., \$4,436.00=\$2485.00+\$0.00+\$0.00+\$1076.00+\$875.00)

The gross profit is usually the difference between the selling price of the vehicle and the dealer's cost plus factory hold back and applicable incentives. The holdback is an amount held by the factory for each dealer for each vehicle pur-

chased by the dealer and is paid to the dealership on a quarterly basis. The Dealer Rate is the interest rate the lender charges the dealer. The Customer Rate is the Annual Percentage Rate (APR) stated on the retail sales contract for the customer.

A First Pencil 4-Square **340** for the present deal can be displayed on the visual display **154** and/or printed on the printer **156** for use in further negotiations with the customer **104**. The cash/trade equity value **348** is the down payment determined by the system **100** to be necessary for the deal. The customer **104** can use cash, a trade-in vehicle or a combination of cash and trade-in to satisfy the down payment requirement. The Calculate First Pencil Process **220** will be further described in conjunction with FIG. **11**.

V. FIRST PENCIL MODULES

This section will further describe the Presume Term Module **214**, the Presume Products Module **210**, the Presume Max Advance Module **208**, the Presume Down Payment Module **212** and the calculate First Pencil Process **220** by use of process flow diagrams. These flow diagrams are provided by FIGS. **7** through **11**, respectively.

A. Presume Term Module **214**

Referring now to FIGS. **7a** and **7b**, the Presume Term module **214** will now be further described. The Presume Term module **214** determines the initial loan term to be used by the system **100** in the determination of the first pencil. Beginning at a start state **390**, the system **100** moves to a decision state **392** to determine if the vehicle **110** has been previously registered. If so, the system continues at a decision state **394** to determine if the Wholesale Book value is greater than \$9999.99. The constant utilized in this module **214**, along with modules **208**, **212**, **220** and **230** reflect a presently preferred worst case financial program. If so, the system **100** proceeds to state **402** on FIG. **7b** wherein the initial term is set to be 48 months. If the wholesale value is determined to be less than \$9999.99 at state **394**, the system **100** moves to a decision state **396** to determine if the wholesale value is equivalent to zero (0). The wholesale value may be equal to zero if the value is not available or if the value is not required (e.g., when the car is new). If so, the system **100** advances to a decision state **398** to determine if the invoice is greater than zero, i.e., that an invoice amount for this vehicle has been entered into the system (e.g., if the vehicle is not registered). If the invoice is greater than zero, the system **100** moves to a decision state **400** to determine if 90% of the invoice value is greater than \$9999.99. If so, the initial term is set to 48 months at state **402** on FIG. **7b** and the system **100** then proceeds to state **408**. The Presume Term module is finished at state **408** and then the system process goes to the Calculate First Pencil Process **220**.

If decision state **392** determined that the vehicle **110** has not been registered, the system **100** advances to state **402** on FIG. **7b** wherein the term is set to 48 months as previously described.

Several different paths lead to a decision state **412** as described herein. If the wholesale value is determined to be not equal to zero, as determined at state **396**, the system proceeds to the decision state **412**. If decision state **400** determines that 90% of the invoice value is less than or equal to \$9999.99, the system **100** proceeds to a decision state **412**. If the invoice, as determined at state **398**, is not greater than zero, i.e., an invoice amount is not entered in the system for this vehicle, the system advances to a decision state **410** to determine if the cost is greater than \$9999.99. Cost usually

refers to used vehicles and is what the dealership paid for the vehicle plus any reconditioning and/or repairs necessary. If so, the system advances to state **402** on FIG. 7b wherein the term is set to 48 months as previously described. If the cost is not greater than \$9999.99, as determined at state **410**, the system **100** moves to decision state **412**.

The wholesale value of the vehicle may determine the initial term as described herein. At decision state **412**, the system **100** determines if the wholesale value is greater than \$6999.99. If so, the system **100** proceeds to state **420** on FIG. 7b wherein the initial term is set to 36 months, and the system **100** then proceeds to state **408**. If the wholesale value is determined to be less than or equal to \$6999.99 at decision state **412**, the system **100** moves to a decision state **414** on FIG. 7b. At decision state **414**, the system determines if the wholesale value is equal to zero. If not, the system **100** proceeds to state **402** wherein the term is set to 48 months as previously described. If however, the wholesale value is equal to zero, as determined at state **414**, the system **100** moves to a decision state **416** to determine if the invoice value is greater than zero.

The invoice value is used to determine the initial term as described herein. If the invoice is not greater than zero, as determined at decision state **416**, the system **100** proceeds to a decision state **404**. At decision state **404**, the system **100** determines if the cost is greater than \$6999.99. If so, the system **100** proceeds to state **420** wherein the initial term is set to 36 months. If the cost, as determined at state **404**, is not greater than \$6999.99, the system **100** proceeds to state **406** wherein the initial term is set to 24 months, and the system **100** then proceeds to state **408**. If the invoice is greater than zero, as determined at decision state **416**, the system **100** proceeds to a decision state **418**. At decision state **418**, the system **100** determines if 90% of the invoice value is greater than \$6999.99. If so, the system **100** proceeds to state **420** wherein the initial term is set to 36 months. If 90% of the invoice is not greater than \$6999.99, as determined at state **418**, the system **100** proceeds to state **406** wherein the initial term is set to 24 months, as previously described.

At the completion of the Presume Term module **214**, the initial term **314** (FIG. 4) is typically set to either 24 months, 36 months or 48 months depending upon the selected loan program.

As a note to the reader, the flow diagram corresponding to this module **214** is implemented with respect to a particular set of (worst case) guidelines. Other guidelines may change the specific implementation of the module. Also note that there is a direct relationship between a particular set of guidelines and a loan program.

B. Presume Products Module **210**

Referring now to FIGS. 8a and 8b, the Presume Products module **210** presumes the customer **104** will purchase the insurance policies and service contract that are offered and calculates the corresponding premiums and commissions.

For any "new" deal, the system **100** sets an insurance code to be equal to zero. At a decision state **440**, module **210** determines if the insurance code is equal to zero to signify that this execution of the module is for purposes of the first pencil. If the code is zero, signifying first pencil, the system **100** moves to state **442** wherein the insurance code is set to ten (10) which represents all possible insurance products and a service contract. In subsequent deal negotiations, for example at the Structure Processing module **250** or the F&I Screen module **256**, the desk manager **102** or F&I manager

106, respectively, enters the correct insurance code for the products agreed to by the customer **104**. (At this subsequent time, a process flow similar to module **210** is executed, but without states **440** and **442**). Certain conditions such as the age of the customer, the employment history during the last year and whether there is a co-buyer affect what insurance products are offered to the buyer. However, in the presently preferred embodiment of system **100**, these conditions are not analyzed during the first pencil processing **300**.

The product combinations are now presented. At state **444**, the current insurance code is determined and a branch to one of the states **450** through **472** is performed based on the value of the insurance code (0 to 11 in the presently preferred embodiment). The insurance products corresponding to each insurance code are shown in states **480** through **502**, which correspond to states **450** through **472**, respectively. During first pencil processing **300**, insurance code **10** corresponds with state **470** and state **500**, wherein the products are joint life insurance, accident and health insurance, and involuntary unemployment insurance.

The calculations necessary to provide product profits are now presented. Module **210** continues at state **510** wherein the life insurance policy premium is calculated according to known insurance industry techniques (assuming a person whose age is less than 65 years, in the presently preferred embodiment). Moving to state **512**, the system **100** calculates the accident and health policy premium (again, assuming a person whose age is less than 65 years in the presently preferred embodiment). Proceeding to state **514**, the system calculates the involuntary unemployment policy premium (an assumption is made in the presently preferred embodiment that the buyer does not have more than a 29 day gap in employment during the last 12 months). Continuing at state **516**, using the results of the calculations at states **510**, **512** and **514**, the dealer commissions for each of the respective policies are determined. Advancing to states **518**, **520**, **522** and **524**, the system **100** determines the service contract term, premium, cost and commission, respectively, for the selected vehicle **110** based on the make, model, and year and mileage (if a used vehicle) of the vehicle **110**. At the completion of module **210**, the premiums and commissions or product profits **326** (FIG. 4) for the financed products are determined.

C. Presume Max Advance Module **208**

The Presume Max Advance module **208** utilizes the output of the Vehicle Information module **206** to determine a maximum advance percentage of the invoice price (new vehicle) or Wholesale Book value (used vehicle). Referring now to FIG. 9, the Presume Max Advance module **208** begins at a start state **540** and continues at state **542** wherein the maximum advance percentage for first pencil processing **300** is set to be 80%. Proceeding to a decision state **544**, the system **100** determines if the vehicle is registered, and if so, whether the wholesale value of the vehicle is less than or equal to \$2999.99. If the wholesale value is less than or equal to \$2999.99, the system **100** moves to state **546** wherein the maximum advance percentage is set to be 75%. Of course, in other embodiments of the system **100**, other advance percentage values or other criteria to determine the advance percentage may be utilized. If the wholesale value is greater than \$2999.99, as determined at state **544**, or at the completion of state **546**, the system proceeds to state **548** to finish the module **208** and then proceeds to the Presume Down Payment module **212**.

As a note to the reader, the flow diagram corresponding to this module **208** is implemented with respect to a particular

set of (worst case) guidelines. Other guidelines may change the specific implementation of the module.

D. Presume Down Payment Module 212

The Presume Down Payment module 212 determines the worst-case down payment based on information from the Vehicle Information module 206 and Presume Max Advance module 208. Referring now to FIGS. 10a and 10b, the Presume Down Payment module 212 begins at a state 580 wherein the maximum advance percentage determined by module 208 (FIG. 9) is accessed. Proceeding to a decision state 582, the system 100 determines if the model year of the desired vehicle 110 corresponds with the current model year. If so, the vehicle could be considered a new vehicle and the system 100 advances to a decision state 584 for further determination. At state 584, the system 100 determines if the vehicle 110 has not been registered and the odometer mileage is less than 6001 miles. If so, the vehicle is considered new and the system 100 moves to state 586 wherein the down payment is determined to be the selling price minus the product of the invoice and the maximum advance percentage. Moving to a decision state 588 on FIG. 10b, the system 100 determines if the down payment value is less than 20 percent of the selling price. If so, the system 100 sets a minimum down payment of 20 percent of the selling price at state 590. The Presume Down Payment module 212 finishes at an end state 592. If the down payment value is greater than or equal to 20 percent of the selling price, as determined at state 588, the minimum down payment criteria is met and the system 100 proceeds to the end state 592.

Returning to decision state 584 on FIG. 10a, if the vehicle has been registered or the odometer mileage is greater than or equal to 6001 miles, the system 100 continues at a decision state 598. At decision state 598, the system 100 determines if the vehicle is registered and the odometer mileage is less than 501 miles. If so, the system 100 proceeds to state 600 wherein the down payment is determined to be the selling price minus the product of the invoice and the maximum advance percentage. Moving to the decision state 588, the system 100 determines if the down payment value is less than 20 percent of the selling price, as previously described. If at decision state 598 evaluates to be false, the system 100 moves to a decision state 602 wherein a determination is made whether the wholesale value for this vehicle is greater than zero, i.e., that a wholesale value is known and entered into the system 100. If the wholesale value is greater than zero, the system 100 proceeds to state 604 wherein a variable "tempcost" is set to the wholesale value. Continuing at state 606 on FIG. 10b, the system 100 determines the down payment to be the selling price minus the product of "tempcost" and the maximum advance percentage.

The variable "tempcost" represents one of either the wholesale value (state 604), the value of cost (state 610), or 90 percent of the invoice value (state 612), depending on the particular vehicle, as implemented by this module 212. Historically, a loan is based on what the vehicle "costs", i.e., the "tempcost", to the dealership and not on the selling price of the vehicle. The difference (state 606) between the vehicle selling price and what the vehicle "costs" the dealership multiplied by the worst case advance percentage (the product being the worst case loan value) is the amount that the buyer must provide either by cash or trade equity, i.e., the down payment of the worst case loan value plus additional dealer markup. The worst case advance percentage is determined by module 208. Thus, if the selling price is high

compared to the "cost" of the vehicle, the buyer must provide a higher down payment than if the selling price is closer to the "cost".

Moving to the decision state 588, the system 100 determines if the down payment value is less than 20 percent of the selling price, as previously described.

Returning to decision state 602 on FIG. 10a, if the wholesale value equals zero, the system 100 proceeds to a decision state 608 to determine if the invoice value is equal to zero, i.e., the invoice is not known or has not been entered into the system, or if the invoice is greater than zero, whether the cost is less than 90 percent of the invoice amount. If decision state 608 evaluates to be true, the system 100 continues at state 610 on FIG. 10b wherein the variable "tempcost" is set to the value of cost. Continuing at state 606, the system 100 determines the down payment to be the selling price minus the product of "tempcost" and the maximum advance percentage, as previously described. If decision state 608 evaluates to be false, the system 100 continues at state 612 on FIG. 10b wherein the variable "tempcost" is set to 90 percent of the invoice value. Continuing at state 606, the system 100 determines the down payment to be the selling price minus the product of "tempcost" and the maximum advance percentage, as previously described.

The prior states described the current model year flow. Next the process flow for a vehicle not of the current model will be described. Returning to decision state 582 on FIG. 10a, if the model year of the vehicle 110 is not the current model year, the system 100 proceeds to decision state 602 to determine if the wholesale value of the vehicle is greater than zero, as previously described. If the wholesale value is greater than zero, the system proceeds to state 604 wherein "tempcost" is set equal to the wholesale value, as previously described. If the wholesale value is equal to zero at decision state 602, processing continues at decision state 608 to determine if "tempcost" will be determined by the cost or by 90 percent of the invoice, as previously determined.

At the conclusion of the Presume Down Payment module 212, a down payment value 330 (FIG. 4) for first pencil processing 300 is determined.

As a note to the reader, the flow diagram corresponding to this module 212 is implemented with respect to a particular set of (worst case) guidelines. Other guidelines may change the specific implementation of the module.

E. Calculate First Pencil Process 220

Referring now to FIGS. 11a and 11b, the Calculate First Pencil Process 220 will be described. The output of the Presume Term module 214, the Presume Max Advance module 208, the Presume Down at Worst Case module 212, the sales price 306 and the product profits 326 all provide the inputs to a Calculate Advance function 640. States 642 through 664 can be considered as the presently preferred embodiment of the function 640. The Presume Max Advance module 208 provides the maximum possible advance percentage, but module 220 determines the actual advance percentage for this deal.

After Calculate Advance (at state 642), a variable "price-acc" is determined to be the sum of the selling price plus a total of the vehicle accessory prices (saccess) plus a total of "paid to other" items (pdother). "Paid to other" includes non-taxable fees. The saccess value is available to the Calculate First Pencil Process 220 from the Vehicle Inventory 130 through the Vehicle Information module 206.

Moving to state 644, the system 100 determines the value of a variable "totaldown" as the sum of the down payment

from the Presume Down module 212, any manufacturer's rebate available for this vehicle 110, any pick payment(s) (pick1, pick2), and a trade-in value minus the payoff value for the trade-in. A pick payment is a deferred down payment made after the vehicle is delivered to the customer and entails a possible element of risk of non-payment. A dealership may agree to one or more pick payments to consummate a deal. A trade-in is not entered into the "totaldown" calculation during first pencil processing 300, but is utilized in processing of subsequent pencils during the Structure Processing module 250.

Continuing at a decision state 646, the system determines if the vehicle is considered a new vehicle according to the loan program guidelines (utilizing factors such as registration, mileage, and model year). If so, the system 100 moves to state 648 to determine the value of a variable "adv2valpct" (advance to value percentage), which is illustrated in the example first pencil screen display of FIG. 5 as reference number 342. Based on the value of "adv2valpct" and the other inputs to the module 220, the remainder of the items on first pencil screen (FIG. 5) can be determined. "Adv2valpct" is defined by the equation: $\text{"adv2valpct"} = ((\text{"priceacc"} - \text{"spclpkgav"} - \text{"totaldown"}) / (\text{invoice} + \text{"hardadds"})) \times 100$. "Spclpkgav" is an over advance amount for a special package, i.e., an amount that can be added over the maximum allowable advance for a package of add-ons such as an Invisgraphics package. "Hardadds" is the value of accessories or after-market items allowable for financing. These items are generally listed in the Kelly Wholesale Blue Book or NADA Black Book or other recognized sources of wholesale values.

The final states of the Calculate First Pencil Process 220 will now be described. At the completion of state 648, the system 100 advances to state 670 on FIG. 11b wherein the first pencil structure is saved to the Notes file 222. The structure can be considered a "snapshot" of the first pencil screen, an example of which is shown in FIG. 5. As a note to the reader, state 670 is not performed during the second or subsequent pencils during Structure Processing 250 (for the same vehicle and customer). Moving to state 672, information from the inputs to module 220 is saved in fields in the Deal file 224. As a note to the reader, any new information entered during subsequent processing of the system 100 overwrites the corresponding field of the Deal file 224 for the same customer and vehicle. A deal can be recalled at a later time by use of the information stored in the Notes file 222 and Deal file 224. The Notes file 222 and Deal file 224 are used as inputs in processing of subsequent pencils during the Structure Processing module 250. The Calculate First Pencil Process 220 includes additional steps, such as generating the profitometer 344 and the 4-square display 340, which are not shown in FIG. 11b. Additional steps may be seen in the source code listing provided in the attached Microfiche Appendix.

The prior description for the Calculate First Pencil Process 200 was for a new vehicle. A description for a used vehicle follows. Returning to decision state 646 on FIG. 11a, if the system 100 determines that the vehicle 110 is not a new vehicle, processing moves to a decision state 654 to determine if the wholesale value is greater than zero, i.e., a wholesale value is known for the vehicle 110 and is entered in the system 100. If so, the system 100 proceeds to state 656 wherein "adv2valpct" is defined by the equation: $\text{"adv2valpct"} = ((\text{"priceacc"} - \text{"spclpkgav"} - \text{"totaldown"}) / \text{wholesale}) \times 100$. This state 656 is similar to state 648 except that the Wholesale Book value of the vehicle 110 is used in state 656 instead of the sum of the invoice and "hardadds".

At the completion of state 656, the system 100 advances to state 670 on FIG. 11b wherein the first pencil structure is saved to the Notes file 222, as previously described.

Next, a description of the flow state for the case when the wholesale value is not known or entered follows. Returning to decision state 654 on FIG. 11a, if the wholesale value is determined to be zero, the system 100 moves to a decision state 660 to determine if the invoice value is equal to zero or, if the invoice value is greater than zero, i.e., is known and is entered into the system 100, whether the cost of the vehicle is less than 90 percent of the invoice value. If the decision state 660 evaluates to be false, the system 100 proceeds to state 662 on FIG. 11b wherein "adv2valpct" is defined by the equation: $\text{"adv2valpct"} = ((\text{"priceacc"} - \text{"spclpkgav"} - \text{"totaldown"}) / (\text{invoice} \times 0.90)) \times 100$. This state 662 is similar to state 648 except that the 90 percent of the invoice value of the vehicle 110 is used in state 662 instead of the sum of the invoice and "hardadds". At the completion of state 662, the system 100 advances to state 670 wherein the first pencil structure is saved to the Notes file 222, as previously described.

Returning to decision state 660 on FIG. 11a, if state 660 evaluates to be true, the system 100 proceeds to state 664 on FIG. 11b wherein "adv2valpct" is defined by the equation: $\text{"adv2valpct"} = ((\text{"priceacc"} - \text{"spclpkgav"} - \text{"totaldown"}) / \text{cost}) \times 100$. This state 664 is similar to state 648 except that the cost of the vehicle 110 is used in state 664 instead of the sum of the invoice and "hardadds". At the completion of state 664, the system 100 advances to state 670 wherein the first pencil structure is saved to the Notes file 222, as previously described.

The field names and field descriptions for the Deal file 224 and Notes file 222 are listed in the attached Microfiche Appendix.

As a note to the reader, the flow diagram corresponding to this module 220 is implemented with respect to a particular set of (worst case) guidelines. Other guidelines may change the specific implementation of the module.

VI. FINANCIAL SOURCE FILTER

Dealerships in the past have not been able to predict with certainty whether a particular customer qualifies for financing. One of the main problems is that finance sources will not provide written documentation on what parameters and values they are looking for to determine the acceptance of a particular loan. The Financial Source Filter module 230 utilizes expert system technology to enable a dealership to match a customer to a particular loan program and virtually guarantee that the finance source associated with that loan program will approve the loan. This enables the dealership to make sales in the evening or on weekends when finance sources are closed. Thus the sales team can close the deal on the spot and make delivery while the customer is at the dealership.

A. Financial Source Filter Overview

Referring to FIG. 12, an overview 700 of the Finance Source Filter (FSF) 230 will be described. The customer initiates FSF activity by completing a credit application 112. The credit application 112 is an important tool in the sales process. It is also an important legal document that should be completely and accurately answered and signed by the customer 104. By completing the credit application 112 in full detail, the desk manager 102 may be able to save a deal that would otherwise be declined by the lender 108. The lender 108 may also refuse a deal if the credit application

112 is incomplete, but could have been approved if the information was supplied. A fully completed credit application 112 supplies the desk manager 102 with the budget and credit information 114 needed to structure the deal correctly the first time.

Based on the customer identification 135, e.g., full name, address and social security number, obtained from the credit application, the desk manager 102 can initiate the retrieval of one or more credit bureau reports. Credit bureaus 134 are the most important tools that the dealership has to determine identification, legitimacy, past credit history and public records of the customer 104. This information is necessary before a deal can be accurately structured or a credit decision can be made. For example, there are three major credit bureaus 134 that service California: TRW, Trans Union and Equifax also known as CBI (Credit Bureau Information). There is also a merging service called "Credco" which puts all the information from two or three credit bureaus into a single merged credit detail or report 708. This single report is fully merged, de-duped by trade line, easy to read, printed in plain language and easy to use. Merged credit reports 708 eliminate the human error of interpretations and make it easier to identify duplicate information. Dealers using the system 100 are required to pull either two pre-assigned credit bureaus based on residence of buyer (such as TRW and CBI) or one merged Credco report with TRW and CBI bureaus combined for each customer. It is important to have a complete credit application 112 signed by the buyer 104 and co-buyer if applicable, before a credit report can be pulled.

If the dealership is not signed up with Credco and has to pull two bureaus and merge them manually, a consistent, organized procedure 706 is used and followed each time interpretations of the bureaus 134 are made.

A credit score and other credit information 136 about the customer 104 (available from the merged credit detail 708) is used by the FSF 230. The FSF 230 has access to a set of loan guidelines for a plurality of loan programs or loan program tiers shown as Loan Program A 710 through Loan Program N 718, with Loan Program A 710 corresponding to a customer with an excellent credit rating. The presently preferred embodiment utilizes five loan programs A, B, C, D, E. An additional Exception Application program 720 for unusual circumstances requires approval from the lender 108 before the loan can be accepted.

In operation, the FSF 230 selects a credit question from the CredQues database 236 (path 730). The question about the customer's credit is displayed on the computer to the customer 104. Using information from the desk manager 102 (path 732) merged credit detail 708 and the completed credit application 112 (FIG. 1), the desk manager 102 provides a credit answer to the FSF 230 (path 734). The credit answers are saved to a set of records for the current customer 104 in the CredAns database 238. Based on a series of selected questions 730 and answers 734, the FSF 230 determines a rate level that corresponds to the loan program 740 from the plurality of available loan programs 710-720 most indicative of the customer's credit worthiness. The selected loan program 740 is utilized in further processing of the deal in the Structure Processing module 250.

B. Financial Source Filter Process 230

Referring to FIGS. 13a, 13b, 13c, 13d and 13e and also FIG. 12, the Financial Source Filter (FSF) process 230 will be described. The FSF 230 begins at a start state 760 on FIG.

13a and proceeds at a state 762 wherein vehicle information previously collected during the Vehicle Information module 206 is accessed by the FSF module 230. Additional information about the vehicle 110 can be entered on a vehicle information screen by, for example, selecting the F2 key. Continuing to a Customer Budget state 764 and a Customer Information state 766, additional information about the customer and his/her current budget status is requested by the system, such as the buyer's/co-buyer's full names, buyer's/co-buyer's gross monthly income, rent/house payment and so forth. Additional information about the buyer or co-buyer can be entered or changed on a Customer Information screen by selecting the F4 key. Additional information about the buyer's or co-buyer's budget can be entered or changed on a Customer Budget screen by selecting the F3 key. As previously mentioned, the desk manager 102 uses the credit application and/or the merged credit detail 708 as the basis of this information. The Customer Information screen and the Customer Budget screen must be completed before continuing on with the remainder of the FSF process 230. If some information is not entered, the system prompts the desk manager for the specific piece of information at the time the specific information is needed by the system 100.

At the completion of state 766, the system 100 moves to state 768 and opens the CredQues database 236 and the CredAns database 238. Moving to state 770, a FSF pointer is set to index a series of credit questions in the CredQues database 236 at the highest rate level (ratelevel = zero). These questions establish some general information about the customer 104 before the customer is placed at a ratelevel based on his/her credit score. The answers to the credit questions are stored in the CredAns database 238. Moving to a decision state 772, the system 100 solicits the credit score for the customer 104 available from the merged credit detail 708. As previously mentioned, several different credit bureaus 134 may be utilized in retrieving the credit reports. One of these credit bureaus is TRW. The following states 780 through 796 utilize the credit scoring system used by TRW. Other credit bureaus may use similar scoring systems. Depending on the credit score from state 772, the system 100 branches to state 780 (on FIG. 13b) if the bureau score is less than 640, wherein the rate level is set to loan program D at state 790; to state 782 if the bureau score is less than 680 and greater than or equal to 640, wherein the rate level is set to loan program C at state 792; to state 784 if the bureau score is less than 730 and greater than or equal to 680, wherein the rate level is set to loan program B at state 794; and to state 786 (on FIG. 13c) if the bureau score is greater than or equal to 730, wherein the rate level is set to loan program A at state 796.

At the completion of any of states 790, 792, 794 or 796, the system 100 advances to a decision state 800 (on FIG. 13b). A set of decision states 800-804 is used to determine if the initial rate level set during states 772-796 should be adjusted based on several employment and residency questions. The information utilized at states 800-804 has been previously entered into the system 100 during the Customer Information state 766. At decision state 800, the system 100 determines if the buyer 104 is self-employed and the current employment is for a period of less than two years. If so, the rate level is adjusted to correspond to loan program D at state 820. If decision state 800 evaluates to be false, the system 100 proceeds to decision state 802 to determine if the employment period of the buyer 104 with his/her current employer is for less than 2 years and whether the line of work in which the buyer 104 is employed in is less than five years. If so, the rate level is adjusted to correspond to loan

program D at state **822**. If decision state **802** evaluates to be false, the system **100** proceeds to decision state **804** to determine if (1) the buyer is not a homeowner and (2) if his years of residence in California is less than two. If so, the rate level is adjusted to correspond to loan program D at state **824**. If decision state **804** evaluates to be false, the system **100** proceeds to state **806**.

At state **806**, the system **100** makes an adjustment to the rate level, if necessary, based on bankruptcy or repossession factors of the buyer **104**, if the current rate level is either of Loan Program A, B or C (see Table 1). The steps to adjust the rate level because of bankruptcy or repossession factors are listed in the attached Microfiche Appendix. After any adjustment of the rate level due to bankruptcy or repossession factors at state **806**, the system **100** moves to a decision state **808** and determines if the current rate level corresponds to either of Loan Programs A, B or C. From an affirmative response to the inquiry of state **808**, or at the completion of either of the states **820**, **822** or **824**, the system **100** continues at a state **810** on FIG. **13d**. At state **810**, the FSF pointer into the CredQues database **236** is set to the beginning of the credit questions for the current rate level.

Returning to the decision state **808** on FIG. **13b**, if the current rate level does not correspond to either of Loan Programs A, B or C, the system **100** proceeds to a decision state **826** on FIG. **13d**. At decision state **826**, the system **100** determines if the current income level of the buyer **104** qualifies the buyer for Loan Program D. In the presently preferred embodiment of the system **100**, the minimum income level used at state **826** is \$1800 gross per month. Of course, in other situations, such as a different state in the country, a different lender or at a time in the future, the income level may be adjusted. If the decision state **826** evaluates to be true, the system **100** moves to state **828** wherein the rate level is set to correspond with Loan Program D. If the decision state **826** evaluates to be false, the system **100** moves to state **830** wherein the rate level is set to correspond with Loan Program E. At the completion of either of the states **828** or **830**, the system **100** continues at state **810**, as previously described.

At the completion of state **810** on FIG. **13d**, the system **100** evaluates the condition "ASK_Q_IF" for the current credit question at the current rate level in the CredQues database **236**. A example condition is to ask the credit question if the buyer is in the military, but to skip the question if the buyer is not in the military. The corresponding credit question at rate level 70 is "Enter military pay grade". The system uses information entered at states **764** and **766** and from answers to previous questions to evaluate the ASK_Q_IFs. If the condition "ASK_Q_IF" for the current credit question evaluates to be true at decision state **840**, the system **100** moves to state **842** and displays a credit version number for the current loan program, a description of the credit question, the item (credit question) number within the current rate level, and the current rate level. These items are displayed on the visual display **154** (FIG. **1**) as an aid to the desk manager **102** to keep track of progress through the credit questions. At the completion of state **842**, the system **100** moves to state **844** and retrieves data previously stored in the CredAns database **238** that is pertinent to the current credit question. Advancing to state **846**, the system **100** directs the desk manager **102** to enter new data about the buyer **104** into the computer **140** that is necessary to answer the current credit question. Note that if the FSF process **230** is re-entered and the same questions are asked, the system **100** defaults to the previous answer for that question. Proceeding to a decision state **848** on FIG.

13e, the system **200** determines if a conditional expression "IF_COND" for the current credit question is true. For example (at rate level 60), for the credit question "Previous High Credit Amount?", the IF_COND is "prevhired > 1499.99". If the "IF_COND" evaluates to be true, at decision state **848**, the system **100** proceeds to state **850** wherein an adjustment of the advance percentage may be made, if applicable to this question. Moving to state **852**, the system **100** advances to the next question in the CredQues database **236** at the current rate level and then loops back to decision state **840** on FIG. **13d** to begin processing the next question. As another example of a credit question, rate level 10 includes: "Prior high installment credit amount?".

Returning to decision state **848** on FIG. **13e**, if the "IF_COND" evaluates to be false, the system **100** proceeds to state **856** wherein the rate level is changed to the next higher rate level/number, e.g., from rate level 20, corresponding to Loan Program B, to rate level 30, corresponding to Loan Program C. For some credit questions, if the "IF_COND" evaluates to be false, the rate level may be changed by more than one level. An example of such a question is "60-day delinquency in the last 12 months?" at rate level 20. At the completion of state **856**, the system **100** loops back to state **810** on FIG. **13d** to begin processing the first credit question at the beginning of the new rate level.

Returning to decision state **840** on FIG. **13d**, if the condition "ASK_Q₁₃ IF" for the current credit question evaluates to be false, the system **100** moves to state **860**. State **860** directs the system **100** to skip the current credit question and access the next question because the condition "ASK_Q_IF" for the current question is false. Moving to a decision state **862**, the system **100** determines if the end of the CredQues database **236** or the end of the current rate level (no further credit questions at this rate level) has been reached. If not, the system **100** loops back to decision state **840** to process the next credit question. However, if the end of the CredQues database **236** or the end of the current rate level has been reached, as determined at decision state **862**, the system **100** completes the FSF process **230** at state **864** wherein the current rate level is considered to be the final rate level. Thus, the loan program corresponding to the final rate level is identified for use in further processing by the system **100**.

The field names and field descriptions for the CredQues database **236** and CredAns database **238** are listed in the attached Microfiche Appendix.

As a note to the reader, the flow diagram corresponding to this module **230** is implemented with respect to a particular set of (worst case) guidelines. Other guidelines may change the specific implementation of the module.

VII. CONCLUSION

Referring to FIG. **14**, an overview of validating the sale of an asset will be given. In the sale of an asset wherein multiple departments of a business or multiple people are involved in the sale, there may be a partitioning of several aspects of the sale such that the profits or commissions can be divided according to the departments, people involved, or other factors. As shown in FIG. **14**, the profits from the sale of the asset are categorized as a front-end profit **882** and a back-end profit **884**. The front-end profit **882** and back-end profit **884** are summed by a summing operation **886**. The value of the summed profits are compared to a predetermined threshold **890** set by the seller of the asset at a decision state **888**. If the summed profits are greater than the threshold **890**, the sale or deal is allowed or validated at state

892. However, if the summed profits are not greater than the threshold **890**, the sale is blocked and the deal is further negotiated at state **894** to generate a new set of front-end profits **882** and back-end profits **884**. The deal can be restructured at state **894** until the decision state **888** evaluates to be true or until either the buyer or seller terminate negotiations. The negotiations can be resumed at a later time if the current status of the deal is saved.

In the example of a vehicle dealership the front-end profit **882** includes credits such as a gross profit, a holdback credit, and a paint protection credit. The back-end profit **884** includes credits such as a reserve credit, a life insurance credit, an accident and health insurance credit, an involuntary unemployment insurance credit, a service contract credit, and a special package credit. Most of these front-end and back-end credits are coded into the profitometer **344** shown in the example first pencil screen of FIG. 5.

The embodiments disclosed herein for the Decision Flex system **100** can be extended to the purchase of other types of expensive assets.

Although the invention has been described with reference to specific embodiments, the description is intended to be illustrative of the invention and is not intended to be limiting. Various modifications and applications may occur to those skilled in the art without departing from the true spirit and scope of the invention as defined in the appended claims.

What is claimed is:

1. In a data processing unit having a memory and capable of executing software code, a method of selecting a seller's best profit financial program from a rank ordered, plurality of financial programs, comprising the steps of:

- (1) providing a sales price of an asset;
 - (2) retrieving credit information unique to a customer from the memory;
 - (3) retrieving one or more credit questions from the memory;
 - (4) receiving a credit answer, indicative of the customer, responsive to each of the credit questions;
 - (5) automatically selecting one of the predetermined rank ordered financial programs based upon the credit information and the credit answers; and
 - (6) iterating steps (3) through (5) multiple times until a seller's best profit financial program is selected, wherein the selected financial program may be different than a previously selected financial program.
2. The method defined in claim 1, wherein the credit information includes a number communicated from a central database external to said data processing unit.
3. The method defined in claim 1, wherein a selected one said credit question is "More than one bankruptcy?"
4. The method defined in claim 3, wherein the credit answer to the selected one credit question is "No".
5. The method defined in claim 1, wherein the rank ordering of the financial programs depends on a maximum advance percentage and the seller's best profit financial program has the highest profit.
6. The method defined in claim 1, additionally comprising the step of providing budget information about the customer.
7. The method defined in claim 1, wherein the step of retrieving one or more credit questions from the memory is determined, in art by the credit information.

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