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Evaluation Report 555

NEW HOLLAND 855 Round Baler

A Co-operative Program Between
ALBERTA FARM MACHINERY RESEARCH CENTRE
PAMI
PRAIRIE AGRICULTURAL MACHINERY INSTITUTE

NEW HOLLAND 855 ROUND BALER

MANUFACTURER:

Ford New Holland
New Holland, Pennsylvania
17557 USA

DISTRIBUTOR:

Ford New Holland
Box 1616
Calgary, Alberta
T2P 2M7

RETAIL PRICE:

$24,496.00 (March 1988, f.o.b. Portage la Prairie, Manitoba) with optional Bale Command.

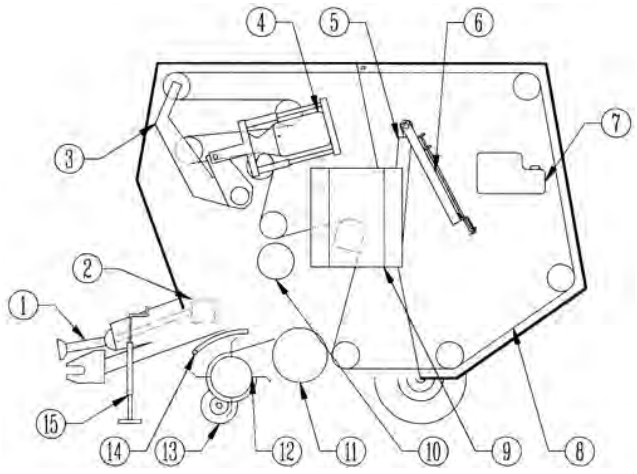

FIGURE 1. New Holland 855 Round Baler: (1) Drive Shaft, (2) Gearbox, (3) Apron Chain Tension Pivot Arms, (4) Air Springs, (5) Hydraulic Cylinder, (6) Hydraulic Cylinder Lockout, (7) Chain Oilers, (8) Apron Chain, (9) Twine Box, (10) Stripper Roll, (11) Floor Roll, (12) Pickup, (13) Gauge Wheel, (14) Windguard, (15) Jack.

SUMMARY

Rate of Work: Typical throughput of the New Holland 855 was 4.1 ton/h (3.7 t/h) in wheat straw and 9.1 ton/h (8.3 t/h) in alfalfa. Throughput was limited by pickup and feeding performance rather than by bale chamber capacity.

Quality of Work: Bale quality was very good, with well formed and durable bales in alt crops except short straw. In this case, bale quality was fair to good due to poor bale durability. Hay bales weighed from 1200 to 1400 lb (540 to 640 kg) stem and straw bales from 850 to 1100 lb (390 to 500 kg).

Resistance to bale moisture penetration and spoilage was very good after 100 days of weathering. Total leaf loss was 1.8% at a 13% moisture content which was considered excellent.

Ease of Operation: Bale wrapping and bale discharging were rated as excellent: bale forming, hitching and feeding were very good; transporting and twine threading were good. Starting and forming a bale was very easy. The operator simply followed the Bate Command's direction after the core was formed to achieve a well formed bale. In short straw, reduced PTO speed was required to start the bale.

The automatic twine wrapping device required the operator to stop, once the wrapping operation began. A bale ejector and reverse apron chain drive made backing unnecessary to clear the bate from under the gate, A bate could be wrapped and discharged in about 40 seconds,

Feeding was positive and aggressive in all crops. Overloading the pickup caused shearbolt failure or activation of the slip clutch, The New Holland 855 was easy to manoeuvre and transport. Visibility to the rear was restricted.

Ease of Adjustment: Ease of adjusting the apron chains, bale size, bale density was rated as very good. Ease of adjusting the pickup and twine wrapping and ease of lubricating were good.

Power Requirements: Peak power requirements were about 31 hp (23 kW) in hay and straw in level fields. A 65 hp (49 kW) tractor was needed to fully utilize baler capacity on soft and hilly land.

Operator Safety: Operator safety on the New Holland 855 was very good if normal safety precautions were observed.

Operator's Manual: The operator's manual was very good. It was well written and clearly illustrated.

Mechanical History: Two rubber door fasteners were broken after 20 hours and the pickup lift arm had to be straightened after 160 hours. All mechanical problems encountered during the test were considered minor.

RECOMMENDATION:

It is recommended that the manufacturer consider removing the last set of ceramic guides before the twine tubes to reduce drag on the twine.

Station Manager: G.M. Omichinski

Project Engineer: D.J. May

THE MANUFACTURER STATES THAT

With regard to the recommendation:

The twine guides have been moved outboard next to the side sheets. The operator's manual will be revised to state that in some conditions the last set of twine guides may be bypassed

GENERAL DESCRIPTION

The New Holland 855 is a pull-type, PTO driven baler with a cylindrical baling chamber and a floating drum pickup. The twine wrapping mechanism is totally automatic. Dual twine guide tubes are driven either hydraulically or by electric actuator, depending on the option chosen. Both bale size and number of wraps can be manually set.

Hay is fed directly into the 5.9 ft (1.8 m) wide baling chamber by the floating drum pickup. The baling chamber is an expanding chamber type with a 16.5 in (420 mm) diameter floor roller and 7.5 in (190 mm) diameter stripper roller. The bale forming device consists of an air spring loaded apron chain made up of 2.4 in (60 mm) diameter tubes spaced 4.0 in (100 mm) apart and bolted to roller chains at each side of the bale chamber.

The apron chain automatically stops when unloading the bale, then reverses when the door is fully open to eject the bale. A bale ejector and the reversing apron chain drive rolls the bale out away from under the door to permit immediate closing. The New Holland 855 is equipped with an automatic chain oiler, which lubricates the apron chains each time the door is opened.

The machine supplied to PAMI was also equipped with the optional Bale Command Wrapper, electric tying system and right-hand gauge wheel. Other options available but not tested were hydraulic tie with full bale alarm and a safety chain.

The Bale Command is a tractor mounted control box, which signals the operator when the baler is ready to form a bale, when to stop so that the bale can be wrapped with twine and when to eject the bale. It also signals the operator which direction to load the bale chamber to form an evenly shaped bale, and it can be used to program the wrapping cycle as well as wrap the bale prematurely.

Detailed specifications are given in APPENDIX I, while FIGURE 1 shows the location of major components.

SCOPE OF TEST

The New Holland 855 baler was operated in a variety of crops (TABLE 1) for 167 hours, while producing 1938 bales. It was evaluated for rate of work, quality of work, ease of operation and adjustment, power requirements, operator safety and suitability of the operator's manual. In addition, mechanical problems were monitored throughout the evaluation.

RESULTS AND DISCUSSION

RATE OF WORK

Throughput depended on windrow size, uniformity of crop

conditions, field surface, available tractor speeds and operator skill. Average throughput for the New Holland 855 (TABLE 2) varied from 4.1 ton/h (3.7 t/h) in wheat straw to 12.6 ton/h (11.4 t/h) in alfalfa. The values in TABLE 2 are based on average workrates for daily field operation. Peak workrates during any one day were generally 10 to 20% higher.

In most crops, the feedrate was primarily limited by windrow size and pickup/feeding performance. In lighter crops, the ground speed was normally limited to about 8 mph (13 km/h) due to rough ground and pickup performance.

Three standard equipment features included on the New Holland 855 allowed a relatively short bale formation cycle. These were the fully automatic dual tube twine wrap, the bale ejector bundle, and the apron chain reversing drive.

TABLE 1. Operating Conditions

Crop	Hours	Number of Bales	Equivalent Field Area	
			ac	ha
Alfalfa	116	1456	345	140
Alfalfa-Bromegrass	21	203	82	33
Alfalfa-Timothy	5	54	17	7
Rye Greenfeed	9	95	35	14
Oat Straw	12	100	60	24
Wheat Straw	4	30	10	4
Total	167	1938	549	222

TABLE 2. Typical Average Throughput

Crop	Crop Yield		Daily Average Throughput	
	ton/ac	t/ha	ton/h	t/h
Alfalfa: Field A	2.5	5.6	9.1	8.3
Field B	4.2	9.4	12.6	11.4
Alfalfa-Bromegrass	1.9	4.3	8.9	8.1
Alfalfa-Timothy	2.0	4.5	9.6	8.7
Rye Greenfeed	1.9	4.3	9.5	8.6
Oat Straw	0.9	2.0	4.6	4.2
Wheat Straw	1.7	3.8	4.1	3.7

QUALITY OF WORK

Bale Quality: The New Holland 855 produced firm, durable bales with flat ends and uniform diameter in all hay crops (FIGURE 2). The Bale Command could be programmed to wrap the bale as many times as desired, however baling short straw generally resulted in a less durable bale. If the Bale Command direction indicators were followed exactly, a cone shaped bale or a bale with the core sticking out of one end would often result. A better bale usually resulted if the operator weaved back and forth across the windrow to form the core of the bale, and then followed the Bale Command once the bale started to grow. The operator quickly learned through experience when to follow the Bale Command. Usually a small adjustment of the full bale activator chain would prevent cone shaped bales.

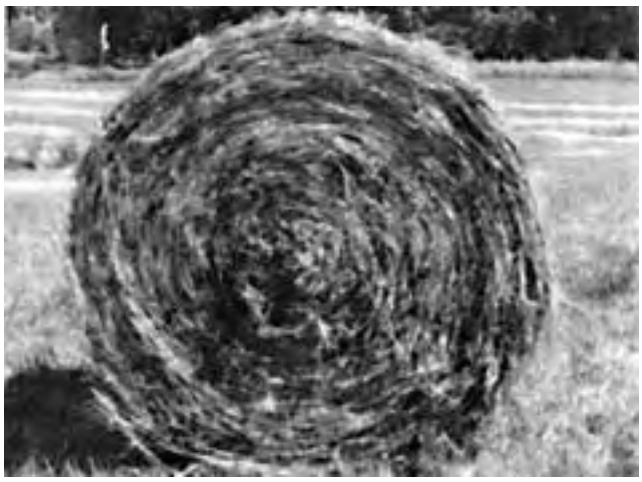

FIGURE 2. Typical Hay Bale.

A typical hay or straw bale averaged 5.9 ft (1.8 m) in width and 5.1 ft (1.6 m) in diameter. Bales usually settled to 89% of their original height after 100 days. Average hay bales weighed from 1200 to 1400 lb (540 to 640 kg) with average densities ranging from 10.0 to 11.6 lb/ft³ (160 to 186 kg/m³). Average straw bales weighed from 850 to 1100 lb (390 to 500 kg) with average densities ranging from 7.1 to 9.1 lb/ft³ (114 to 146 kg/m³). The manufacturer recommends not exceeding a maximum bale weight of 1700 lb (770 kg) to avoid damaging the baler.

Bale Weathering: During a period of 100 days, over which a total rainfall was measured at 10.7 in (270 mm), moisture had penetrated to a maximum of 2.0 in (50 mm) in the area where the bale touched the ground. Spoilage occurred to a depth of 1.0 in (25 mm) on top of the bale which was considered very good.

Leaf Loss: The New Holland was tested for leaf loss in an average crop of alfalfa, which had been cut with an 18 ft (5.5 m) swather. Average crop yield was about 2.9 tons/ac (6.5 t/ha). Total leaf and stem loss was 1.8% at a 13% moisture content which was considered excellent.

The importance of baling at a high moisture content on losses can be noted in FIGURE 3. This figure represents an accumulation of previous data for several round balers showing the total measured leaf loss over a range of moisture contents, in fields of mixed alfalfa-crested wheatgrass and bromegrass. Although the New Holland 855 was tested in a different crop, its performance was above that presented in the figure, i.e. losses were lower.

FIGURE 3 does not include relative effects of baling unconditioned or light windrows. Heavy, conditioned windrows are important to minimizing losses. Lowering PTO speed is also effective in reducing the number of times the bale is turned in the chamber, and consequently reducing leaf loss.

The twine wrapping mechanism used double feeding tubes, one at each side of the bale. This, as well as the automatic engagement, minimized the time required to tie a bale. The New Holland 855 also had a fines saver door at the bottom of the tailgate to collect leaves and stems lost during bale formation. The relatively short tying time combined with the fines saver door contributed significantly to the low losses measured.

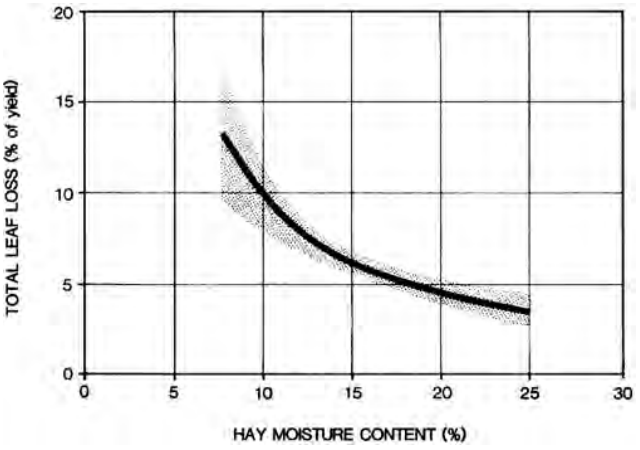

FIGURE 3. Typical Round Baler Leaf Loss in Mixed Alfalfa, Crested Wheatgrass and Bromegrass.

EASE OF OPERATION

Bale Forming: Ease of bale forming was very good in most crops. Feeding hay across the width of the bale chamber by weaving was essential to form a uniform core, which did not stick out on one end of the bale. After the core was formed, the direction indicators on the Bale Command could be followed to produce bales of uniform diameter. FIGURE 4 shows stages of the bale formation in the New Holland 855.

In very dry and short straw, especially straw from a rotary combine, the baler occasionally had difficulty forming the core. It was found that decreasing the PTO speed and baling during late evening or morning when the straw was slightly damp, improved the performance considerably. Bale size and densities were adjusted to maximum settings for the test duration.

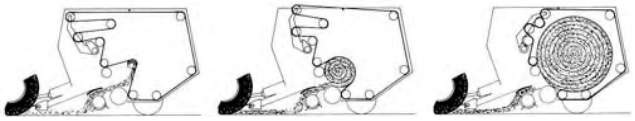

FIGURE 4. Stages of Bale Formation: (Left) Starting Bale, (Centre) Partially Completed Bale, (Right) Completed Bale.

Bale Wrapping: Ease of bale wrapping on the New Holland 855 was excellent since it was totally automatic. The Bale Command (FIGURE 5) cued the operator when to stop so the bale could be tied. When the red stoplight came on and the horn sounded, the dual twine tubes would swing to the outside of the bale according to the pre-programmed wrapping cycle. It was generally advisable to continue forward motion of the tractor for a brief period of time after the stop light came on to ensure that the twine was properly started into the bale.

FIGURE 5. Bale Command Control Box.

The tubes, which were controlled by a cam and linkage from an electric actuator, moved along the width of the bale according to the programmed cycle in the Bale Command. The operator could either choose a pre-programmed factory wrap cycle or could program his own cycle. The cutting mechanism used knives at the centre of the baler to cut the twine. After initial adjustment the twine cutter performed very well.

The operator could program the Bale Command to wrap the bale with as little or as much twine as he preferred. Twine consumption with the pre-programmed cycle was about 560 ft/ton (188 m/t). Most operators preferred a wrap cycle, which consumed about 620 ft/ton (208 m/t). This produced a durable bale, which could be handled several times. Typical twine consumption for small square balers is about 670 ft/ton (225 m/t). In short straw more twine was required to produce bales of adequate durability.

Bale Discharging: Ease of bale discharging was excellent. Once the twine was cut, the amber eject light and horn on the Bale Command cued the operator to open the tailgate with the remote hydraulics. A bale ejector at the rear of the baler and reverse-apron chain drive facilitated rolling of the bale, as it ejected, out away from under the gate. This required the PTO to remain running. There was no requirement to back up prior to discharging the bale. The bale could be wrapped with the factory cycle and discharged in about 40 seconds. After the bale was ejected and the gate securely closed, the green ready light and horn on the Bale Command cued the operator to begin baling again.

Transporting: Ease of transporting the New Holland 855 was good. Ground clearance was adequate and there was adequate hitch clearance for turning sharp corners provided dual tractor tires were not used. Care was necessary when backing up or transporting on roadways due to obstructed visibility to the rear. The baler could be easily towed behind a tractor or suitably sized truck. A safety chain was available as optional equipment. The load on the baler tires with a full bale chamber did not exceed the Tire and Rim Association maximum load ratings at transport speeds of 25 mph (40 km/h). Dismounting was required to lift the pickup, however the lever was convenient to operate. Placing the pickup in transport required an upward lift of about 50 lb (220 N).

Hitching: Ease of hitching the New Holland 855 was very good. The hitch height was adjustable by relocating the clevis up or down on the hitch. The hitch jack was convenient for raising and lowering the hitch tongue. The hitch jack could be pivoted into its stored position as soon as the base was clear of the ground. Full retraction of the jack was not required. The test machine required single remote hydraulic, and electrical hook-up. A small amount of driveline chatter was observed on corners, since there was no constant velocity joint on the PTO driveline or equal angle hitch extension.

Feeding: Pickup performance of the New Holland 855 was very good. It was positive and aggressive in all crops with only infrequent plugging. A pickup shear bolt prevented overloading of the windrow pickup and damage to the apron chain bars due to excessive bale size. The operator was required to reset the safety lever when replacing the shear bolt.

A stripper roll at the top of the feeding area and ample clearance between the hitch and pickup were factors which contributed to trouble free loading.

Twine Threading: Ease of twine threading was good. Twine could be threaded without the use of wire or additional aids.

The twine cutters performed well after initial adjustment, provided the last set of ceramic twine guides were bypassed. If these twine guides were not bypassed there was too much tension on the twine for the clamps to properly hold and cut the twine. Thus there would be little or no twine drawn out of the twine tubes for the next bale. If the last set of twine guides were bypassed then the twine cutter performed well, leaving a good length of twine for starting the twine feed on the next bale. It is recommended that the manufacturer consider removing the last set of ceramic guides before the twine tubes to reduce drag on the twine.

EASE OF ADJUSTMENT

Apron Chains: Ease of adjusting the apron chain tension was very good. Apron chain tension was provided by an air spring on each side of the baler and was maintained during bale core formation with a core cam idler. The apron chain was tightened once during the test. To tighten the chain the tailgate was first raised and secured with the safety lockouts. Then the take-up arm stops were turned in several turns on each side of the baler. The tailgate was closed and the take-up arm stops turned out until they contacted the main frame. This procedure was very easy and only required one person about 15 min to complete.

Pickup: Ease of adjusting the pickup gauge wheels was good. Pickup floatation was provided by pickup gauge wheels, which were assisted by adjustable floatation springs. The range of gauge wheel adjustment between the ground and the pickup teeth was 1 to 5 in (25 to 125 mm). The floatation springs were adjusted to carry as much weight as possible without excessive pickup bounce. Adjustment of the gauge wheels and floatation springs was not necessary for the conditions encountered during the evaluation. Typical gauge wheel adjustment took one person about 10 min to complete.

Bale Size and Density: Ease of adjusting bale size and density was very good. To achieve maximum bale diameter the air was first released from the air spring valves until the end of the chain take-up arm (FIGURE 1) was 2 in (50 mm) from the main frame. Then the full bale and the full bale activator chain were adjusted so that the micro-switch just triggered at this point. If the operator wanted smaller bales he could simply adjust the full bale activator chain so that the micro-switch was triggered earlier in the bale forming cycle. The full bale micro-switch activated the automatic tying mechanism on the baler. This adjustment took one person approximately 5 minutes. Once bale size was set no further adjustment was required to maintain setting.

The bale density is mostly controlled by the operator. Reducing ground speed or baling small windrows with all other variables remaining the same will increase the bale density. Bale density can also be increased by adding air to the air springs, from a minimum of 40 psi (280 kPa) to a maximum of 60 psi (410 kPa). This was easily accomplished with a portable compressor and took one person minimal time. Bale density was only adjusted once, at the beginning of the test.

Twine Wrap: Ease of adjusting the twine wrap was good. The distance between the end wraps of twine and the end of the bale could be changed by adjusting the twine tubes. Generally a distance of 6 or 7 in (150 or 180 mm) was appropriate for most crops and operator preferences. This adjustment took one person about 10 minutes.

Lubricating: Ease of lubricating the test machine was good. The New Holland 855 used an automatic oil dispensing system for lubricating the apron chain. Oil was applied to the chains upon each opening of the gate. This system used about one Imperial gallon (4.5 L) per 100 bales. The manufacturer also recommends that the

chains be completely saturated with oil daily in normal operating conditions and twice daily in dry, dusty conditions to extend chain life.

There were three other chains which required oiling every 10 hours. There was a total of 17 grease fittings and one gear box. The operator's manual also recommended lubrication of most grease fittings every 10 hours, checking gear box oil every 50 hours, oiling wrapping mechanism components every 10 hours, and repacking wheel bearings every season. Complete daily servicing took one person about 30 minutes.

POWER CONSUMPTION

Power Requirements: FIGURE 6 shows the PTO and drawbar power requirements for the New Holland 855. The power input is plotted against bale weight to show the power requirements while a bale is formed. PTO input varied from 5.3 hp (4.0 kW) at no load to a maximum of 27 hp (20 kW) in alfalfa. Drawbar requirements at 6.6 mph (10.6 km/h) on fiat firm fields were about 4.0 hp (3.0 kW) when the bale reached maximum size. Although maximum horsepower requirements did not exceed 31 hp (23 kW), additional power was needed to suit field conditions. In soft, hilly fields, a 65 hp (49 kW) tractor would be needed to fully utilize baler capacity.

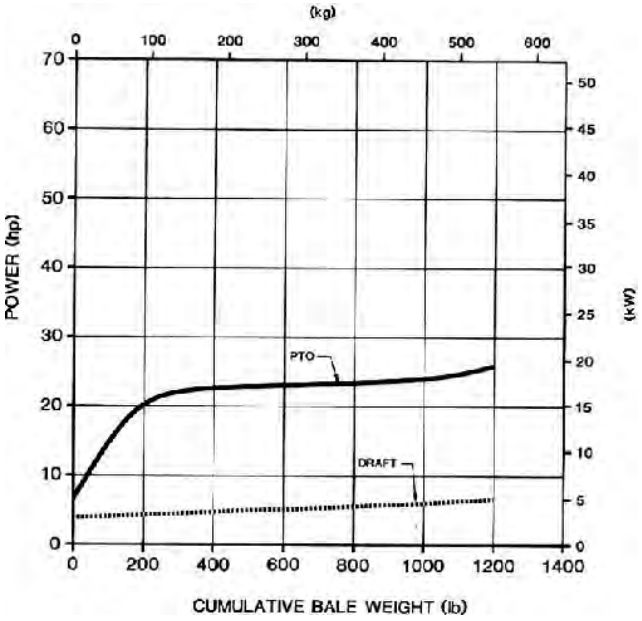

FIGURE 6. Power Consumption During Bale Formation in Alfalfa.

S pecific Capacity: Specific capacity is a measure of how efficiently a machine performs a task. A large specific capacity indicates efficient energy use. The specific capacity of the New Holland 855 was measured at 0.30 ton/hp-h (0.37 t/kW-h) at a workrate of 5.6 ton/h (5.0 t/h). This specific capacity was greatly influenced by the workrate. At a maximum workrate of 15 ton/h (13.6 t/h) a specific capacity of 0.82 ton/hp-h (1.00 t/kW-h) could be expected. The typical range of specific capacities for small square balers in alfalfa is 0.6 to 1.2 ton/hp-h (0.7 to 1.4 t/kW-h).

OPERATOR SAFETY

Overall operator safety on the New Holland 855 was very good. The operator is cautioned that a round baler is potentially very dangerous. The operator must disengage the PTO and stop the tractor engine to clear blockages or to make adjustments.

Many serious and fatal accidents have occurred with round balers. Most of these are caused by operators dismounting from the tractor while leaving the baler running. The manufacturer can only go to certain limits in providing shielding and safety devices and must rely on the operator's common sense in following established safety procedures.

The New Holland 855 conformed to ASAE safety standards. It was safe to operate and service as long as common sense was used and the manufacturer's safety recommendations were followed. Rotating parts were well shielded. The pickup and feeding area were well shielded to discourage operators from attempting to clear blockages with the baler in operation. The safety shields were hinged so they could not be completely removed.

The New Holland 855 had rear gate cylinder locks to permit safe servicing with the rear gate open.

A slow-moving-vehicle sign was permanently fastened at the rear of the baler.

OPERATOR'S MANUAL

The operator's manual was very good. It was well written and clearly illustrated and contained much useful information on operation, servicing, adjustments, optional equipment and safety procedures. An assembly manual and a manual on the Bale Command were also supplied. They were both well written and clearly illustrated.

MECHANICAL HISTORY

The New Holland 855 was operated for 167 hours while baling 1938 bales. The intent of the test was an evaluation of functional performance and an extended durability evaluation was not conducted. TABLE 3 outlines those problems, which occurred during functional testing.

TABLE 3. Mechanical History

Item	Operating Hours	Equivalent Field Area	
		ac	ha
-Rubber door fasteners broke and were replaced at	20	60	24
-Broke several shear pins and replaced at	0-30	0-95	0-38
-Pickup lift arm bent and was straightened at	160	528	214
-Eight pickup teeth broke or bent and were replaced at	160	528	214

DISCUSSION OF MECHANICAL PROBLEMS

Door Fasteners: The rubber door fasteners, which secure the bottom of the hinged shields on the sides of the baler broke after coming in contact with the outside dual tires on a tractor. They were easily replaced with new ones.

Shear Pins: A large number of shear pins were broken early in the test due to the red stoplight and horn on the Bale Command coming on too late. The operator could not stop quickly enough to prevent the baler from overloading and the shear pins broke. To alleviate this problem, the full bale activator chain was adjusted to activate the full bale micro-switch earlier.

Lift Arm: The pickup lift arm bent due to lifting the pickup while the linkage was binding on dry leaves and stems. The pickup drive shield was removed and the loose material was cleared from the mechanism. The lift arm was straightened while still on the baler. No further problems occurred.

APPENDIX I
SPECIFICATIONS

MAKE:	Ford New Holland
MODEL:	855
SERIAL NUMBER:	735413
MANUFACTURER:	Ford New Holland New Holland, Pa
DIMENSIONS:	
-- width	9.0 ft (2.7 m)
-- height	8.4 ft (2.6 m)
-- length	14.3 ft (4.4 m)
-- ground clearance	9.8 in (250 mm)
TIRES:	
-- under carriage	two, 31 x 13.50-15, 6-ply
-- pickup	two, 4.80 x 8, 4-ply
WEIGHT:	
-- left wheel	2160 lb (980 kg)
-- right wheel	2030 lb (920 kg)
-- hitch point	1460 lb (660 kg)
TOTAL	5650 lb (2560 kg)
BALE CHAMBER:	
-- width	5.6 ft (1.7 m)
-- maximum diameter	5.3 ft (1.6 m)
-- bale density control	one air spring on each side
-- bale peripheral speed	4.4 mph (7.1 km/h)
ROLLERS:	
-- floor roll	
-surface	steel, slotted
-length	5.3 ft (1.6 m)
-diameter	16.5 in (420 mm)
-speed	90 rpm
-peripheral speed	4.3 mph (7.0 km/h)
-- stripper roll	
-surface	neoprene rubber
-length	5.6 ft (1.7 m)
-diameter	11.8 in (300 mm)
-speed	200 rpm
-peripheral speed	6.7 mph (10.8 km/h)
APRON CHAIN:	
-- type	replaceable steel tubes bolted to roller chains
-- tubes	
-type	heavy duty welded steel
-number	68
-length	5.0 ft (1.5 m)
-diameter (OD)	2.4 in (60 mm)
-spacing	4.0 in (100 mm)
-- chain	
-type	roller chain (#100)
-length	35.4 ft (10.8 m)
-speed	4.4 mph (7.1 km/h)

BALE SIZE INDICATOR TYPE:	cable linkage to torsion spring
TAIL GATE LATCH INDICATOR:	cable linkage to torsion spring
PICKUP:	
-- type	fully floating, cylindrical drum with gauge wheels and spring teeth
-- height adjustment	gauge wheels and transport lever
-- width	5.9 ft (1.8 m)
-- diameter	19.7 in (500 mm)
-- number of tooth bars	5, 26 teeth per bar
-- speed (at 540 rpm PTO)	78 rpm
-- tooth tip speed (540 rpm)	6.7 mph (10.8 km/h)
TWINE SYSTEM:	
-- capacity	8 balls
-- type	automatic wrap with manual override
-- recommended twine	sisal or plastic
-- twine feed	dual tubes controlled by cam linkage off electric actuator
-- twine cutter	clamps shear twine across stationary knives
DRIVES:	
-- number of belt drives	2
-- number chain drives	3
-- number of gear drives	2
-- number of universal joints	3

SAFETY DEVICES:
- -- main drive shear bolt
- -- pickup drive shearbolt and slip clutch
- -- tail gate cylinder locks
- -- hinged safety shields
- -- bale chamber overload, pickup drive shear bolt breaks
- -- tail gate latch indicator

LUBRICATING:

	5h	10h	50h	yearly
-- grease points	1	10	5	2
-- oil points	–	11	3	–

TRACTOR HOOK-UP:	
-- connections	single remote hydraulics (two hoses) one electrical cable
-- hitch height	13 to 20 in (330 to 510 mm)

APPENDIX II
MACHINE RATINGS

The following rating scale is used in PAMI Evaluation Reports

Excellent	Fair
Very Good	Poor
Good	Unsatisfactory

SUMMARY CHART
FORD NEW HOLLAND 855 ROUND BALER

RETAIL PRICE:	$24,496.00 (March 1988. f.o.b. Portage la Prairie, MB)
CAPACITY:	4.1 ton/h (3.7 t/h) in wheat straw 12.6 ton/h (11.4 t/h)in alfalfa
QUALITY OF WORK:	
Bale Quality	**Very Good,** dense core
Weatherability	**Very Good,** about 1 in (25 mm) spoilage
Leaf and Stem Loss	**Excellent,** 1.8% in alfalfa hay at 13% moisture
EASE OF OPERATION:	
Bale Forming	**Very Good,** follow Bale Command after core formed
Twine wrapping	**Excellent,** fully automatic
Bale Discharging	**Excellent,** reversing apron chain
Transporting	**Good,** large hitch weight
Hitching	**Very Good,** jack was convenient
Feeding	**Very Good,** aggressive in all crops
EASE OF ADJUSTMENT:	
Apron Chains	**Very Good,** simple and fast
Pickup	**Good,** adjusted only once
Bale Size & Density	**Very Good,** both simple to perform
Twine Wrap	**Good,** easy to move twine tubes
Lubricating	**Good,** about 30 min for daily service
POWER REQUIREMENTS:	
Tractor Size	65 hp (49 kW) has sufficient reserve for most field conditions
Specific Capacity	0.82 ton/hp-h (1.00 t/kW-h) at a workrate of 15 ton/h (13.6 t/h)
OPERATOR SAFETY:	**Very Good,** well shielded and visible decals
OPERATOR'S MANUAL:	**Very Good,** well written and clearly illustrated
MECHANICAL HISTORY:	Rubber door fasteners broke, pickup lift arm bent

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