Backroom Processing Test

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Purpose of Test

To evaluate the differences in labor cost between backroom price marking operations and our present sales floor marking operations.

Configurations Evaluated

1. Present aisle processing procedure which consists of:

    a. unloading the truck to the meat aisle and spotting pallets,

    b. sorting the merchandise onto hand trucks,

    c. moving hand truck into aisle and spotting cases on floor along aisle,

    d. cutting, price marking and stocking shelves.

2. Backroom processing using straight conveyor and Techno Uni-Carts (configuration equivalent to the Techno system but using a straight skate wheel conveyor instead of the Techno conveyor). The procedure consisted of:

    a. setting up straight conveyor sections,

    b. unloading truck to back room,

    c. moving pallets to conveyor for processing,

    d. loading case onto conveyor and cutting,

    e. price marking,

    f. sorting onto D-50 Uni-Carts,

    g. moving Uni-Cart to aisle,

    h. stocking shelves from Uni-Cart,

    i. tearing down conveyor sections and placing in storage.

3. Techno Super Stock back room processing through shelf stocking system, which consists of:

    a. setting up D-65 marking center with D-70 and D-75 expandable conveyors,

    b. unloading truck to back room, spotting pallets in block,

    c. moving D-70 Expand-A-Veyor and cutting turntable to pallets,

    d. placing case onto turntable and cutting,

    e. price marking at D-65 Marking Center,

    f. sorting onto D-50 Uni-Carts from D-75 Expand-A-Veyor

    g. moving Uni-Carts to aisle,

    h. stocking shelves from Uni-Cart,

    i. placing Marking Center and Expand-A-Veyors in storage.

Test Procedure

1. Each configuration was tested separately. The present aisle processing procedure (configuration 1 above) was evaluated to provide a comparison case. Then, the straight conveyor and Techno Uni-Cart system (configuration 2 above) was installed and evaluated. And finally, Techno's Super Stock processing was substituted for the straight conveyor (configuration 3 above) and evaluated.

2. Current price marking policies were followed throughout the test.

3. Time studies were used in the measurement of all work elements.

4. In the evaluations of both configurations 2 and 3, the equipment was installed, the crew was trained in the proper operating procedure and performance was monitored until it stabilized (i.e., learning effects eliminated) before collecting data for comparisons.

Results

1. The results of the test are summarized in Exhibit 1. Note that only those elements directly affected by the configurations are shown. Elements that are unaffected or have negligible differences between systems are omitted. In store number 9, which averages 3190 cases per week, the labor reduction provided by the straight conveyor and Techno Uni-Carts is 9.4 hours per week (.8523 minutes less .6751 minutes = .1772 minutes/case X 3190 = 9.4 hours/week). And, the reduction provided by the Techno Super Stock processing system and Uni-Carts is 16.3 hours per week (.8523 minutes less .5454 minutes = .3069 minutes/case X 3190 = 16.3 hours/week).

2. The actual performance of the Techno system in terms of its effect on store hours was evaluated by extracting the night crew hours from time cards. The night crew hours (adjusted for price changes) for the period 10/01/77 through 01/14/78 is shown in Exhibit 2 expressed in hours per $1,000 grocery sales. The pre-installation average was 2.99 hours per $1,000 of sales and the post-installation average was 2.74 hours per $1,000 of sales which is a reduction of 0.25 hours per $1,000 of sales. At store number 9's average grocery volume level of $78,000, this yields an average reduction of 19.5 hours per week thus substantiating that the hours can be removed from the store payroll. The reduction

was achieved by reducing overtime and adjusting schedules.

Other Benefits

1. Product damage is reduced. According to the back room checker who handles most of the markdowns, the number of markdowns are running from 1/3 to 1/2 of the level before installation. This is attributable to two factors: (A) the case cutting is handled by one man, so higher skill levels can be achieved and the individual responsible is known; and (B), the spotting of cases in the aisle and the associated dropping and throwing of cases is eliminated.

2. The general pricing legibility appears to have improved. Again, this is probably attributable to one man handling most of the pricing.

3. Fixture and floor damage is reduced. This is attributable to taking only a minimal number of pallets (only paper and cereal products) onto the sales floor.

4. The store has greater scheduling flexibility. The back room price marking operation breaks the overall processing cycle (i.e., from truck unloading to shelf) into two distinct operations. That is, the unloading of the truck, cutting, price marking and sorting onto Uni-Carts is one distinct operation; while the movement of the Uni-Carts to the sales floor and shelf stocking is a second distinct operation. In addition, the first operation takes place in the back room with no interference to the sales area. Thus, the operations can be handled by two separate crews where required to balance workloads between nights or to take advantage of rate differences.

Exhibit 1

Summary of Elements Affected by Backroom Processing

Minutes/Case

1. **Present Aisle Processing from Pallets**

	Minutes/Case
Unload truck to meat aisle	.0512
Sort onto hand truck	.1166
Spot case in aisle	.2010
Cut case in aisle	.2300
Price mark case	.2535
Total	.8523

2. **Straight Conveyor Back Room Processing with Techno Uni-Carts**

	Minutes/Case
Conveyor set-up/tear-down	.0333
Unload truck to back room	.0435
Move pallet to conveyor	.0296
Move case onto conveyor and cut	.2725
Price mark	.1667
Sort onto Uni-Cart	.1225
Move Uni-Cart to aisle	.0170
Total	.6751

3. **Techno Super Stock Back Room Processing with Uni-Carts**

|	Minutes/Case
Set-up/take-down of D-65/70/75	.0333
Unload truck to back room	.0435
Move Expand-A-Veyor to pallet	.0148
Move case to turntable and cut	.1586
Price mark	.1667
Sort onto Uni-Cart from D-75	.1115
Move Uni-Cart to aisle	.0170
Total	.5454

NOTE: All other elements such as handling empty pallets, stocking, cardboard salvage, etc. are either unaffected or have negligible differences between the systems.

Exhibit 2

Techno System Installed 10/29.

*Price Change Hours Deleted

x Adjusted for Mean Price per
  item of .801
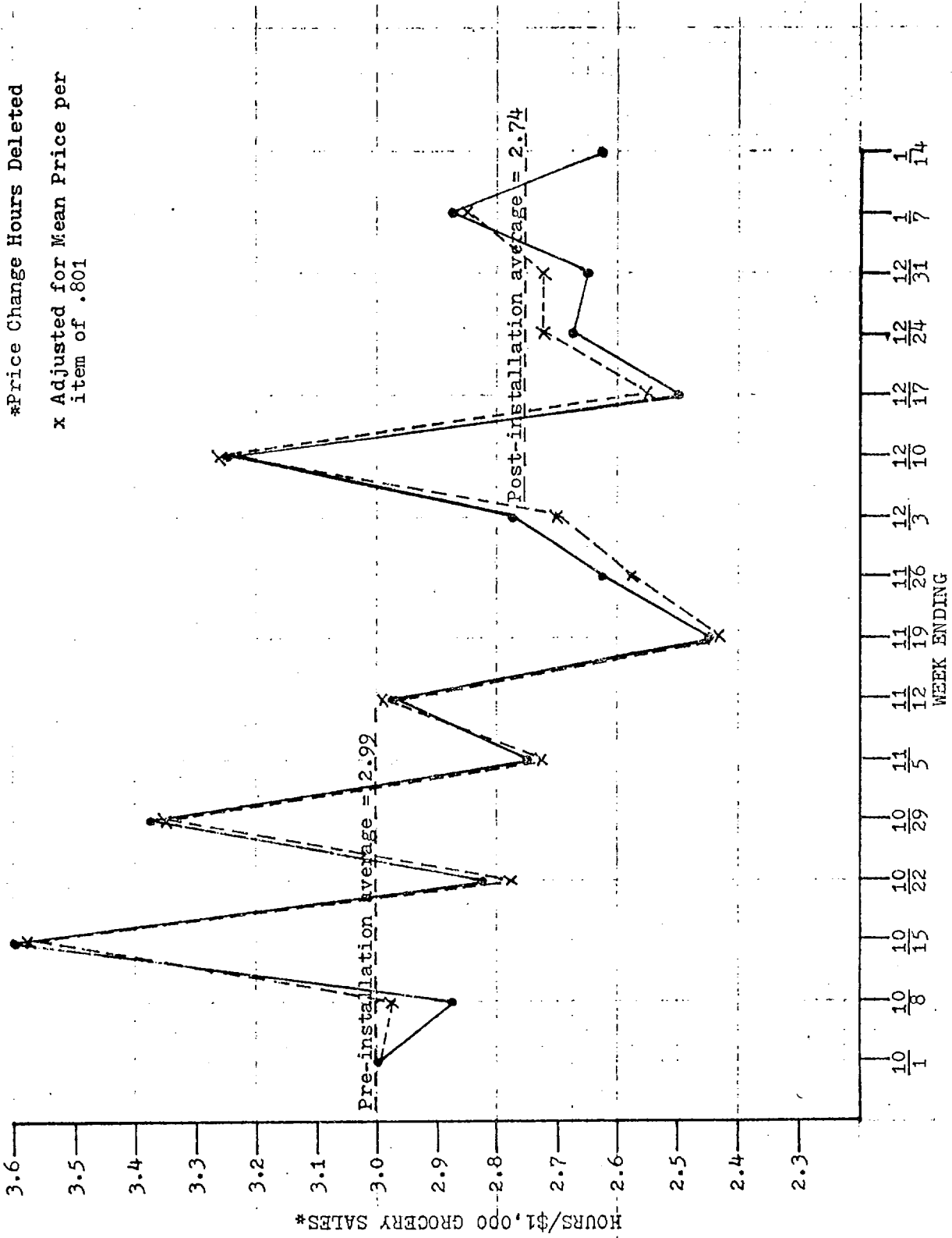
Potential Problem Areas

1. The store night crew's initial reaction to the back room processing system was extremely negative because they thought it was "too slow". After working with the system a few days, the reaction reversed and they are now concerned that it will be pulled out of the store. This is not unusual when the working procedures are changed so drastically and is not a major problem if controlled. But, if the operating procedures are not strictly enforced during the start-up period, the crew will revert to their old procedures because they believe they are better.

2. The productivity of the three man back room crew is sensitive to the skill and speed of the cutter. He essentially sets the pace for the entire line. Consequently, the individual selected for this job must have a high level of product knowledge and must be a responsible, hard worker.

3. Any product that will not go on the shelf and must be returned to the back room will be priced. Consequently, if there is a price change before the product is stocked, the price on the product must be changed and there is the risk that the price change will not be detected. This was not a problem in store number 9 because the overstock was well controlled. But it could be a problem in a store that lets the back room inventory get out of control.

Economic Justification

1. Using store number 9 as a comparison base, the Techno Super Stock system with Uni-Carts provides a labor reduction of 16.3 hours per week with a gross investment of $6,795 which yields a cost/benefit ratio of $416.87 of cost per hour per week saved. The straight conveyor and

Techno Uni-Carts provide a labor reduction of 9.4 hours per week with a gross investment of $4,521 which yields a cost/benefit ratio of $480.96 of cost per hour per week saved. Thus the cost per hour per week saved is $64.09 or 13.3 percent less for the Techno Super Stock system and it is the better choice of the two investments.

2. Since the justification of the back room processing system is directly related to the number of cases handled, it is shown in tabular form as a function of the average cases handled per week. The justification is based on a cost of $6,795 for the Techno system, an investment credit of 11 percent, an 8 year life for the equipment, our current average rate of $6.12 per hour plus 30 percent fringe and rate escalation of 6 percent per year. (As shown in Table 1)

STICK STAMP TEST

Purpose of Test

To evaluate the differences in labor cost between price marking with Garvey stick stamps and band stampers.

Equipment Evaluated

A Garvey stick stamp set consisting of sticks from 10¢ to 99¢.

Test Procedure

1. The stick stamps were evaluated in conjunction with the back room price marking test. Preliminary tests clearly indicated that the time required to get the stick stamp set from the back room (on a stand) and to move the stand about during sales floor marking operations more than offset any increase in marking speed it provided. So this method of operations was not pursued.

Table 1

Years Payback	ROI	1st Year Savings	Average Savings Per Year	Cases Per Week	Hours Saved Per Week
2.00	50%	$2,483	$3,024	1,173	6.0
1.75	57%	2,839	3,456	1,341	6.9
1.50	67%	3,312	4,032	1,564	8.0
1.25	80%	3,974	4,838	1,877	9.6
1.00	100%	4,967	6,048	2,346	12.0
0.75	133%	6,623	8,064	3,128	16.0

2. In the back room marking operation, the stick stamps were used on all products in the 10¢ to 99¢ range normally marked with Garvey band stampers. For products $1.00 and over, and multiple priced items, four band stampers pre-set to $1.00, 2/39¢, 3/$1.00 and 3/$1.09 were used to minimize the set time.

3. The current price marking policies were followed throughout the test. That is, stick stamps were used only on products normally marked with band stampers: cans, glass and plastic containers.

4. Time studies were used to measure the work elements.

Results

1. The price mark time for the Garvey band stamper is .0080 minutes per item and for the stick stamp it is .0070 minutes per item. Thus, the stick stamp is .0010 minutes or 12.5 percent faster than the band stamper. But since only about 21,000 items per week would be marked with the stick stamp, this results in a savings of only about 0.35 hours or 21 minutes per week.

Other Benefits

1. The price mark legibility of merchandise marked with stick stamps is distinctly better than that marked with band stampers. The stick gives a cleaner impression because it is lightly tapped on the product and there is virtually no lateral movement while the stick is in contact with the surface being marked. The spring action of the band stamper frequently causes a smudge as it is being lifted from the product and, unless the force applied to compress the spring is applied straight down, the stamper will sometimes slip a little while it is still in contact with the product, creating a smudged impression.

Economic Justification

1. Technically, the stick stamps are justifiable in that a savings of 0.35 hours per week is worth $145 per year in labor cost (assuming $6.12 per hour plus 30 percent fringe) and a set of stick stamps cost $67.34. So the payback period is 0.5 years or 6 months. But the overriding consideration is the improvement in legibility because, although it is impossible to quantify the value, it is certain to more than offset the $67.34 cost of the stick stamp set.