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MESSAGE FROM REINCO

Getting the most out of your new POWER MULCHER should be within the reach of an inexperienced crew in a few hours. The purpose of this manual is to minimize start-up difficulties and acquaint the new owner with recommended procedures and operating techniques.

The M80-C series Power Mulcher represents the culmination of thirty years of expertise embodying field feed back, innovative design and manufacturing experience. Functional simplification, and avoidance of mechanical complexities have been prime objectives. The benefits to be realized will be years of trouble free performance with minimum attention and maintenance. Every operating foreman should read this booklet and familiarize himself with the mechanical aspects described. Some commentary may appear to be obvious, but at the expense of being repetitive or assuming certain basics, this will serve as a quide for both owner and operator not acquainted with mulching procedures.

We at Reinco welcome this opportunity to be of service and wish to express our appreciation for the confidence extended in selecting the M80-C model POWER MULCHER.

MULCHING

DEFINITION

What does the word "MULCH" bring to mind? Does it have the same connotation to all users? At REINCO, the terminology of POWER MULCHER describes a device to thrash bales of hay or straw into short lengths. "POWER" refers to the dynamic energy of the processing dried compacted grain stalks, or field grass, to an unbaled state. "MULCH," then is defined as a blanket of these stalks evenly placed on prepared ground surfaces in lengths of 4 to 10 inches (average 6 to 7) overlapping and intertwining, forming a mat, thereby providing a micro-climate for seed germination.

The M80C Power Mulcher can blow thrashed mulch ranging as far as 90 to 95 feet in still air, depending on bulk and moisture content, to form a protective ground cover. Common applications vary from 1-1/2 to 2 tons of mulch per acre; sometimes going to 6 and above. Too much mulch is not necessarily better. A compromise must normally be established relating to economy and results when specifications are written for the particular job.

Model M80C is nominally rated at 15 tons per hour. If dry bales weighing 50 pounds each are used, 10 bales a minute can be blown. Conversely, only 5 bales weighing 100 pounds each would be required to satisfy the same capacity.

In practical terms, the machine can handle bales at almost any rate delivered to the feed tray, provided it is dry and not infused with obstructions. A common trailer load of 12 to 14 tons can be directly off loaded in about 45 minutes.

MACHINE DESCRIPTION

The first impulse in putting your new POWER MULCHER into operation is to start the engine. However, before turning the key, review the major components listed in this section.
This descriptive nomenclature will prove valuable in connection with further explanations.

The "LOWER UNIT" is described as the frame, hitch and running gear, the blower and beater components and those parts below the placement operator's deck. The "UPPER UNIT" consists mainly of the discharge boom assembly and related parts.

The "LOWER UNIT" consists of (starting from front to rear):

A. DRAWBAR TONGUE — Telescopically extendable trailer hitch; position is maintained with a 1-1/4" shoulder pin secured by safety clip. (Extensions are in (3) 18" increments allowing for up to 3' extension).

B. TOW RING (EYE) — The forward end of the tongue has a press formed plate hitch. Three holes are provided for two alternate ring mounting and height variations.

C. SAFETY CHAIN — The safety tow chain is looped through the eye openings on the draw bar hitch plate with grab hooks fixed at each end.

D. SWING JACK — A top wind, 1000 pound capacity leveling jack, locks in position and is stowable.

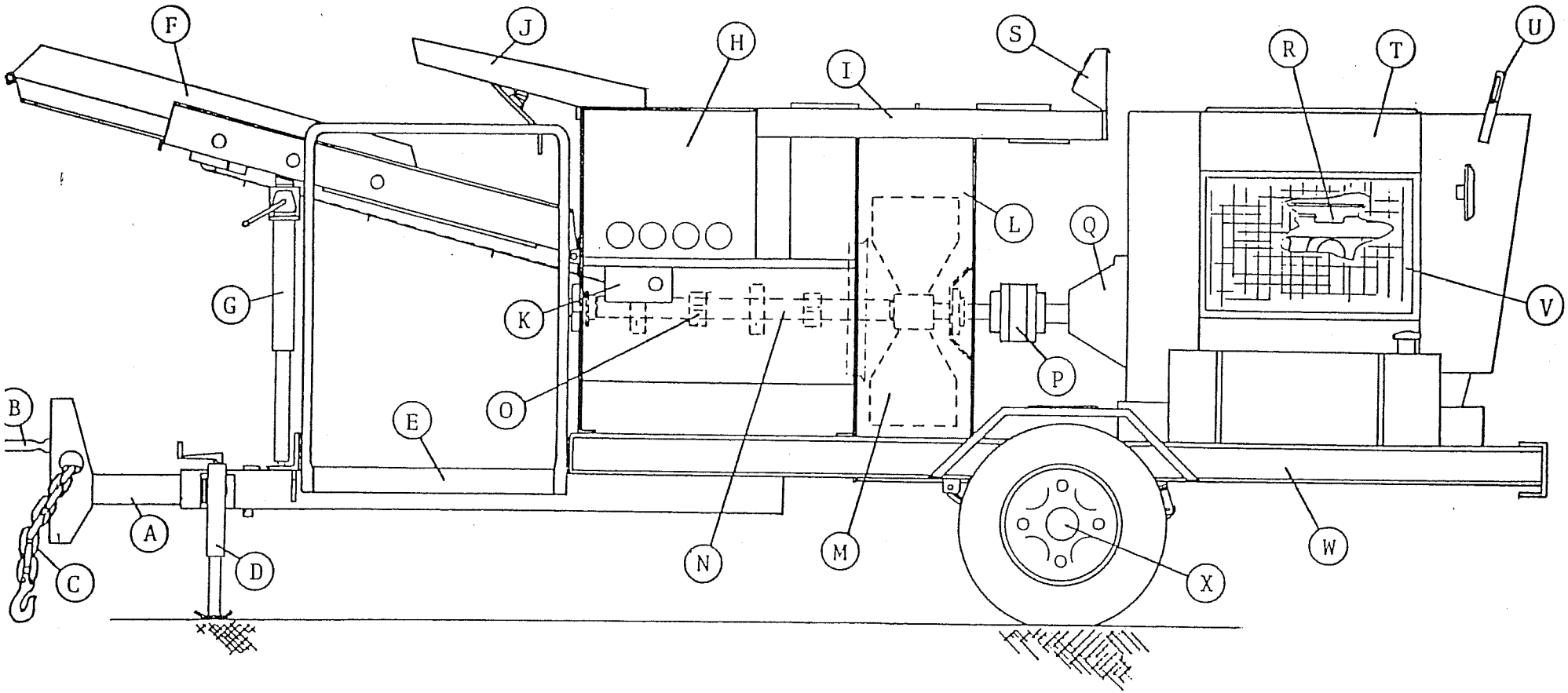
E. WORK SHIFT PLATFORM — Located beneath the load tray, with railings; adjustable left and right positions secured with a spring loaded locking pin. The center lock position is provided for transport. Anti-skid strips are provided for safety.

F. FEED/LOAD TRAY — Two piece, with the sliding section extendable, and secured with a cross bar held with hairpin cotters.
The fixed (conveyor chain) section is pivoted from the forward wall of the beater drum.

G. TRAY JACKS — A synchonized, crank operated screw jack assembly which adjust the load trays; totally enclosed, rubber bushed to the tray and pivot pinned at the tongue crossmember.

H. BEATER DRUM — The chamber in which the flailing chains rotate and thrash the mulch; directly mounted to the blower, and accessable through the side mounted cover.

I.	BEATER DRUM DECK	The top surface of the beater drum housing including the extension to which radial cleats are mounted, allowing operator movement of the top discharge assembly.
J.	BALE FLAKER	Flaker arm positioned above the feed tray, extending downward to crop the mulch bale, (adjustable to bale height variations).
K.	CONVEYOR CONTROLS	Variable conveyor feed control rheostat and reset, housed and located for operator convenience.
L.	BLOWER HOUSING	The fan housing in which the discharge air pressure is produced. The housing also supports the transition to which the discharge assembly is mounted.
M.	BLOWER WHEEL	The balanced rotating paddled weldment that produces the driving air blast.
N.	BEATER SHAFT	Main driven machine member, extending through the beater drum and blower housing to which the flailing chain brackets and blower wheel are mounted in common.
O.	BEATER STATIONS	Forged brackets and case hardened chain clamped to the beater shaft, providing the flailing action.
P.	DRIVE COUPLING	Component which connects the beater shaft to the engine power take-off shaft. The flexible element protects the driven members.
Q.	P.T.O.	Abbreviation for Power Take-Off assembly, transmitting power to the blower.
R.	ENGINE	Prime power source driving the shaft.
S.	INSTRUMENT PANEL	Remotely mounted on the beater drum deck, equipped with gauges and controls relating to engine operation.
T.	COWLING	Metal cover surrounding and protecting the engine from natural elements.
U.	BOOM LOCK	Spring loaded "J" shaped pin bracket mounted on rear side of engine cowl, to lock the boom during transport.
V.	CHAFF SCREENS	Two pleated wire cloth filter elements mounted on each side of the cowl.
W.	BASE FRAME	The structural steel fabrication on which the machine members are mounted.
X.	RUNNING GEAR	Complete axle assembly supporting the base frame for transporting.

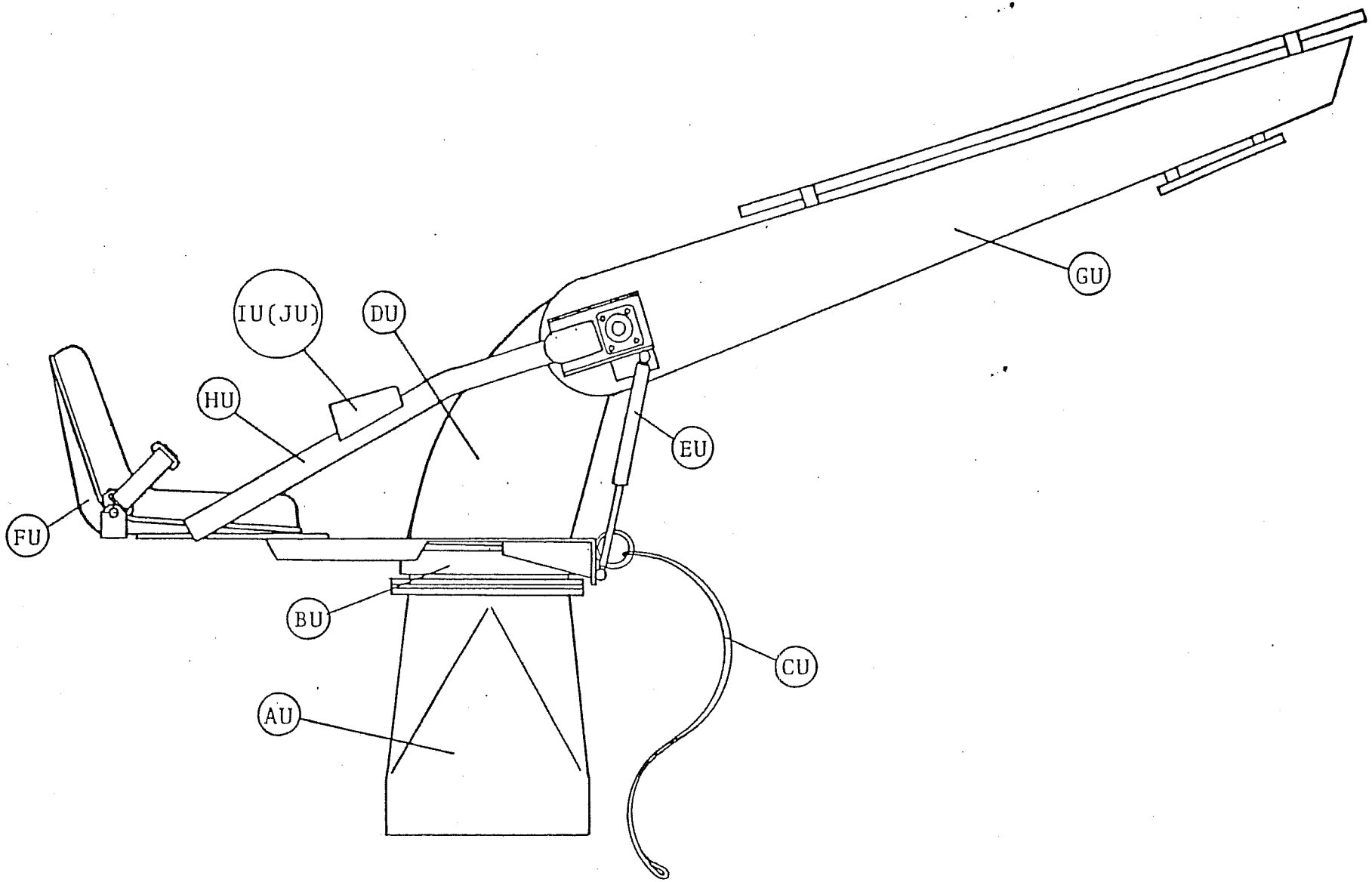


LOWER UNIT

MODEL M80C POWER MULCHER

Assembled to the Fan(Blower) discharge, and extending upward from the beater drum deck is the "UPPER UNIT"(discharge assembly). Components covering this section are listed as follows:

AU.	BLOWER TRANSITION	Formed retangular to round sheet metal section extending up from the blower housing which supports the discharge assembly. Although listed with the UPPER unit components, the transition is fabricated integral to the blower housing.
BU.	SLEW BEARING	Cast iron rotary joint mounted to the discharge transition to provide 360 degree movement of the boom discharge assembly.
CU.	ROTATION STOP	Weather protected steel cable secured to the rotating elbow and deck, restricting the swing of the boom assembly.
DU.	DISCHARGE ELBOW	A fabricated joint of curved rectangular section mounted to the top rotating flange of the slew bearing assembly.
EU.	BOOM BALANCE	Two gas pressurized springs are mounted to the elbow base extending to the pivot frame of the discharge boom allowing the boom to swing easily for up and down movement.
FU.	OPERATORS SEAT	Vinyl covered, foam filled, body contoured one piece assembly, with safety belt, bolted to the support bracket of the discharge elbow. Three locations are provided for adjustment.
GU.	DISCHARGE BOOM	A rectangular section of roll formed sheet metal, spot welded to a heavy guage pivot end housing, Nested with flanged bearings. Pivot sealed with heavy guage fabric reinforced rubber and stainless steel side wipers.
HU.	BOOM HANDLEBARS	Press shaped tubing fitted with welded end brackets bolted to the boom pivot housing.
IU.	SWITCH HOUSING	Mounted to right handle bar, supporting the horn button and the conveyor control "ON-OFF" switch.
JU.	THROTTLE HOUSING	Mounted on left handle bar. The vernier throttle control is secured and nested within the enclosure.



UPPER UNIT

MODEL M80C POWER MULCHER

CONTROLS—ELECTRICAL

There are two operating circuits in addition to the engine ignition and/or engine wiring. These are, SIGNAL and CONVEYOR (bale feed). Both circuits are connected through the auxilliary terminal of the engine key start switch.

Component identification and schematic diagram are described later in this manual [Reference pg.32-33]. Location and functional description are as follows:

SIGNAL [HORN and WARNING LAMP]

Audio - On the right handle bar is mounted a momentary push button switch actuating the horn relay. The horn itself is located under the forward section of the load tray.

Visual- An amber signal lamp is bolted to the left side of the radiator couling enclosure. The flasher is lamp is operated automatically by turning the ignition key to the run or accessory position.

CONVEYOR (Bale Feed)

A 12V D.C. motor driven gear reduction unit provides the torque for powering the drag chain. The drive sprocket is positioned inside the beater drum and is shrouded with a protective deflector baffle. The adjustable idler is mounted at the front of the tray. The chain is a stamped steel pintle type with projecting drag teeth (cleats) welded at 22" intervals.

The conveyor motor has a varible speed control located under the left side of the beater drum chamber. A reset (overload) switch is mounted at the forward face of the control box. The on-off toggle switch is located on the right handlebar in the same panel enclosure as the horn pushbutton.

These operators do not require starting the engine, however, the key must be "ON" to direct power to the various components.

ELECTRICAL OPERATION

Turn the ignition switch on and actuate the horn button to observe the audible and light signals.
Turn the toggle switch on to actuate the conveyor. Vary the chain speed by adjusting the control setting on the motor control box [MIN-MAX]. Also, flip the overload toggle to disconnect and reset. DO NOT TEST the conveyor under load.

MANPOWER REQUIREMENTS

Normally, a crew of 3 men, exclusive of the driver, is required. Top production rates may demand more. As few as two men, however, can successfully operate the machine. The following text describes a crew of 3 members:
The boom operator is the key man. He controls direction and elevation of the discharge chute for uniform mulch placement. This operator also regulates the bale feed delivery to the blower by the conveyor feed switch located on the right handlebar. Discharge range is the controlled by adjusting the throttle. Movement of the machine then is initiated by pushing the horn button on the right handle bar to signal the tow vehicle driver. For example, one blast for forward, and two to stop.

Two laborers may be stationed on the truck bed. The responsibility of one is to remove twine or tie wire from bales placed and and nested on the load tray. He must then push and pack the bales tightly on the tray making certain the conveyor drag chain is sufficiently loaded to the satisfaction of the boom operator. The other fetches and carries bales, stacking and positioning them under and and in back of the load tray extension to be on hand for the other laborer to lift and place on the tray.

The power feed delivery has the advantage of minimizing the skills demanded of these men. Their combined task is simply to keep the tray packed with bales. The boom operator has full control of the output (by using the coveyor control switch).

Conveyor drag chain speed is altered by changing the gearbox output speed from 26 to 18 RPM. To do this, adjust the dial on the conveyor control box from a high (MAX), to low (MIN) setting.
When low quality or green stock material is all that is available, it is advisable to separate the bale sections on the forward tray section before delivery to the power feed. In this mode of operation, a laborer should be stationed on the side of the work shift platform predicated by the direction of blow, and push bale sections [flakes] onto the chain feed tray. These should be fed evenly. The best results occur when rhythm is established between the boom operator and the laborer in respect to the area to be covered.
This method may also be considered an alternative when "spot" placement is required.
Experience indicates that the dryer and more homogenous the bales, the more uniform will be the distribution of mulch strands spewing from the boom. Quality raw product usually can be expected to reduce unit labor costs.

Frequently, bales are stored on the job site for long periods before use. These may well receive rain several times, with the likelihood of becoming moldy and even decayed. DO NOT expect to operate the power feed as you would with dry product without altering conveyor speed or changing procedure. Every load of mulch varies one way or another and requires some human or mechanical adjustment. The machine is not programmed to do this for you.

WARRANTY

Reinco Inc., gives a limited one year warranty on the machinery of its own manufacture sold herewith. Reinco Inc., warrants to any buyer that the machinery shall be free of defects in material or workmanship during normal use and service for a period of one year from the date of shipment to the ultimate purchaser

Under this limited warranty, Reinco Inc., shall within one week from the date of notification, (1) initiate replacement or action for repair of the part(s) proven defective in material or workmanship or, (2) direct the servicing dealer to investigate, report, and then authorize and perform repair or, (3) on direct factory shipment, instruct the user, upon verification of failure, to perform his own repair with prior agreed upon back charges to Reinco Inc. The choice of alternatives shall remain the sole decision of Reinco Inc.

THIS WRITTEN WARRANTY IS THE ONLY WARRANTY MADE BY REINCO INC. IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IF ANY, ARE LIMITED TO THE SAME TERM AS THIS WRITTEN WARRANTY. CERTAIN STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY. HOWEVER, SOLELY WITH RESPECT TO THE BUYER, THE FOREGOING WARRANTY IS IN LIEU OF ANY AND ALL IMPLIED WARRANTIES EXPRESSED OR IMPLIED, AND NO OTHER WARRANTY IS MADE OR AUTHORIZED TO BE MADE.

The user or dealer must promptly, within the limited warranty period, notify REINCO INC., and confirm in writing, the defects, allowing the Company to analyze the failure and determine its obligation under the warranty. Costs incurred by the user or dealer are to be absorbed, until settlement under terms of this warranty. The Company reserves the option and the right to have all defective components returned, transportation prepaid, for inspection.
This limited warranty does not cover unsatisfactory performance or failure due to misuse or abuse of the product, nor will Reinco Inc. be responsible for unsatisfactory performance or failure to do improper adjustment or repair of the product. The specifications are descriptive and are not warranties.

This limited warranty does not cover equipment and accessories manufactured by third parties.

REINCO INC. SHALL NOT BE RESPONSIBLE FOR CONSEQUENTIAL, SPECIAL, CONTINGENT, INCIDENTAL OR ANY OTHER DAMAGES WHATSOEVER IN CONNECTION WITH REPLACEMENT, REPAIR OR REFUND AS SET FORTH ABOVE. CERTAIN STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS IN ACCORDANCE WITH YOUR STATE LAWS.

REINCO, P.O. BOX 512, PLAINFIELD, N.J 07061

WARRANTY PROCEDURE & FILING

1. NOTIFICATION - promptly notify Reinco of defect or failure and confirm in writing.

2. AUTHORIZATION - upon receipt of authorization, initiate replacement or repair under the terms and conditions of the warranty.

3. RETURN GOODS - should part(s) be requested returned for inspection, obtain authorization for return (RGA). Return part(s) to Reinco Inc. freight prepaid. A copy of the RGA must accompany shipment.

4. SUBMIT CLAIM - claims submitted for warranty consideration will require copies of notification, replacement part(s) invoice(s) and time record (work order). Copies of any additional correspondence with regard to the particular claim should be submitted as well.

Reinco's obligation under warranty shall be limited to replacement or credit for the parts, which upon request of Reinco, shall be returned for inspection and if acknowledged by Reinco to be defective, and the related labor as determined soley by Reinco, to be fair and reasonable with regard to the work performed. A work order time record will be required to substantiate and validate labor reimbursement requests.

Claims submitted which by the decision of Reinco upon review, are determined to be the responsibility of third parties will be returned with instructions for forwarding to those parties, or will be submitted directly and credited upon settlement of the claim by that manufacturer.

Claims submitted for warranty reimbursement must be forwarded to Reinco for review within 30 days of the date of claim or the claim will be considered invalid and void.

Settlement of any claim will require that any prior claims or adjustments are settled.

SHIPMENT & DELIVERY

Machines shipped from the factory are routinely started, adjusted and inspected. A performance test simulating field conditions is not practical to conduct on a production basis. Under no circumstance, however, is a unit passed for delivery that is damaged or inoperative.

The purpose of this message is to advise the new owner, and in particular the receiving person to inspect the machine thoroughly to determine if any in-transit damage has occured. If indications of such are apparent, procedures must be initiated that do not involve Reinco.

Normally, shipments go forward via contract or common carrier. Customer preference may, on occasion, call for direct factory pick-up. In any case, prior to signing for and accepting a new machine, follow these suggested guidelines:

DO NOT SIGN A RECEIPT, SHIPPING BILL OR "PRO" STATEMENT UNTIL A VISUAL INSPECTION IS MADE. SHOULD "IN-TRANSIT" MISHANDLING ABUSE BE EVIDENT, FULLY DESCRIBE IN WRITING ON THE RECEIPT FORM. TO VALIDATE, HAVE THE DELIVERING DRIVER SIGN AS AN ACKNOWLEDGEMENT.

The procedure for handling damage claims involves completing forms supplied by the carrier. After submission of the claim forms, the processing may take several months. The shipper has no control of this paper work. Be aware of the fact that the liability of back charges for restitution lies with the delivering carrier. Safekeeping of the machine passes from Reinco, Inc. to the carrier at the point of pick-up.

If repairs are extensive enough to require replacements, Reinco's Parts and Service department can be counted on to extend every effort to expedite orders, minimize delays and assist in getting the machine back in satisfactory operation.

TRAILER HOOK—UP

The machine must be attached to the towing vehicle so that it will be level when pulled. Additionally, the tailgate overhang must be inspected to prevent damage when backing up due to jack-knifing, or when turning sharply.
The draw bar tongue [A]*, is extendable to compensate for varying truck bed overhangs. In spite of this, inadequate clearance may exist, and may require as an alternative to extend the truck chassis. The tongue will extend in two increments of 18" to accomodate a maximum overhang of 3'. Failure to adjust or compensate for this overhang will result in work shift platform railing or feed tray damage.

Three additional tow ring [B]*, locations are provided in the tongue hitch plate to accomodate various draw bar positions. The eye is routinely mounted at the 26" height (factory installed). LOCATE THE EYE SO THAT THE TRAILER IS TOWED LEVEL OR DAMAGE TO THE AXLE SPRINGS AND TIRES MAY OCCUR.

STANDARD EYE HITCH LOCATIONS are: (from the ground)
Bottom =15", next =22", st'd =26", and top =30".

A pintle type connector is recommended. The old style pin (farm) hitch does not serve well for compensating and shifting tongue loads at road speeds when transporting the machine. The safety chain [C]*, when secured to the tow vehicle, will complete the trailer hook-up.

Initial hook-up to the tow vehicle will also require that the load trays be adjusted to accomodate the truck bed height. In the normal mode of operation the tray extension will lay on the edge of the truck bed (or slightly above) and the bales are loaded without reaching over the end of the vehicle. Make sure the feed chain tension is adjusted properly each time the tray height is adjusted. (Reference pg. 17)

The Optional trailer lighting package includes a standard six conductor harness connector and pigtail. The pigtail is provided for customer installation to the tow vehicle.

Every operator has individual preferences and may make some adjustments to his liking, however these guidelines will provide for an efficient and safe installation.

* [REFERENCE ITEMS ON SCHEMATIC pg. 5]

PRE—OPERATION INSPECTION

Each machine is packaged for near immediate operation and is tested at the factory prior to shipping. Before starting up, however, retrace the factory inspection procedures as follows:

1. Crank case oil level
2. Air cleaner assembly
3. Fuel (consult the vendor engine manual for proper grade fuel)
4. Battery connections (negative ground)
5. Engine instruments, conveyor controls, signal controls
6. Open boom lock and actuate boom
7. Adjust feed tray, adjust chain and flaker assembly
8. Inspect and remove any debris from beater drum
9. Inspect failing chain stations and blower
10. Check all set screws for tightness

If equipped with emulsion spray option:

10. Pump, sheave and belt alignment
11. Drum carrier and pickup assembly
12. Suction strainer and prime fill cap
13. Hose connections and system valves

Trailer running gear:

14. Wheel lugs and tires
15. Eye hitch, safety chain and swing jack
16. Trailer hook-up and clearance

INITIAL START—UP

The engine gauges and key start ignition switch are grouped in the remote instrument panel [S]*, centered above the engine cowl and bolted to the rear of the beater drum deck. The choke control for gasoline fueled engines is also mounted here. An "Engine Kill" switch is located directly above the ignition. The gauges are provided with a High Temperature and Low Oil pressure shutdown system. For diesel powered units, a fuel shutdown is also included in the system.

The 'vernier type' throttle control is remotely mounted on the left handlebar. This means that when the fluted turning knob is turned, a fine (vernier), engine RPM adjustment is acheived. The center button of the knob, when depressed allows for a quick RPM change when the knob is either pushed or pulled, and will be locked in position when released.

SHOULD THE MACHINE BE OUTFITTED WITH THE ADHESIVE TACKING SYSTEM OPTION, MAKE CERTAIN THE PUMP DRIVE BELTS ARE NOT ENGAGED. A storage hanger is provided for these on the top of the blower end sheet. [Reference pg. 38].

The starting keys are routinely shipped with this manual for safekeeping during shipment.
Set the throttle for a moderate idle position (about 1/4 out), (pull the choke out all the way [Gas engine]). Depress the 'Murphy Tattletale button'(located beneath the ignition),and turn the key to the right to start. The tattletale button may be released once the guages have actuated. [The tattletale will 'trip' and shut down the engine should the gauges (temp. or oil) strike their preset contact point, or the fuel (deisel engines) run out. The fuel solenoid shutdown will often eliminate bleeding of the fuel lines].
Allow the engine to 'warm up', resetting the choke and adjusting the throttle to 800-1000 RPM.
Simultaneously check the gauges for standard indications. Should an abnormality appear, STOP, investigate the cause and rectify.
With gauges indicating normally, unlatch the boom lock [U]*. Push the boom to rotate in a direction where the air discharge blast is not objectionable.

The PTO clutch lever extends above the beater drum deck. Slowly push the lever into the engaged position. The blower wheel will rotate at the RPM of the pre-set idle setting. Check for odd noises, vibration, or unusual sounds. Double check gauges on remote instrument panel. Again, if an irregularity surfaces, declutch to find and rectify the problem.

At this point, adjust the throttle control out in 3 or 4 stages waiting a minute to two between settings until a maximum governed RPM of 2300 to 2400 is reached. Run for 5 minutes, reduce throttle setting to an idle RPM, declutch, and allow the the engine to cool down for another 3 to 5 minutes before turning engine off. This procedure will help to reduce engine maintenance in the long term.

*[REFERENCE SCHEMATIC ITEMS pg. 5]

Observe during this "run in" period that air is "Expelled" from the radiator enclosure. Model M80C POWER MULCHER is outfitted with a "PUSHER" fan. Cooling air is drawn to the engine compartment through the side (chaff filter) screens.
It is important that the radiator fins [core] be blown out periodically to maintain the cooling air flow. Using an air nozzle, simply blow out the dirt and chaff from the outside of the cowl screen. Remove the foam block from beneath the engine bell housing and blow or sweep out the residue.

NEVER ATTEMPT TO CLEAN THE RADIATOR WITH WATER PRESSURE!

[Reference pg. 21 Maintenance]

ENGINE BREAK-IN

THE ENGINE BREAK-IN PRIOD FOR THE SPECIFIC ENGINE SUPPLIED IS NOTED IN THE VENDOR OPERATION MANUAL AS SUPPLIED WITH THIS MANUAL.

PROPER ENGINE BREAK-IN WILL RESULT IN DECREASED MAINTENANCE AND SERVICE REQUIREMENTS AND ULTIMATELY INCREASE ENGINE LIFE.

RECOMMENDED ENGINE BREAK-IN PERIODS:

	Break-in period	Oil Change
AIR-COOLED GASOLINE ENGINES -	[1]hour 50-75%RPM/25-50%load	[100] Hr.
WATER-COOLED GASOLINE ENGINES -	[5]min. Warm-up	[100] Hr.
AIR-COOLED DIESEL ENGINES -	[5]min. Warm-up	[50] Hr.
WATER-COOLED DIESEL ENGINES -	[5]min. Warm-up 30 min./50% load	[100] Hr.

FLAILING CHAIN

Four pairs of matched chain brackets are secured to the beater shaft to provide the beating or flailing action. Each is clamped 90 degrees radially from the preceeding one, and positioned axially from the blower inlet as follows:

> The first(1) is 4" from the blower inlet ring to the edge of the forged bracket. The next three are placed at 7" equidistant.

All are equipped with (3 link) CASE HARDENED chains. Altering positions as well as chain length does have an effect on the strand length of the mulch. DO NOT USE chain sections over 3 links in length(station 1 & 4). DO NOT mount unequal length chains in pairs. DO NOT OPERATE with broken chain links. DO NOT USE ORDINARY CHAIN.

By moving the first station closer to the blower inlet, mulch strand lengths can be shortened. In the extreme, if positioned too closely in front of the blower inlet, the effect is to block all mulch from being pulled into the blower. When thrashing extremely dry straw, it may be necessary to remove the two center chain stations to prevent overshortening. Bailing wire or twine, at times, may wrap around the beater shaft. This has the same unbalancing effect as operating with chains that are too long or unbalanced. It creates swirling and prevents the mulch from being drawn into the blower inlet. Besides restricting output, short or broken pieces of wire present potential danger if drawn into the blower and are discharged.

DO NOT OPERATE WITH WIRE OR TWINE WRAPPED AROUND THE SHAFT!

CONVEYOR (BALE) FEED TAKE-UP

As the load tray pitch is varied to allow tailgate clearance, the drag chain tension changes. This must be checked and adjusted whenever the setting is altered. A loose drag chain will cause slipping or jumping on the drive sprocket teeth. A loose chain also allows chaff to accumulate between the teeth of the drive sprocket causing stretching and binding as mulch accumulates between the chain and guard. Adjust the chain take-up (idler assembly) each time the trays are repositioned.

BALE FLAKER ARM

The drag arm of the flaker serves two purposes. It prevents an entire bale from being pulled into the beater drum and it regulates the size of the flake or section that passes. The 'tooth' of the flaker arm should be adjusted, where it will grab at the top edge of the bale. As the tooth grips more of the bale, a larger section of that bale will be torn. When operating properly the bale should be uniformly dispensed to the beater drum. Adjustment of spring tension and drag arm angle will vary with the density, dryness and size of the bale. Also, the slope of the load tray must be considered in relation to bale height to allow optimum flaking.

ENGINE CONTROLS

Every machine is governed to operate at a maximum RPM setting of 2400, NO LOAD. A tachometer is provided on the rear of the engine cowling to monitor this setting. Gasoline engines are equipped with a velocity type governor. Diesel powered machines have a locking screw adjustment with a top speed stop. DO NOT under any circumstances, CHANGE THIS SETTING!.

Whenever the throttle control cable or carburetor is serviced or replaced, causing repositioning of the throttle setting, recheck and adjust the top speed RPM. (2400 RPM NO LOAD, WITH PTO ENGAGED).
Electronic impulse tachometers should be verified by using a remote automotive type tachometer, and recalibrated if required.

The engine temperature and oil pressure gauges are pre-set with an electronic shut-down indicator. This setting is adjusted for normal engine operating ratings. Should a variation of the setting be required the gauges may be reset by adjusting the contact screw in the face of the gauge.

OPERATION

BLOWING MULCH

After the vehicle hook-up is complete and the Pre-operation inspection has been performed, and a crew has been assembled, we are ready to begin the operation.

As previously described under MANPOWER REQUIREMENTS, the crew assembled to operate the machine, includes the boom operator as the key man, with responsibility for actual placement of the discharged materials. The "feed" men are required to keep the material flow available to the machine to satisfy the placement operators requirements.

To begin, the feed man must place the mulch bales onto the feed tray, while his subordinate clips and pulls the tie cord or wire from the bale. Two bales should adequately fill the conveyor trays, leaving sufficient space for the next as the operation begins. The boom operator should "jog" the bales forward on the tray, to insure the feed chain and flaker are properly adjusted.

With the machine positioned for the best placement advantage, (use the prevailing wind to your advantage),"Rev" the engine slowly, and engage the blower P.T.O. lever. A spot placement (again by "jogging" the feed control, to minimize the amount of mulch blown) is reccomended to familiarize the operator with the feed "flow", as well as with the range (discharge) capability of the machine and breadth of area to be covered.

The operator then adjusts the placement distance by varying the engine throttle, and the coverage by regulating the feed (by using the conveyor "On-Off" switch).

As the bales move forward on the conveyor they should be replaced quickly to insure that the tray is sufficiently packed and the flow of material remains uninterupted.

Once the placement operator is satisfied with the coverage, he signals the vehicle operator to move forward, continuing the operation. A signal "code" should be established between the operator and vehicle driver using the horn blasts.

The mulching operation is now under way, and with some experience the crew and equipment should quickly approach a comfortable routine.

TROUBLE SHOOTING

STRAND LENGTH : TOO LONG - Adjust inlet [blower] chain station closer to blower inlet by up to half of bracket width. It is not recommended to increase flail chain lengths.
TOO SHORT - Move station away from blower inlet. Reduce chain links.
[Ref. pg. 17 - FLAILING CHAINS]

DISCHARGE RANGE : Check engine operating RPM at 2400 maximum.
[Ref. pg. 18 - ENGINE CONTROLS]

POWER FEED : JAMMING - Check feed chain take-up adjustment, feed chain speed, sprocket alignment.
BALE BREAKING - Adjust bale flaker height, check feed chain speed, inspect material quality.
[Ref. pg. 17 - CONVEYOR FEED, BALE FLAKER]

VIBRATION : Check drive coupling alignment, Blower wheel, chain stations.
Check bearings for wear.
[Ref. pg 22,23 - MAINTENANCE]

BOOM AIR SEALS : BLOW BACK - Adjust boom side wipers, inspect rubber air seals for deterioration.
[Ref. pg. 22,23 - MAINTENANCE]

BOOM SWING : Inspect air springs and ball joints, lubricate as required.
Inspect slew bearing seal.
[Ref. pg. 24 - MAINTENANCE]

MAINTENANCE

Routine inspection and servicing of mechanical equipment is the key to eliminating breakdowns and insuring dependable service. Experience indicates that the average machine will be operated between 250 and 500 hours per year.

Two prime seasons exist, each lasting about three months. Correspondingly this translates into somewhat over 20 actual working (operating) hours per week. Judge the following recommended service time sequences accordingly. An hour meter is provided (Ref. Instrument Panel [S]),and should be logged on a daily basis.

Machines shipped mid-October to mid-March are filled with permanent anti-freeze for +20 degrees fahrenheit protection. On reciept of the machine, this rating should be adjusted to your localized coolant mixture rating.

ENGINE - This is the single most important component, aptly called the prime mover. Manufacturers recommendations as covered in the manuals provided, should be followed closely. Installation of these engines is termed "industrial" because they are exposed to service conditions that are in excess of equivalent automotive ambient horse power applications.

CHAFF SCREENS - Pleated or corrugated wire mesh screen panels cover the inlet air openings on each side of the engine cowl and must be kept free of chaff accumulations. A pusher fan is implemented to provide the cooling air flow. Fine particals of chaff and dirt will be drawn through the screens and may lodge within the radiator core fins. Radiator cleanliness is essential to proper engine temperature regulation. Check the temperature after every load. Adjust coolant requirements as necessary. Foam (urethane rubber) stops are provided within the engine cowling assembly to prevent air flow other than that which is directed through the side screens. Check these stops periodically for placement. Should the radiator boil over, the accumulated dirt on the fins may cake and harden in place. To avoid this blow the fins clean with an air gun from the inside out at the end of every working day to clear off chaff particles and dust.

Cooling system integrity during initial as well as routine maintenance, is essential for proper performance.

AIR CLEANER - Aspirated air is filtered through a dry cartridge type cleaner equipped with a vacuator overload dispenser. Inspect every 20 hours for cartridge replacement. Connecting hoses, tubing and clamps should be examined for cracks, looseness and separations at the same time.

POWER TAKE OFF - The machine 'clutch' or transmission device generally requires several adjustments until the friction surfaces are 'worn in', however in most instances this will occur within the first few hours of operation. To adjust the clutch, reference the vendor supplied manual at the back of this manual.

The swing of the extended engagement lever will change slightly as the drive plate wears. Eventually, it will strike the containment bracket on the beater drum deck. At that time it must be repositioned. To adjust, loosen the bolt at the bottom of the lever and reposition the lever on the spline shaft. Tighten the bolt and try the lever in both the engaged and disengaged positions. Some clearance should be allowed to compensate for the obvious continued wear.

Lubrication of the pilot bearing is made through the grease fitting on the side of the output shaft. A single shot of general purpose bearing grease every 80 hours is adequate. DO NOT OVER LUBRICATE. LUBRICATION SHOULD BE DONE SPARINGLY TO AVOID OIL ON THE CLUTCH FACINGS.

DRIVE COUPLING - After the first 4 hours of field use check the set screws of the companion flanges. If torquing is required, the set screws should be removed and the screws as well as the sockets cleansed with solvent or a locking compound primer. Before reinstalling the screws, apply a thread lock resin compound. The coupling flanges should be snug against the center member when tightening the set screws. Now, also inspect the coupling alignment. This is easily done by placing a straight edge on the top and sides of the flanges and "eyeballing." (Notch the straight edge to 'float' over the coupling center member (flexible insert)). Variations in excess of .005" indicate that the engine and/or fan housing should require adjustment (realignment), and reshimming if necessary.
Recurring alignment problems would indicate an imbalance situation, or vibration caused by overloading, obstruction, or poor quality materials. Inspect bearings, chains, blower, etc., for wear.

BEATER SHAFT - The two flange bearings in which the shaft is nested should be checked after the first 4 hours of operation and every 40 hours thereafter. DO NOT OVER LUBRICATE, one shot of grease will be adequate. Bearings operating under full load will be mildly warm to the touch. They will run hot and wear quickly when over greased.

A protective slinger is located on the shaft opposite the flange bearing mounted to the beater drum, to sheild the inner bearing seal from chaff abrasion. Periodically check the positioning to maintain minimum spacing. Clearance at the face of the beater drum bearing should not exceed 1/32".

BLOWER WHEEL - Service life of this rotating component depends on the nature of the mulch processed. Wheels are fabricated of AR (abrasion resistant) steel paddles. With the use of this material, service life is considerably extended. Wet, dirty, moldy, or sand (coral) filled mulch greatly accelerates wear. If clean dry straw or hay is blown, anywhere from three to five seasons can be expected.

After the initial start-up, approximately 4 hours, check the blade clearance in the blower housing. The distance between blade edges and the trailing edge of the inlet ring, and the back face of the blower drive plate, should be nearly equal (apprx. 1/2"). Inspection can be made by removing the beater drum cover and viewing through the circular inlet opening Retorque the hub set screws if required to make certain they are tightly seated.

Schedule inspections of the wheel at 40 hour intervals. Wear can be gauged by the amount of thinning on the leading edges of the blades. In time these surfaces may reduce to paper thinness and curl back. As long as the wear is uniform, with no ripping or separation, the wheel will not become unbalanced and can be used (but at reduced efficiency).

If blade sections are missing, or cracks and fractures appear, DO NOT OPERATE the machine. An unbalanced wheel can generate violent forces leading to damage. Rectify by replacing.

BEATER CHAINS (FLAILS) - Wear occurs similiarly with the flailing chains as far as mulch material quality. However, wear regularly occurs between the clamped link and the adjoining one. This is readily discernable because a round groove is formed. Each of the chain stations should be inspected on a DAILY basis. When the groove has penetrated through approx. 1/3 of the link, replace the entire chain.

Always install chains in pairs with the same number of links. Make certain the clamped link is pulled snugly to the bolt and extended radially so the matching chain ends are equi-distant when rotating. This is essential for them to be in balance.

DO NOT USE COMMON CHAIN. The service life is extremely short and could cause serious damage or injury with premature failure.

DISCHARGE BOOM - The boom assembly [GU], and handlebars, secured by two flanged (sintered bronze) bearings, attach and ocsillate on hardened shoulder (stripper) bolts. Lubricate with a half shot of grease every 40 hours.

Stainless steel wipers seal the air flow on the insides of the pivot housing. Should blow-by become noticeable, these must be reset. To do so, remove the boom to expose the wipers. Carefully pry up evenly with a broad flat bar to restore the tension. Do not kink or break the line of the leading edge.

BOOM AIR SEALS - The top and bottom sections of the boom pivot frame are sealed with fabric reinforced neoprene closures. These are secured by hold-down strips bolted on each end. No adjustment is required after proper installation. In the extreme vertical positions of the boom, the seals should be stretched tightly, but not to the point of ripping or pulling from the metal and strips. Check this after installation.

AIR SPRINGS - The discharge boom is counter balanced with a pair of small bore rams that are charged with high pressure nitrogen. Each has a life cycle of over a million strokes requiring no maintenance.
Each end pivots in a small ball joint. These should be oiled every 80 hours to keep from wearing.

BOOM SLEW BEARING - New bearings are stiff and hard to turn but work in after a few hours of operation.

Grease with a single shot of lightweight lubricant at each fitting every 40 hours.

If the internal air/dirt seal is damaged, turning will become progressively difficult. To rectify, the slew bearing must first be removed, disassembled and thoroughly cleaned. Then reassemble, install a new seal and regrease.

MAINTENANCE SUMMARY

4 HRS	Check BLOWER WHEEL blade clearance. Inspect drive coupling. Check P.T.O. engagement adjustment. Check shaft bearing lubrication and SLINGER clearance.
8 Hrs	Inspect FLAIL CHAIN wear. Clean CHAFF SCREENS.
20 Hrs	Inspect and clean ENGINE AIR CLEANER element.
40 Hrs	Repeat the 4 HOUR maintenance. Lubricate the BOOM SLEW BEARING and AIR SPRINGS.
80 Hrs	Check P.T.O. lubrication. Lubricate SHAFT BEARINGS and BOOM BEARINGS.

COUPLING ALIGNMENT

When alignment is required, initially or after repairs have been made, it is important to realize that it is the centerline of the driven shaft that must be true to the centerline of the driver (engine shaft or flywheel), to prevent the potential premature wear on these components due to the axial and radial forces transmitted during operation. An improperly aligned coupling assembly will result in possible bearing, seal or shaft component failure. Failure of the coupling center member is more desirable as far as component replacement is concerned.

SHAFT TO SHAFT STYLE COUPLING

To check the drive coupling alignment, use of a gauge (a notched straight edge (the notch must clear the center-member retainer ring)) will be required. Parallel misalignment should be limited to a .010" tolerance. Lay the gauge over the coupling and hold flat to one of the coupling sides measuring the clearance at various points around the periphery of the coupling flanges using a feeler gauge. DO NOT ROTATE THE COUPLING. Shim and realign the shafts as required. Recheck the alignment as before. Angular alignment may be checked using a micrometer or caliper, measuring the outside distances between the flanges at various intervals around the periphery of the coupling. Angular alignment should also be limited to the .010" tolerance. Should correction be necessary, be sure to recheck the parallel alignment. For field inspection the measurements may be made by measuring the distances between any parallel machined surfaces of the driven assembly and driver (engine), using a tape rule. The variances should be limited to 1/32", until shop adjustments and corrections can be made.

WINTERIZING/STORAGE

On termination of the seasons's work, systematically follow the procedures outlined. This will not only extend the long life of the machine, but insure reliable spring start-up. Store under cover if at all possible.

GENERAL: Grease and oil all components as covered under "Maintenance." Lubricate the boom rotary joints. Thoroughly clean and inspect the boom air seals.

ENGINE: Remove all chaff and debris from chaff screens and cowl enclosure. Blow the radiator clear of chaff and dust with an air hose for best results.

Clean or replace the air cleaner cartridge.

Fog the cylinders, rings and valves with a 50/50 mixture or kerosene and oil. Refer to the Engine Manual for details.

Drain the oil and fuel. Cover the exhaust as well as the entire machine to protect from the weather.

Check coolant system, adjust coolant/antifreeze to local recommendations.

BATTERY: Fill with electrolyte, remove, and store in a warm location. DO NOT STORE THE BATTERY ON A CONCRETE FLOOR!

If equipped with Emulsion Spray System: Flush all binder residue from hoses and system and refill with a 50/50 mixture of oil and kerosene.

REPAIR: Any visibly damaged items should be replaced or repaired. Clean surfaces covered with asphalt emulsion spray. Scrape loose or chipped paint and protect with a rust-preventive coat.

TRAILER: Block mulcher frame to take weight off of tires. Remove air to drop pressure to 10 psi. Grease tongue and jack screw assembly.

Check wheel bearings and repack with grease after two seasons.

MECHANICAL & ELECTRICAL COMPONENT

PARTS LIST

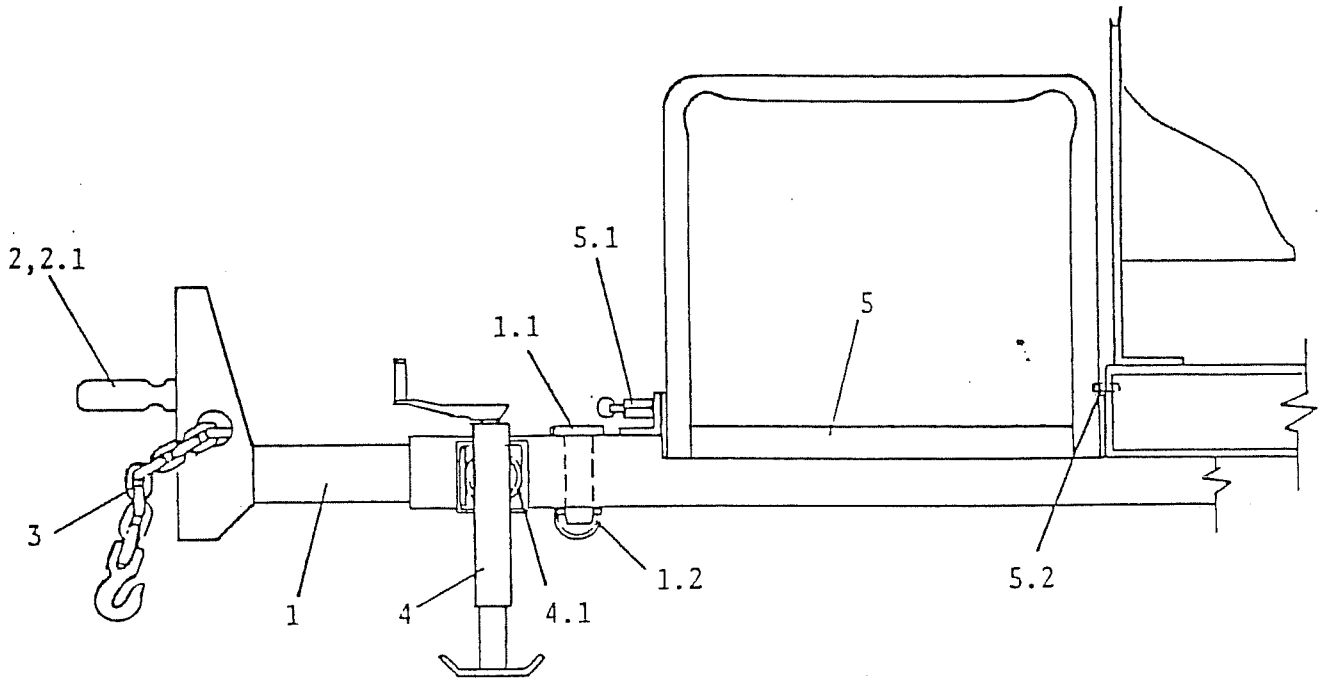
MODEL M80-C

POWER MULCHER

----------CONTENTS----------

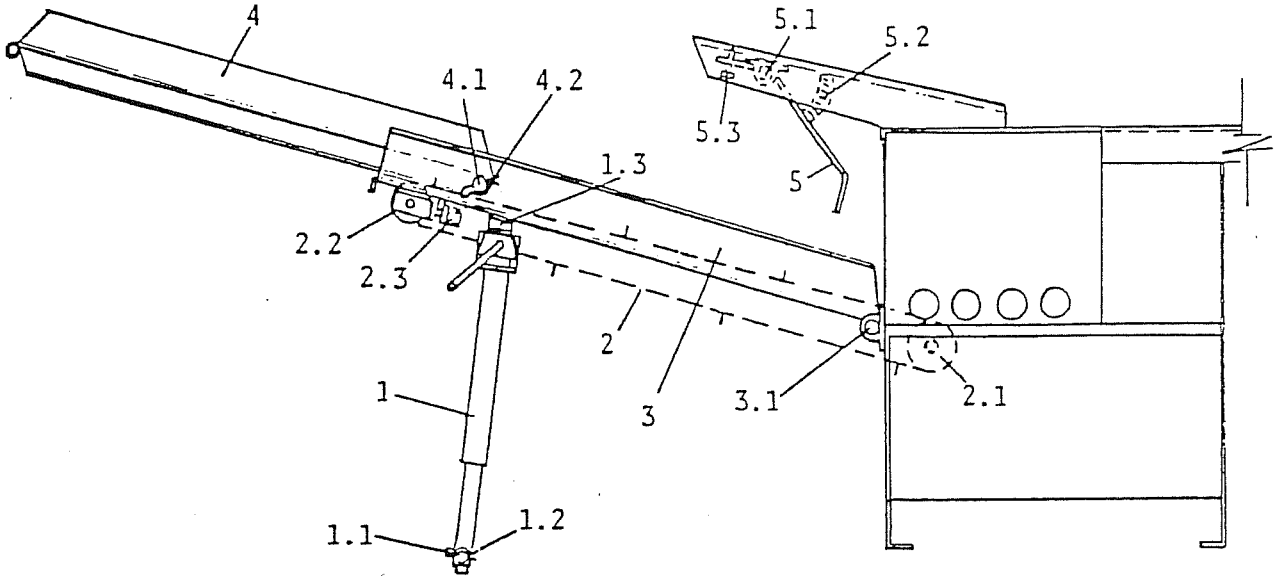
	FIGURE	PAGE
Draw Bar & Shift Platform	A	28
Load Tray & Conveyor Feed	B	
Beater Shaft & Component Assembly	C	30
Upper Unit	D	
Signal & Conveyor Control	E	32
[Signal & Conveyor Wiring Schematic]		
Engine Accessories	F	34
Engine Cowl	G	
Engine Wiring Schematic		36

FIG. A



DRAW BAR TONGUE & SHIFT PLATFORM DETAILS

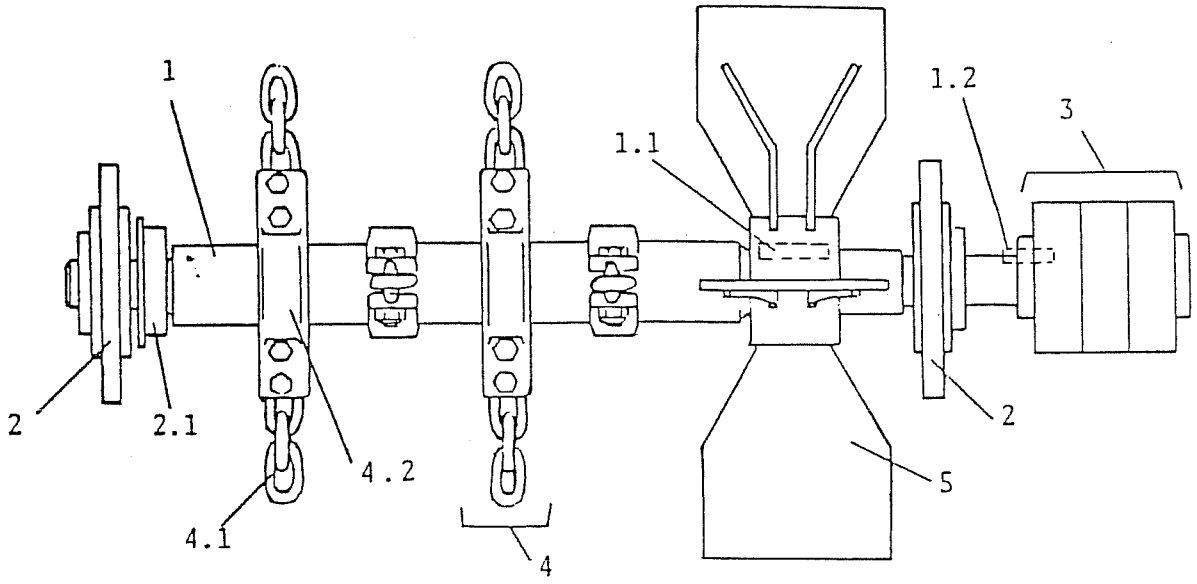
FIG. B



LOAD TRAY & CONVEYOR FEED MECHANICAL PARTS

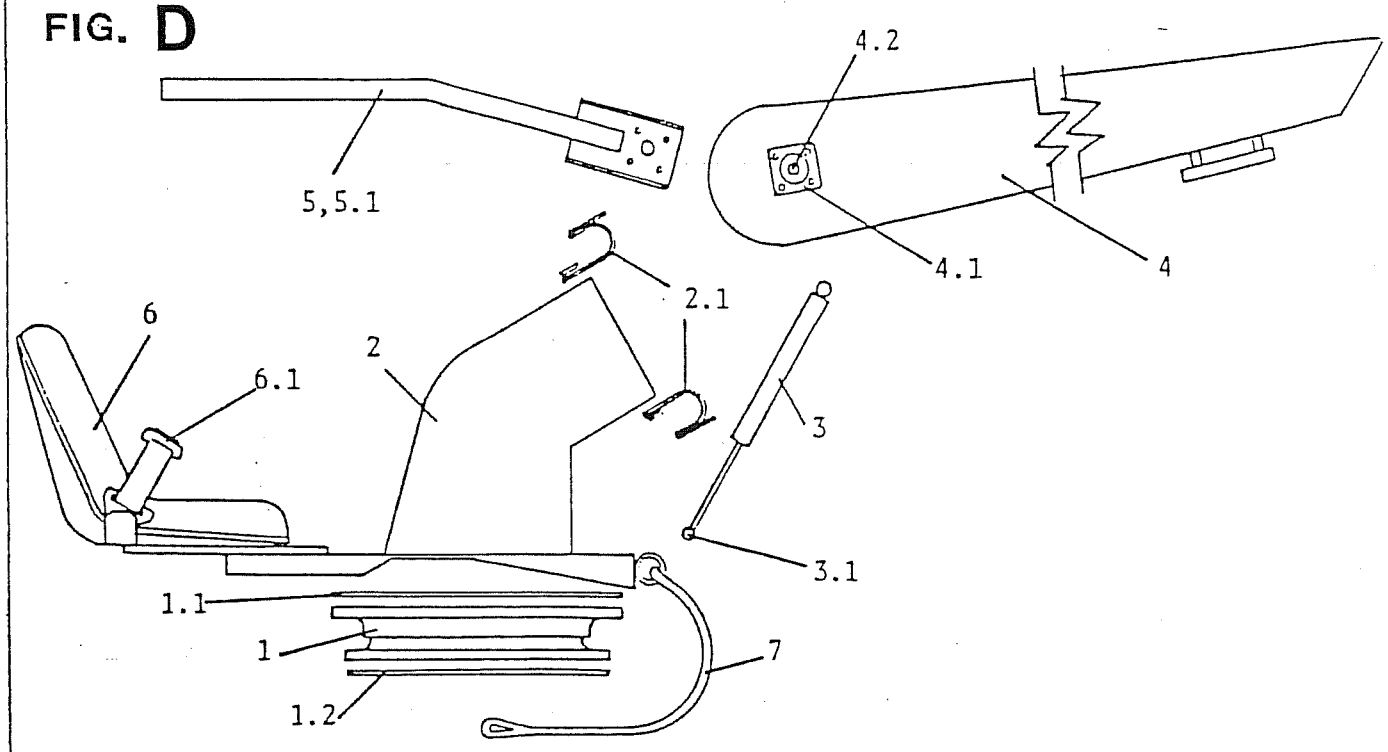
FIG.	ITEM	COMPONENT DESCRIPTION	PART NO.	REQ.
A	1	Draw Bar Tongue	83012100	1
	1.1	Locking Shoulder Pin	HA7150.55	1
	1.2	Safety Snap Clip	HA7150.30	1
	2	Tow Ring	C09280.25	1
	2.1	Tow Ring Nut & Lockwasher	C09280.26	1
	3	Safety Chain w/Grab Hooks	CH0641.41	1
	4	Swing Jack	JA1003.01	1
	4.1	Swing Jack Retaining Ring	JA1005.05	1
	5	Work Shift Platform	83032000	1
	5.1	Shift Platform Locking Pin	HA7110.01	1
	5.2	Shift Platform Guide Pins	HA7160.05	4
B	1	Jack Stand Assembly	83431000	1
	1.1	Clevis Pins	HA7150.40	2
	1.2	Hairpin Cotter	HA7150.01	2
	1.3	Flexible Mount	SH6013.01	2
	2	Conveyor Drag Chain	83441000	1
	2.1	Drive Sprocket	SP1001.01	1
	2.2	Idler Sprocket	SP1002.01	1
	2.3	Take-Up Screw/Locknut	83451050	1
	3	Chain Feed Tray	83411000	1
	3.1	Chain Feed Tray Bearing	BE0225.02	2
	4	Slide Tray	83421000	1
	4.1	Locking Cross Bar	83421030	1
	4.2	Hairpin Cotter	HA7150.02	2
	5	Flaker Drag Arm	83461000	1
	5.1	Flaker Bearing	BE0225.02	2
	5.2	Flaker Compression Spring	SP7431.01	1
	5.3	Adjusting Screw w/locknut	83461040	1

FIG. C



BEATER SHAFT & FLAIL COMPONENT DETAILS

FIG. D

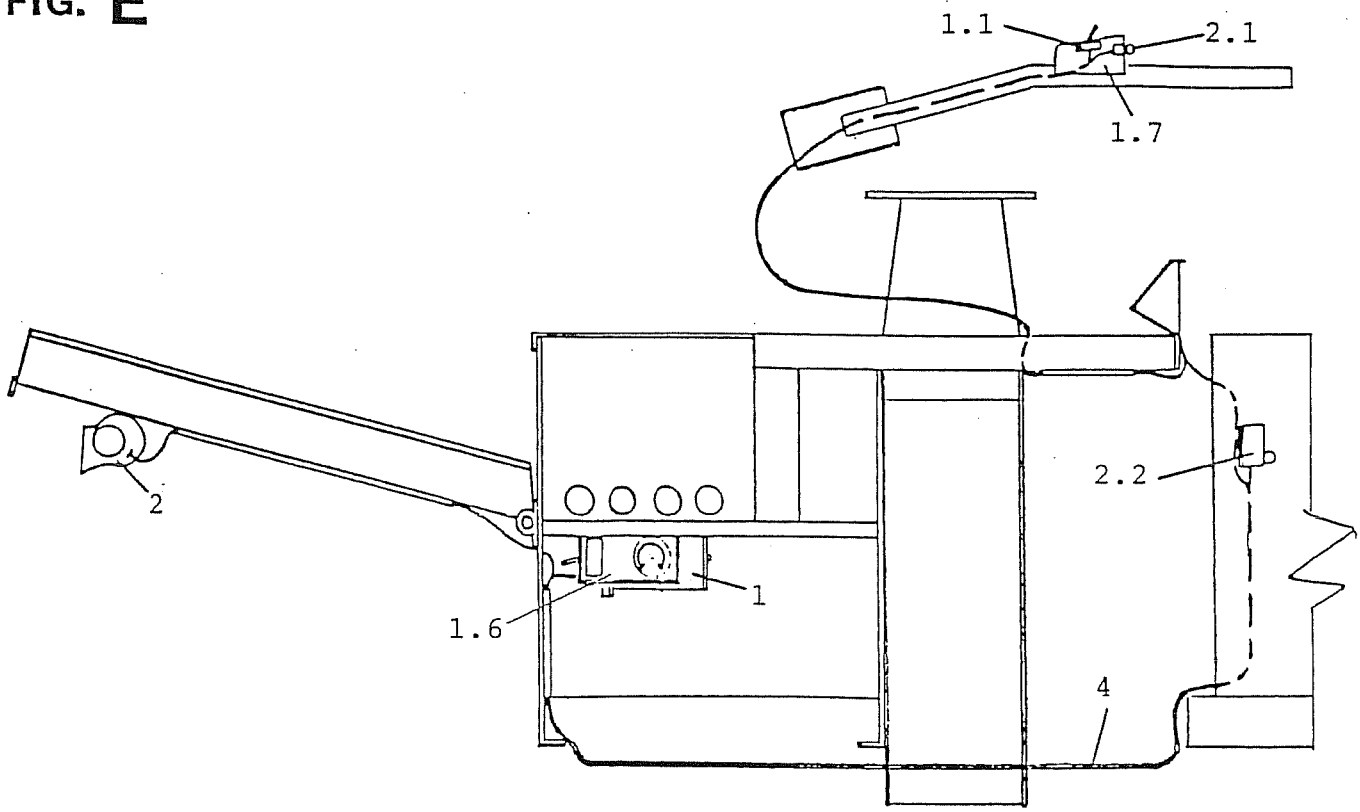


UPPER UNIT — BLOWER DISCHARGE ASSEMBLY PARTS

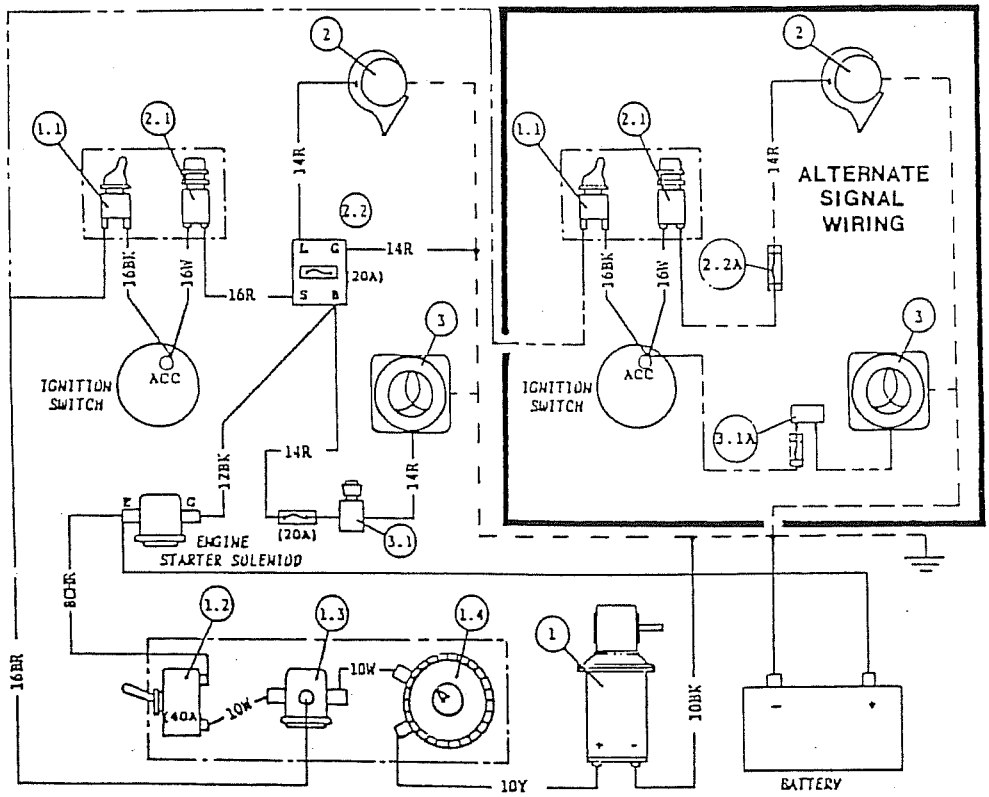
C	1	Beater Shaft	83231000	1
	1.1	Blower Wheel Key	KE9003.20	1
	1.2	Drive Coupling Key	KE9002.11	1
	2	Shaft Bearing	BE0348.02	2
	2.1	Bearing Slinger/Collar	83261000	1
	3*	Drive Coupling Assembly	C08472.40X	1
	3.1	Drive Coupling Element	C08446.31	1
	3.2	Coupling Flange 2-1/2" (P.T.O.)	C08472.42	1
	3.3	Coupling Flange 1-3/4" (Shaft)	C08472.43	1
	4	Beater Chain Station Assembly	83271030	4
	4.1	Each 3 Link Beater Chain	CH0642.43	8
	4.2	Pair Forged Brackets w/Bolts & Nut	83251010	4
	5	Blower Wheel	BL6000.04	1
		*Prior to January 1979 SPECIFY #10 t.b. Wood's Coupling	C08472.20	
		*Element Only	C08472.21	
	OPT	Bracket/Chain/Knive Assy	83271120	OPT
	OPT	Set (4) Knives with Attch. Scr&Nut	CH0643.21	1/STA

D	1	Slew Bearing Assembly	84011000	1
	1.1	Slew Bearing Top Gasket	GA7001.11	1
	1.2	Slew Bearing Bottom Gasket	GA7001.12	1
	1.3	Slew Bearing Air Seal (Not Shown)	84041010	1
	2	Discharge Elbow	84021000	1
	2.1	Boom Air Seal	84041010	2
	2.2	Boom Seal Hold Down Strap	84042000	4
	3	Boom Balance Gas Spring	SP7510.01	2
	3.1	Spring Ball Stud w/Retainer Clip	SP7510.02	4
	4	Discharge Boom	84102010	1
	4.1	Discharge Boom Bearing	BE0318.02	2
	4.2	Bearing Shoulder Bolt	FA1189.20	2
	5	Boom Handlebar (Right Side)	84052010	1
	5.1	Boom Handlebar (Left Side)	84052020	1
	6	Operator Seat	SE0002.00	1
	6.1	Seat Belt Assembly	SE0002.10	1
	7	Boom Stop Cable Assembly	84111000	1

FIG. E



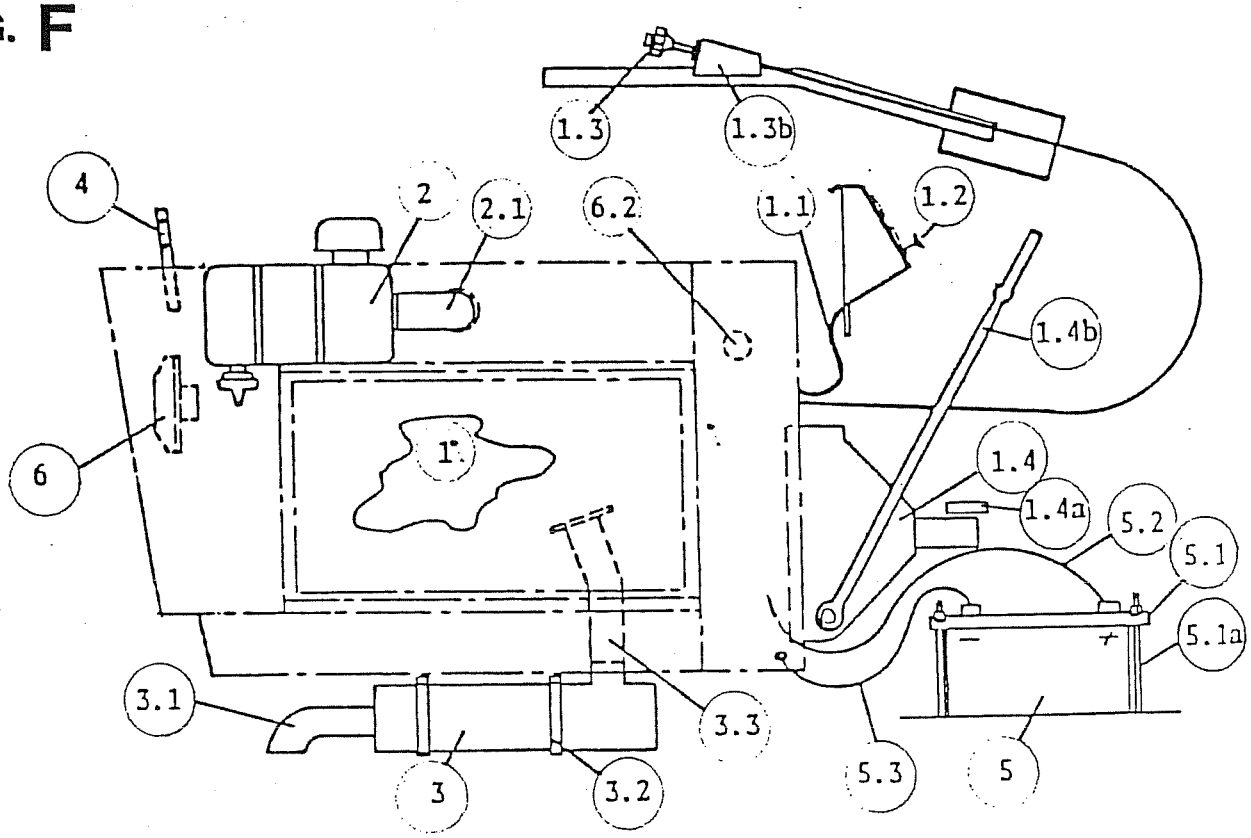
SIGNAL & CONVEYOR CONTROL COMPONENTS



SCHEMATIC—SIGNAL & CONVEYOR CONTROL WIRING

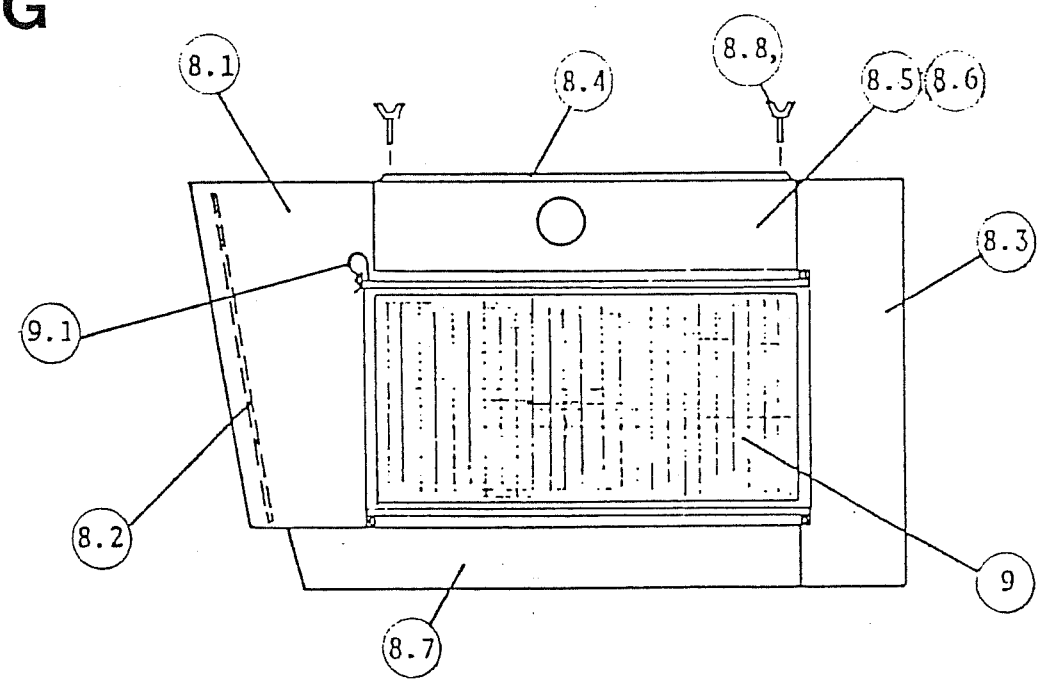
FIG.	ITEM	COMPONENT DESCRIPTION	PART NO.	REQ.
E	1	Conveyor Motor/Gear Box Assy	83471000	1
	1.1	Conveyor Feed Toggle Switch	EL2101.20	1
	1.2	Circuit Breaker/Reset	EL2104.02	1
	1.3	Cont. Duty Solenoid	EL2103.02	1
	1.4	Variable Speed Control	EL2106.01	1
	1.6	Speed Control Box	83541010	1
	1.7	Handle Bar Control Mounting	83571000	1
	2	Signal Horn	SI0901.05	1
	2.1	Horn Switch - Momentary	EL2101.01	1
	2.2	Horn Relay - Fused	EL2102.03	1
	2.2A	In-line Fuse/Holder [7.5]	EL2109.01	ALT(1)
	3	Safety Lamp (Amber)	LI3304.02	1
	3.1	Flasher Control	EL2105.01	1
	3.1A	Flasher Module [#552]	EL2105.02	ALT(1)
	4	Feed & Signal Control Harness	83532000	1
	5	Decal Set (Not Shown)	83592000	1

FIG. F



ENGINE ACCESSORIES & OPERATING COMPONENTS

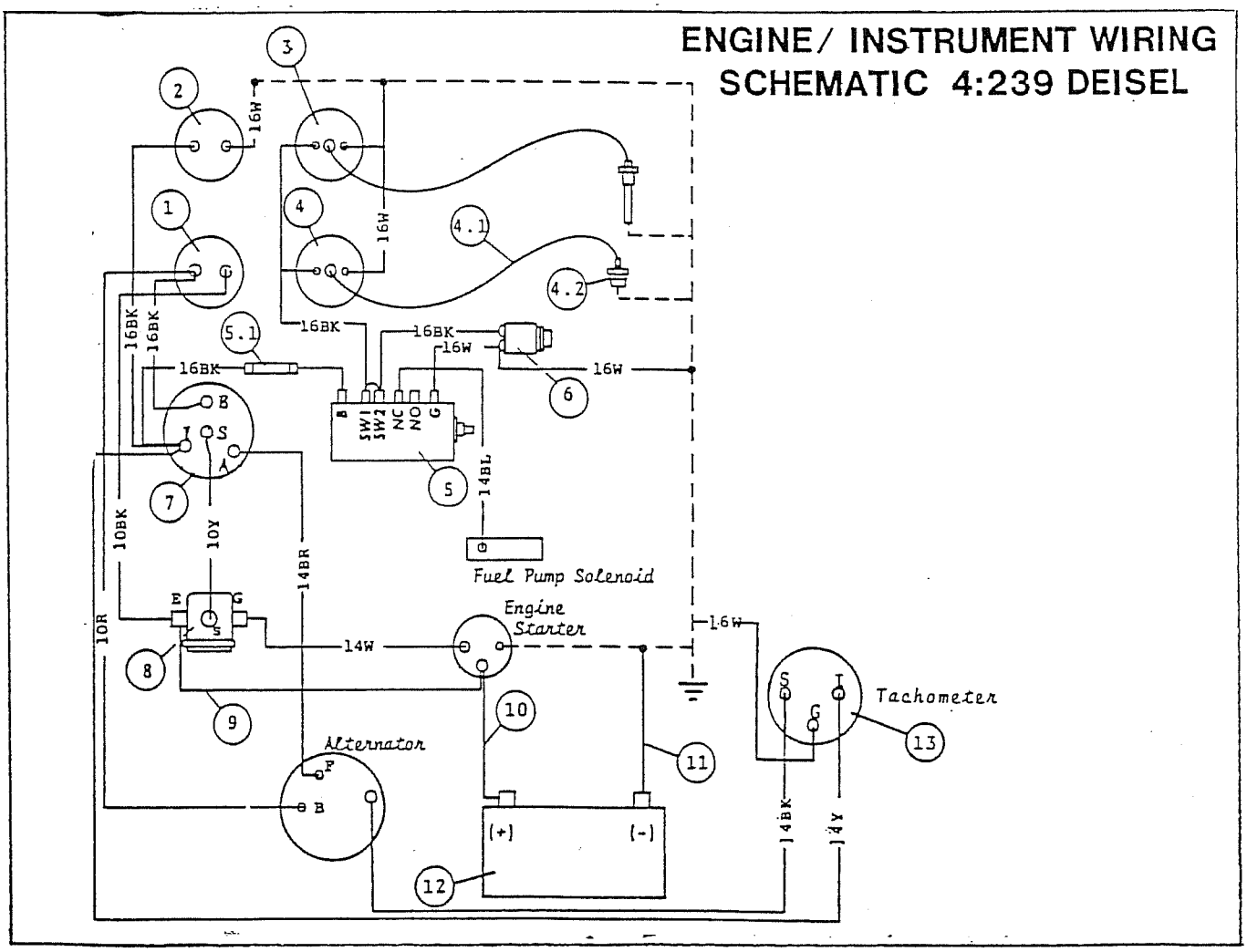
FIG. G



ENGINE COWLING ENCLOSURE PARTS

FIG.	ITEM	COMPONENT DESCRIPTION	PART NO.	REQ.
F	1	Engine 4-239 Spec #FB-15771D	EN3258.00	1
	1.1	Engine Wiring Harness	84512000	1
	1.2	Engine Instrument Panel	83553010	1
	1.3	Throttle Control 120" + 6"	C06270.00	1
	1.3a	Throttle Control Boot	C06120.06	1
	1.3b	Throttle Control Mount	83581000	1
		Throttle Ball Connector	C06295.00X	1
	1.4	Power Take Off	CL8065.02	1
	1.4a	Power Take Off/Coupling Key	KE9003.21	1
	1.4b	Power Take Off Lever	CL8099.50	1
	1.5	Tachometer (Not Shown)	IN9020.20	1
	2	Air Cleaner Assembly	FI0101.60	1
	2.1	Air Cleaner Intake Elbow	FI0150.22	2
	3	Muffler	EX3000.28	1
	3.1	Muffler Tailpiece	EX3022.25	1
	3.2	Mounting Bands	83110100	2
	3.3	Muffler Exhaust Tube	EX3050.20	2
	4	Boom Transport Lock Assembly	83181000	1
	5	Battery 12V-Group 30H	REF PG. 36	1
	5.1	Battery Hold-Down	BA8804.02	1
	5.1a	Battery Hold-Down Bolt w/Nut	BA8804.05	2
G	5.2	Battery Cable	REF PG. 36	1
	5.3	Battery Ground Strap	REF PG. 36	1
	6	Safety Lamp (Amber)	REF PG. 33	
	6.1	Lamp Mounting Bracket	83561000	1
	6.2	Flasher Control	REF PG. 33	
	7	Fuel Tank (Not Shown)	TA6053.00	1
	7.1	Fuel Transfer Hose	H07303.11	7.5
	7.2	Throttle Bracket (Not Shown)	07462020	1
	8	Engine Cowl Assembly Consisting of:		
	8.1	Radiator Cowling Enclosure	07402030	1
	8.2	Radiator Protective Screen	83142000	1
	8.3	Bell Housing Enclosure	86151000	1
	8.4	Top-Engine Cover	83161030	1
	8.5	Top Side Cover (Right Hand)	83161010	1
	8.6	Top Side Cover (Left Hand)	83161020	1
	8.7	Base Enclosure	86121000	1
	8.8	Cowl Fastener Thumb Screw	FA1112.06	8
		Cowling Fastener Blind Nut	FA1281.02	8
	9	Corrugated Filter Screen	83172000	2
	9.1	Screen Retainer Pins	HA7150.01	2

ITEM	COMPONENT DEISCRIPTION	PART NO.	REQ.
1	Ammeter	IN0501.00	1
2	Hourmeter 4-40VDC	IN3601.00	1
3	Temp Gauge #20-TL	IN8201.10	1
4	Oil Pressure GA. #20-P	IN6401.10	1
4.1	Oil Pressure Line	IN6401.11	1
4.2	Adapt Bushing 1/2x1/8	PI3815.12	1
5	Safety Switch 518-A-PH	EL2108.02	1
5.1	Fuse 14 AMP		1
6	Engine Stop Switch	EL2101.10	1
7	Ignition Switch-Keyed	EL2107.10	1
8	Starter Relay	EL2103.20	1
9	Switch/Starter Cable	BA8808.01	1
10	Battery Cable (+)	BA8806.04	1
11	Battery Ground Cable (-)	BA8807.01	1
12	Battery 12V 96AHR 30H	BA8802.10	1



ADHESIVE TACKING

SYSTEM

OPTION

MODEL M80-C

POWER MULCHER

OPTION DESCRIPTION

A pumping system is available to simultaneously apply binders and/or tackifiers. Liquid is sprayed directly into the mulch being ejected at the end of the discharge boom. The volume is controlled by the boom operator regulating flow with a three way valve.

The components of the self contained installation are described as follows:

PUMP - Positive displacement, gerotor type, with built in relief valve; flow is 35 GPM based on 400 SSU viscosity liquid. Discharge pressures range is from 100 to 150 psi governed by setting of spring adjustment.

DRIVE - Double cog vee belts; driver pulley is keyed to the P.T.O. output shaft.

BELT TENSION - Pump is mounted to a pivotal base having a wing nut take-up to adjust location of driven pulley.

BELT GUARD - Full length cover shrouding driver and driven pullies and drive belts.

BELT HANGER - For storage of belts when not pumping. Hanger is located directly above the beater shaft.

VALVE BLOCK - Suction and return gate valves are mounted in parallel to a common bracket between engine base and gas tank. Connecting hoses are 1-1/2" and 3/4" respectively.

PICK UP - A concentric pipe and tube combination serves as suction-return probe. It is stored in a holder suspended from the valve block.

STRAINER - A "Y" basket type, with cleanout plugs, preceeds the 1-1/2 suction gate valve on the valve block.

SPRAY VALVE - Two position, lever actuated disc type; it is mounted to a bracket on the left side of discharge elbow. Back position of lever allows spraying; the forward position by-passes the flow back to the tank.

DRIP CONTROL - A spring loaded poppet check valve is mounted in reverse at the end of the spray pipe. When not spraying, the spring force seats the poppet, thereby minimizing dripping.

NOZZLE - Cobra head "VEE JET" type; the curved deflecting head directs the tackifier down into ejected mulch stream.

DRUM STAND - Platform on which to mount a 55 gallon drum. It is located on the forward left side of the base frame. A nesting bracket with holding chain mounted above secures the drum in position.

HOSES - Two rayon braid black pressure hoses are used to transfer the flow between system components. The ends are fitted with swedged IPT male connectors. Working pressure is 250 psi, and the suction hose is wire reinforced for vacuum service.

START—UP

Before pumping any adhesive, first condition the system by re-circulating a lubricant. Waste oil is acceptable or a 50/50 cut back of low grade 30 or 40 weight oil and diesel fuel of kerosine. Five gallons in a wide mouth container should suffice.

To add the oil, proceed as follows:

- Engine ignition switch, OFF.
- Declutch the PTO
- Mount drive belts and adjust tension.
- Spray valve handle forward (By-Pass, no spray).
- Valve block gate valves open.
- Remove pick-up tube placing end on a clean surface, support to remain upright.

Mounted on the pump is a 1-1/2" capped riser pipe. Unscrew the cap and pour in oil stopping just before overflow. Rotate the pump by hand in a clockwise direction (opposite from normal). Oil will be sucked into the system. Repeat this process until oil spills from the center tube of the pick-up. Then fill the riser pipe again to the top, and recap.

Now put the pick-up in the wide mouth oil can and secure again so that it will not fall.

Start the engine and run at a slow idle. Gently engage the clutch. Oil will now be sucked from the five gallon pail filling the remaining hose lines and return. Run for five to ten minutes. Entrained air will cause a screaming like sound at first, but this will quickly diminish.

Point the discharge boom toward a waste area or dirt road. If this is not practical, remove the check valve and slip a hose over the discharge spray pipe. Direct the hose into another five gallon pail. Pull the spray valve handle back. Oil will soon begin to spew forth. After 30 seconds, or less, push the handle back to the recirculate position. Then de-clutch the engine and turn off. Close both valves on the valve block and remount the check valve, if taken off.

Remove the pick-up from the pail and slide into the storage nest between the engine and gas tank. Save any leftover waste oil for future flushing or cleaning.

This procedure may appear tediously superfluous, but two purposes are served:

1. Familiarization of the recirculating spray system.

2. By wetting the interior surfaces of the pump and spray valve with oil, the close tolerance members are coated insuring added life.

OPERATION

The pick-up hoses are long enough to reach a side mounted 55 gallon drum or a tank tow unit. Before sticking the pick-up into a container make certain the end is clean. This means free of chaff, dirt or grit.

Check the spray valve handle position. It must be in the forward (By-Pass) setting. Open the two gate valves on the valve block. Clutch in the engine and allow to run awhile to disburse entrained air.

To spray, move the valve handle towards you. Continuous application is not required for average rates of 150 to 200 gallons per acre. It is advisable to first blow about half the mulch, and when applying the balance, then add the tackifier. Finally, an overspray may be made to satisfy the required gallons specified.

The concept of coating the mulch with tack droplets simultaneously to insure bonding or sticking on soil contact, has limited practical significance. The formation of a matt composed of multiple strands to produce uniform cover is the objective desired. This is accomplished by overspraying just as well.

Emulsified asphalt such as SSI, is applied from 150, to as high as 600 gallons per acre, with 200 gallons being common. Slopes or run off sections should get more than flat areas. Employing a non-petroleum product, such as Terra Tack AR, a 300 gallon rate is generally recommended.

To control application rates using multiple nozzles or changing port sizes is too sophisticated. The practical way is to measure and mark a given area, and apply a known quantity. This sometimes demands more than one pass. Eventually an operator will develop a sense of color tone when using asphalt, and can easily judge quantity by the shade of overspray.

The adhesive system incorporates a pre-heater, utilizing exhaust gases from the engine to heat the tacking liquid, if

petroleum products are used. This serves a need when ambient temperatures drop below 55 degrees fahrenheit. However, a single pass through the pre-heater will increase the temperature only about 5 to 7 degrees fahrenheit. The pre-heater is not a substitute for a kerosene burner. Continued recirculation, if time warrants, will substantially increase the temperature if the reservoir is not too large.

When using non-petroleum tackifiers, it is advisable to by-pass the pre-heater. This is also the case during the height of summer, when emulsified asphalt is at proper viscosity under ambient temperatures.

Pump flow of 35 gpm is based on product having the consistency of latex paint at 70 degrees fahrenheit. Operations below 45 degrees fahrenheit can cause a variety of problems, the principal one is the inability to move liquid because of the viscosity increase. The other is the potential of belt breakage or slipping due to higher horsepower requirements. Working below 45 degrees fahrenheit is not recommended.

When using old emulsions, the particles tend to settle out and lump on the bottom off the container. Some binders are used with fiber additives. In either instance, it may be necessary to remove the wire basket in the strainer to allow the fluid to pass. If this is plugged, liquid will not reach the pump and consequently there can be no spray.

The relief valve on the pump is set at 125 psi. The heavier or more viscose the fluid, the higher must be the spring pressure setting to pass the same amount of product. To change the setting, take the cover cap off the relief adjusting screw and turn in a clockwise direction. Replace the cap when done.

CLEAN—UP

The entire system must be flushed of residual SSI (emulsified asphalt) with fuel oil or kerosene, on a daily basis.

On completion of the days work, insert the pick-up in a three quarter filled 55 gallon drum, and recirculate for about 5 minutes. At the same time, spray for a few short spurts to clean out the spray valve, spray pipe and nozzle. Declutch the engine and when the pump comes to a stop, close the gate valves on the valve block. Remove the pick-up from the drum slowly allowing to drain. Wipe excess outside coating and store in the holder.

The side screens on the engine cowl should also be removed and cleaned. If heavily coated, place in a rectangular pan

to soak. Afterward, brush residue still remaining and power rinse with a water hose.

Any spotting or back spray accumulation on the machine, if wiped clean daily, will prevent hard to remove, dried, long term buildup.

A drain plug on the "Y" strainer should also be removed. If any heavy sludge or dirt appears, take the strainer screen out and wire brush clean before reinstalling.

A drum of clean-up solvent should last for about two weeks. Eventually, the contents become almost as thick as the emulsion losing dilution ability. This is a small price to pay for trouble free performance.

Should a non-petroleum tackifier be used such as "AR," water provides an ideal flushing medium. However, if the machine is to be idle for a day or two, as over the weekend, a diluted mixture of oil and solvent has to replace the water to keep the interior of the pump from rusting.

FIG.	ITEM	COMPONENT DESCRIPTION	PART NO.	REQ.
AA	1	Pump HL-195 (1-1/2")	PU5463.00	1
	1.1	Pump Mounting	83621000	1
	1.1a	Pump Tension Adjustment Assembly	83621090	1
	1.2	Pump Sheave	SH2100.30	1
	1.3	Driver Sheave	SH2110.30	1
	1.3a	Sheave Bushing (Driver)	BU7318.01	1
	1.4	Belt BX-75	BE5802.03	2
	1.4a	Belt Guard Assembly	83631000	1
	2	Preheater Assembly	83641000	1
	3	Valve Block Assembly	83661100	1
	3.1	Suction Shutoff Valve	VA5530.00	1
	3.2	By-Pass Shutoff Valve	VA5515.02	1
	3.3	Suction Strainer	ST7101.00	1
	3.3a	Strainer Element	ST7101.01	1
	4	Suction Pickup Tube Assembly	83661010	1
	5	Boom Spray Control Valve	VA5170.00	1
	6	Spray Drip Check Valve	VA5720.00	1
	7	Spray Nozzle 3/4" Flatjet	N09901.30	1
	1H	Suction Pickup Hose Assembly	83691010	1
	2H	Valve Block/Preheater Hose Assembly	83691020	1
	3H	Preheater/Pump Suction Hose Assm.	83691030	1
	4H	Pump/Spray Valve Hose Assembly	83691040	1
	5H	Spray Valve/Boom Hose Assembly	83691050	1
	6H	Spray Valve/By-Pass Hose Assembly	83691060	1
	7H	Valve Block/Pickup Tube Return Hose Assembly	83691070	1
AB	1P	Mechanical Seal Assembly	PU5463.01	1
	2P	Rotor & Shaft	PU5463.02	1
	3P	Idler & Bushing	PU5463.03	1
	4P	'O' Ring	PU5463.04	1
	5P	Head & Idler Pin	PU5463.05	1
	6P	Gasket-Relief Valve	PU5463.06	1
	7P	Internal Relief Valve 150#	PU5463.07	1

PARTS LISTED ARE AVAILABLE STOCK ITEMS FOR ADDITIONAL PARTS CONTACT YOUR LOCAL VIKING PUMP DISTRIBUTOR

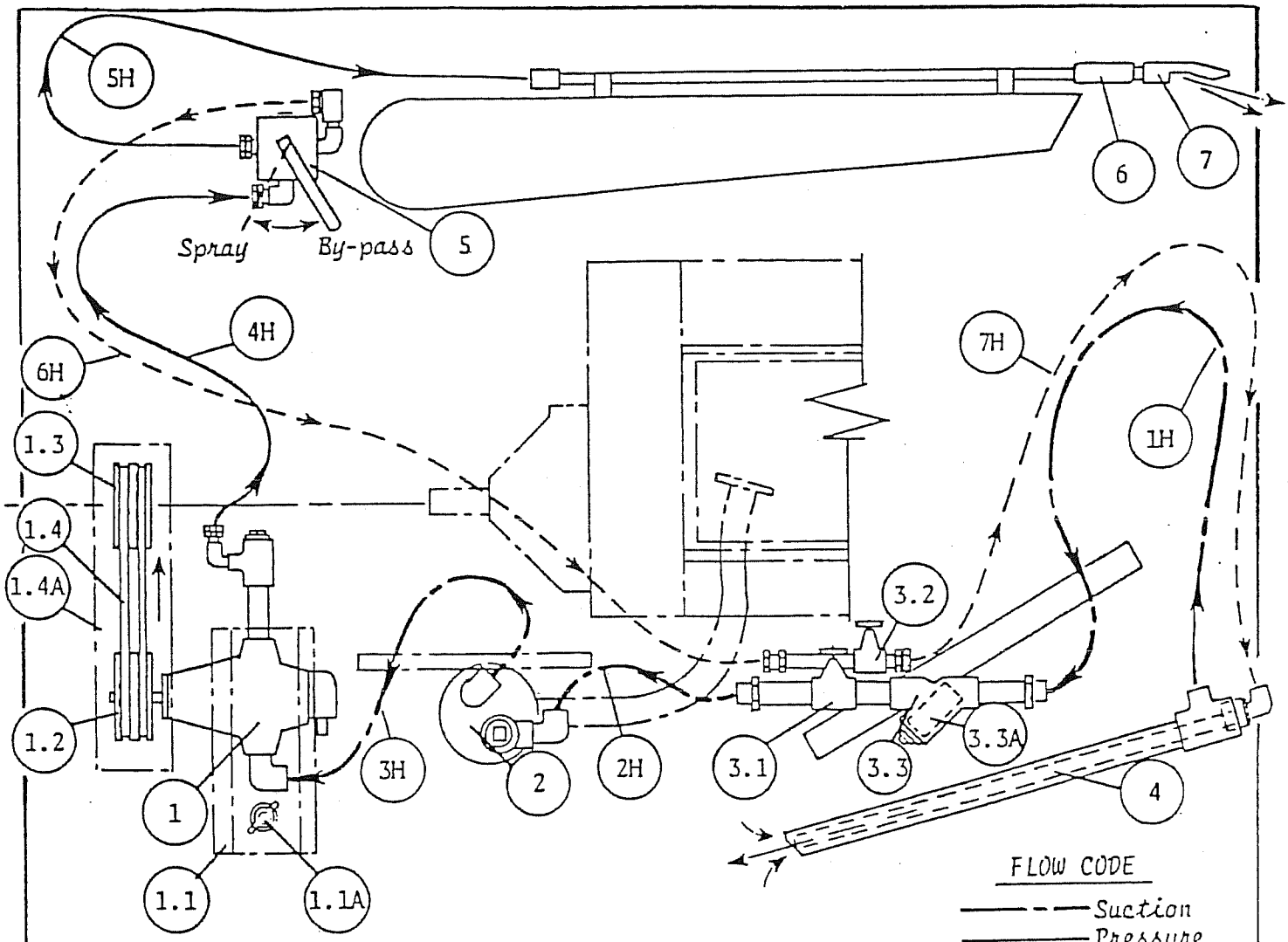


FIG. AA

EMULSION SPRAY SYSTEM SCHEMATIC

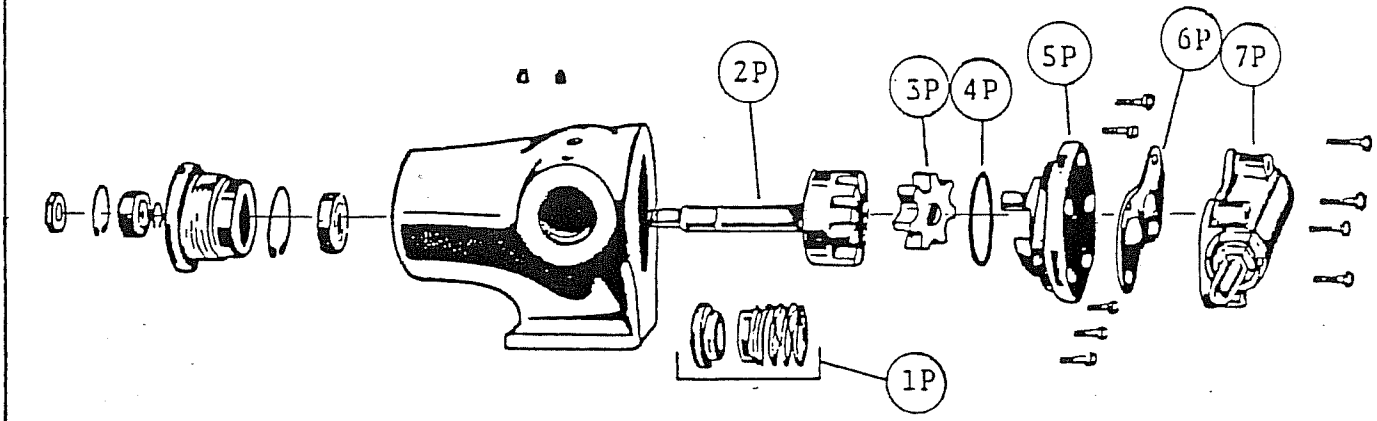
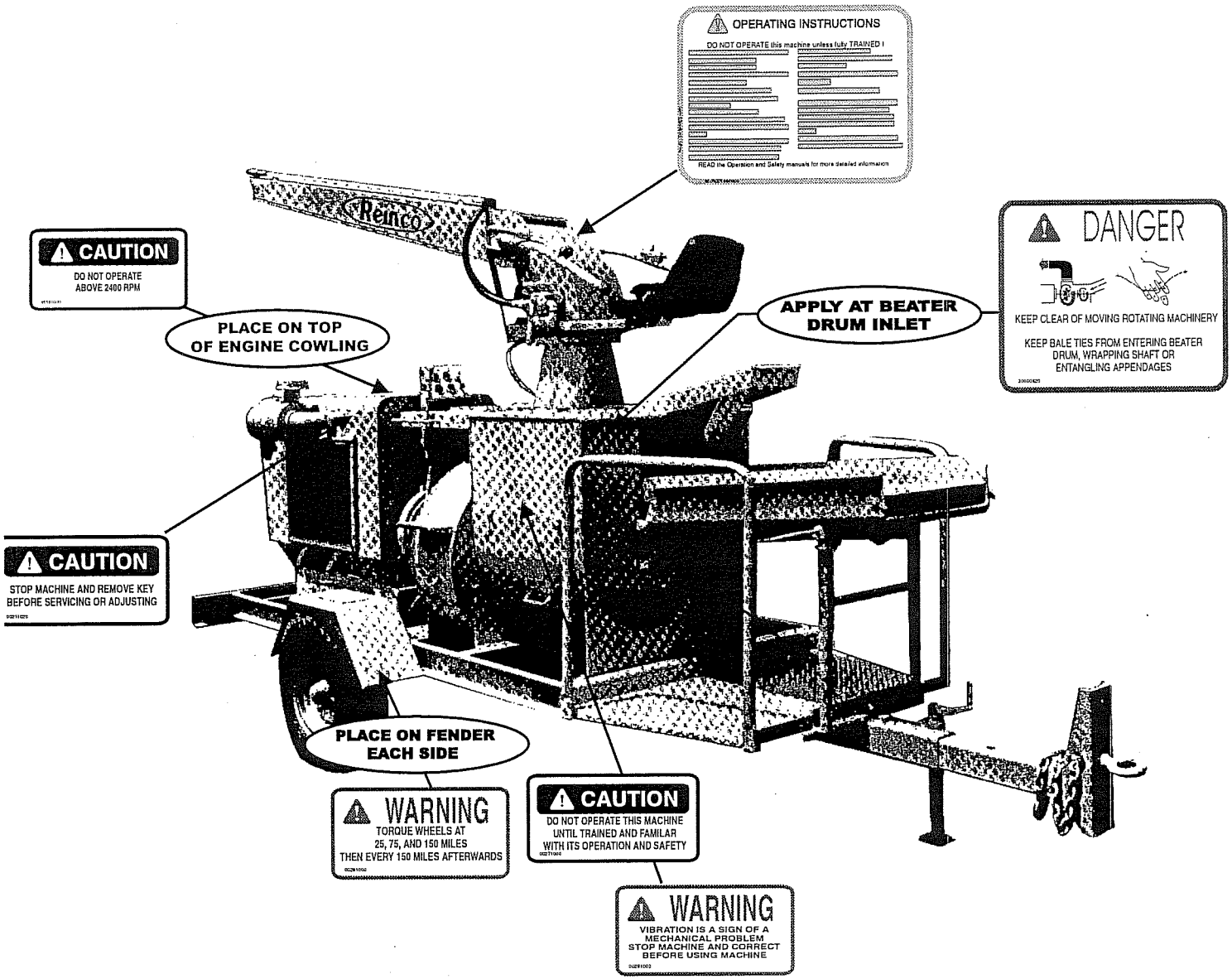


FIG. AB

EMULSION PUMP SERVICE PARTS

M80/M80C SAFETY DECAL LOCATIONS



INSTALLATION INSTRUCTIONS

1. REMOVE OLD DECALS

2. CLEAN SURFACES THOROUGHLY REMOVING OLD ADHESIVE

3. TOUCH UP PAINT AS REQUIRED

4. LOCATE DECALS PER DRAWING. NOTE THAT THE CONFIGURATION OF YOUR UNIT MAY DIFFER BASED ON PRODUCTION YEAR

5. CAREFULLY, PEEL THE DECAL BACKING AND PLACE ON THE UNIT ALLOWING ONLY THE CENTER TO ATTACH

6. SQUEEGEE DECAL FROM THE CENTER OUTWARDS, REMOVING ALL AIR BUBBLES

FOR ADDITIONAL INFORMATION CONTACT:

REINCO INC.
PO BOX 512
PLAINFIELD, NJ 07061
800-526-7687

INSTRUCTIONS - KIT 00902080

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