

CMS 80-4 Series

CHIPPER/MULCHER/SHREDDER

Operation, Safety & Maintenance Instructions



Commercial Outdoor Power Equipment



INTRODUCTION

Dear Valued Customer,

Congratulations! You have just purchased one of the most superbly crafted chipper, mulcher, shredders in the world. Properly maintained, it will give you years of reliable service. When the instructions in this manual are adhered to, operation is safe and simple.

Red Roo Chipper, Mulcher, Shredders are built to withstand very difficult conditions. The twin feed system allows most organic material to be turned into mulch with a minimum of effort. This machine will chip branches up to 80mm and will process a variety of organic material through the mulcher hopper.

The Red Roo Chipper, Mulcher, Shredder utilizes leading edge design technology and incorporates precision engineered componentry. This ensures ease of operation, maintenance and most importantly, your safety.

Thank you for purchasing this Red Roo product. Remember to operate the machine responsibly and safely.



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RED ROO SALES & SERVICE COMPANY PTY. LTD.

41-43 Keysborough Avenue, Keysborough, Victoria, Australia 3173
Tel.: +61 (03) 9769 0455 Fax: +61 (03) 9769 0366

www.redroo.com

ABOUT THIS MANUAL

The information contained in this manual has been prepared to assist you in the safe operation, the routine maintenance and general care of your Red Roo product. By following these guidelines, you may look forward to years of reliable service from your Red Roo. Information is categorised and denoted by the following symbols and phrases:



SAFETY FIRST

Identifies general safety practices.



DANGER!

An instruction which, if not followed, could result in serious or fatal injury.



WARNING!

An instruction which, if not followed, could result in personal injury.



CAUTION!

An instruction which, if not followed, could damage machine components.



Before operating this Machine read and observe all Warnings, Cautions and Instructions on the Machine and in the Operators Manual. Although the reading of information contained in this manual does not eliminate the risk involved in operating this machine, your understanding of this information will promote the correct and safe use of your machine. Failure to follow Instructions and Safety Information could result in serious injury or death.

HAZARD WARNINGS



Read



Hearing Protection



Eye Protection



Wear Gloves



Cut Hand



Electrical Shock



Moving Parts



Hot Surfaces



Remove Spark Plug Leads



Toxic Fumes



Explosion



Don't Refuel Hot Engine

SAFETY FIRST Stay Alert, Do Not get Hurt



Read this section before use!

The CMS 80 is designed to chip/mulch/shred and therefore is potentially dangerous. Careless or improper use may cause serious or even fatal injury.

It is important that you read and understand the contents of this manual and that you allow only mature, adult individuals to operate your Chipper Mulcher Shredder. It is your responsibility to ensure that any individual who operates your CMS 80 Chipper, Mulcher, Shredder have read and understood this manual.

Never use the Chipper Mulcher Shredder for any other purpose than chipping branches and mulching organic garden waste. The machine is designed for this purpose only. Any other use may cause serious or even fatal injury and/or damage to the machine.

SAFETY PRECAUTIONS FOR CMS 80 USERS

Outdoor Power Equipment Institute Recommendations










WARNING TO PURCHASERS OF INTERNAL COMBUSTION ENGINE EQUIPPED MACHINERY OR DEVICES:

The equipment which you have purchased does not have a spark arrester muffler. If this equipment is to be used on any forest and brush covered land or grass covered unimproved land, the law may require that a spark arrester muffler be installed and be in effective working order. The spark arrester must be attached to the exhaust system and comply with local authorities by-laws.



USE COMMON SENSE AND PLENTY OF IT

- 1)  **DO NOT** allow any person to operate the chipper mulcher shredder without first reading and understanding the safety precautions and operating instructions manual. Also read and understand the engine manual. **KNOW THE CONTROLS AND HOW TO STOP THE CHIPPER MULCHER SHREDDER QUICKLY IN AN EMERGENCY.**
- 2) **NEVER** allow children to operate the chipper mulcher shredder.
- 3) **ALWAYS** wear protective clothing when operating the chipper mulcher shredder. This includes, but is not limited to: safety glasses, loose fitting gloves, steel capped boots and hearing protection. **NEVER** wear loose fitting clothing or jewellery when operating the chipper mulcher shredder. Keep all clothing away from moving parts. Items could become caught in the machine, resulting in injury.
- 4) **ALWAYS** operate the chipper mulcher shredder in a well lighted area.
- 5) **ALWAYS** operate chipper mulcher shredder on level ground only. Keep your work area clear and free of debris. Never attempt to move a trailer mounted chipper mulcher shredder over uneven or hilly ground without a tow vehicle or adequate help. This machine should be operated only upon an earthen level surface, **never** on cement or asphalt.
- 6) **NEVER** operate the chipper mulcher shredder when fatigued. **ALWAYS BE ALERT!** If you get tired while operating the chipper mulcher shredder, take a break. If you have any type of physical or mental condition that may be aggravated by strenuous work, check with your physician before you operate this equipment. **NEVER** operate the chipper mulcher shredder under the influence of medication, alcohol or drugs.
- 7) **DO NOT** allow other persons near the chipper mulcher shredder. It is up to the operator to keep bystanders and animals a minimum of 6 metres away from the machine while in operation.
- 8)  **NEVER PUT YOUR HANDS, FEET, FACE OR ANY OTHER PART OF YOUR BODY INTO EITHER OF THE FEED HOPPERS. Use a stick, not hands, to push limbs into the shredding and chipper hopper.**
- 9) **NEVER** remove the guarding attached to the shredding hopper. This protective device minimises material flyback and must be in place at all times during operation. **NEVER** use the chipper with the chipper hopper removed.
- 10) **DO NOT** leave the machine unattended while the engine is running.
- 11) **DO NOT** overspeed the engine or alter the governor settings. Excessive engine speed is dangerous and will shorten engine life.
- 12)  **NEVER** operate the chipper mulcher shredder in an enclosed area. Engine exhaust contains carbon monoxide, an odourless and tasteless poison.
- 13)  **STOP** the engine and disconnect the spark plug lead(s) and allow engine to cool before inspecting or performing maintenance.
- 14) **REFUELLING**
 - *  Shut off engine. **DO NOT REFUEL AN ENGINE WHILE OPERATING!**
 - * Allow engine to cool. Minimum 5 minutes.
 - * **USE UNLEADED FUEL ONLY. Use clean, fresh unleaded fuel.**
 - * **Do not mix oil with unleaded fuel.**
 - * Do not over-fill fuel tank. Allow space for fuel expansion.
 - * Do not smoke.
 - *  Allow no naked flame or hot material in refuelling area.
 - * Use only approved fuel containers and funnels. Remember, fuel is a potential hazard.
 - *  Refer to engine owners manual for full details.

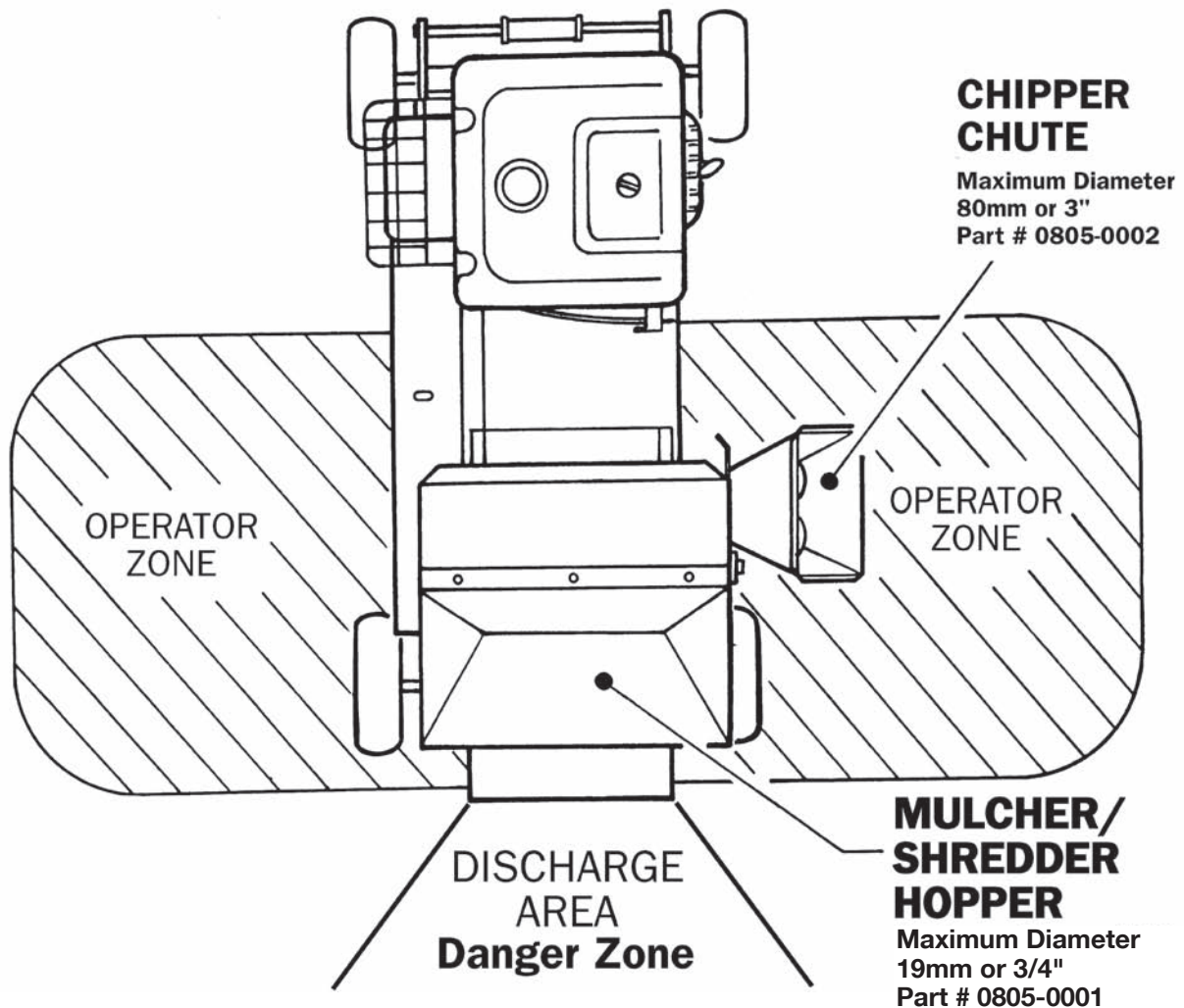


NEVER USE THE CHIPPER MULCHER SHREDDER FOR ANY OTHER PURPOSE THAN CHIPPING AND SHREDDING ORGANIC YARD DEBRIS. IT IS DESIGNED FOR THIS USE ONLY AND ANY OTHER USE MAY CAUSE SERIOUS PERSONAL INJURY OR DAMAGE TO THE MACHINE.

DAMAGE TO THE UNIT RESULTING FROM ANY USE OTHER THAN SHREDDING AND CHIPPING ORGANIC MATERIAL IS YOUR RESPONSIBILITY.

NO STICKS OR BRANCHES LARGER THAN 19MM OR 3/4" DIAMETER INTO THE LARGE SHREDDER HOPPER (PART NO. 0805-0001)

ONLY OPERATE THE CHIPPER-MULCHER-SHREDDER FROM THE OPERATOR ZONES AS SHOWN.



Know the controls and how to shut the unit down in an emergency.

Never clear the discharge area with hands, feet, or any other part of your body.

Never clear the discharge area while the Chipper/Mulcher/Shredder is running.
After unit is shut off, use a long handle tool to clear the area of mulch.



THIS MACHINE IS CAPABLE OF INFLICTING SERIOUS INJURY IF OPERATED IMPROPERLY. READ WARNING AND CAUTION DECALS ON MACHINE




OPERATING INSTRUCTIONS

TRANSPORT


- 1) **WARNING:** Do not exceed 60 kms per hour when towing.

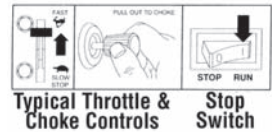


BEFORE USE

- 1)  **WARNING:** Before starting engine, inspect the intake hopper and remove any foreign debris or branches, stones, cans, nails sweepings, wire, etc.
- 2) Perform a thorough visual inspection of the chipper mulcher shredder and the chipper disc drive system.

OPERATION

- 1) Familiarize yourself with the chipper mulcher shredder and its controls.
- 2) Wear safety glasses, or helmet and visor combination, loose fitting gloves, and hearing protection.
- 3) No foreign objects such as stones, steel, cans, glass, wire, rope or nails should be fed into the machine, as damage will occur.
- 4)  Open fuel shut-off valve, if engine is so equipped.
Move choke control to CHOKE or START position. Note: Choke must fully close. Move throttle control to RUN or FAST position.





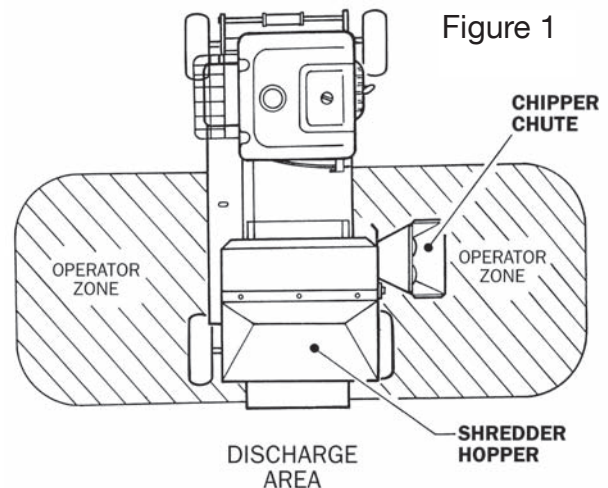
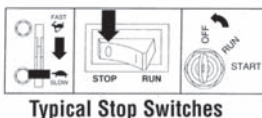
If engine is equipped with rocker style stop switch, push RUN or I (I = Ignition)

before starting. Rewind Starter: Grasp rope handle and pull slowly until resistance is felt to prevent kickback. Then pull cord rapidly to overcome compression and start engine. Repeat if necessary with choke off and throttle control in FAST position. Operate engine in FAST position.

- 5) **SHREDDER HOPPER** (See Figure 1) As the engine ignition begins, the engine shaft operates freely until approximately 1400-1600 rpm at which speed the centrifugal clutch engages and begins driving the rotor. Proper rotor rpm is 2900 rpm with a plus or minus tolerance of 100 rpm. Four rows of hammers shred material until it reaches such size to allow it to pass through the grinding screen. The grinding screen retains the material within the grinding chamber for several seconds until the free-swinging hammers have rotated several times. The number of cuts by the hammers and retention time within the chamber varies with each organic material type.
- 6) **CHIPPER CHUTE** (See Figure 1) Branches are fed into the side hopper for chipping. One at a time if they are thicker than 50mm, several together if of small diameter. The throat opening is approximately 80 mm square. Some side shoots or side branches may have to be trimmed from the main stalk before chipping. Short stubs of branches may be pushed through the chipper section with the next branch. Never assume you know where the blade is, and try to push short branches in by hand.



BE SAFE. KEEP YOUR HANDS AWAY FROM THE CHIPPING BLADE.

- 7)  **CAUTION: IF SHREDDER CHUTE OR MULCHER CHUTE CLOGGS WITH MATERIAL, STOP THE ENGINE IMMEDIATELY TO PREVENT CLUTCH DAMAGE.**
- 8) Do not allow an accumulation of processed material to build up under the discharge area of the shredder as this will prevent shredded material to discharge and will result in clogging.
- 9)  **NEVER ALLOW YOUR HANDS OR ANY PART OF YOUR BODY OR CLOTHING INSIDE THE FEED HOPPER OR DISCHARGE AREA OF THE SHREDDER-GRINDER.**
- 10) Always stand clear of the discharge area when the shredder is running. (See Figure 1)
- 11) Keep your face and body away from the feed hopper to avoid being struck by any material that may bounce back. Do not over-reach. Keep proper balance and footing.
- 12) **Stop Engine:** Do not move choke control to CHOKE position to stop engine. Backfire or engine damage may occur. Move throttle control to SLOW position, then push rocker switch to O (STOP), or if equipped, turn key to OFF.



Stay clear of this area at all times.

AFTER USE

- 1)  Turn fuel tap to OFF position.
- 2)  Allow machine to cool down.
- 3) Clean with warm soapy water.
Ensure no water enters the carburettor.



SERVICE INFORMATION

GENERAL MAINTENANCE AND STORAGE

WHEN EVER DOING ANY TYPE OF MAINTENANCE ON THIS MACHINE, ALWAYS FOLLOW THE SAFETY STEPS DESCRIBED IN EACH SECTION. ALWAYS PERFORM THESE THREE STEPS:

1. TURN THE MACHINE OFF
2. ALLOW ENGINE TO BECOME COOL
3. REMOVE SPARK PLUG LEADS

1. Consult the engine manual for information regarding operation and maintenance of the engine. Review carefully. Be certain to service the engine before you start it.
2. Tools Required (Excluding Engine)

Sockets 1/2, 9/16, 5/8, 3/16 Hex Key (2004-0002)	Ring & Open End Spanners 7/16, 1/2, 9/16, 5/8, 11/16
0.5 to 1.2mm Feeler Gauges	Hex Keys 3/16, 5mm, 3mm
Socket Accessory Sliding Tee Handle (2004-0005)	External Circlip Pliers
2 Multi Grips	Sharpening Stone 5/32 Pin Puch Long Series
	25mm Cold Chisel
3. Lubricate the two rotor bearings before operating and after every 10 hours of operation with multi-purpose bearing lubricant (grease). **DO NOT OVER-GREASE. Check the bearing collar set screws regularly to be sure they are tight.**
4. When not in use, your chipper mulcher shredder should be stored out of the reach of children. Be sure there are no petrol fumes in the storage area. For long periods of storage (over winter), petrol should be drained from the tank and either stored or disposed of safely. Always allow the engine to cool before storing. Engine should be stored with valves closed (on compression stroke).
5. When the hardened steel multi-stepped hammers become dull or round on the cutting or leading edge, they may be reversed. First remove outer belt guard cover (0704-0030), and open chipper access panel (0314-0012). The rotor pin (1604-0024) access holes are revealed. One at a time these pins may be removed through the the back plate access hole, and the hammers reversed as the rotor is reassembled. Each rotor pin is held in place by a 4 x 40mm spiral roll pin. Install new roll pins. Extreme care must be taken to reinstall the spacers in exactly the same order as shown on page 12. Once again the spacers and hammers must be reinstalled in exactly their original order (see DRG 1 on page 12). Use a 5/32 long series pin punch to punch the roll pin through the rotor pin, and then out the other side of the rotor plate.
HINT: If Spacers have mushroomed excessively and have become tight on rotor pin, use a cold chisel on flared end of the spacer as though you are trying to split the spacer. This usually succeeds in spreading the spacer inside diameter and flatten the internal flare and will loosen. The cold chisel is also a handy wedge to hold the rotor still. (Make sure to wear safety glasses on this operation.)
6. When the steel chipping knife (0206-0005) needs turning, sharpening or replacing, proceed as follows:
 - i) Remove spark plug leads and ensure engine is cool.
 - ii) Observe drawing No. 2
 - iii) Open access flap by loosening the two bolts item 12 and rotate flap anticlockwise.
 - iv) Rotate chipper disc until blade is in full view.
 - v) Clean hexagonal socket in items 5 thoroughly.
 - vi) Using a 3/16 allen key or preferably a 3/16 hexagonal socket key, loosen them, beginning at the middle of the wheel outward.
NOTE: Ensure to hold key square to the face of blade, Ref. Fig. 3 (2.5° off front plate item 10)
HINT: Using socket style key and sliding tee wrench, fit key into countersunk set screw (Item 5), with tee handle in a horizontal plane, apply a light, counter clockwise pressure onto the handle until key rests on edge of access hole. Hit the back of drive section of wrench lightly until you find the centre line of the screw, gradually increase pressure on wrench handle as you increase intensity of impact with hammer until screw loosens.
 - vii) Remove blade and rotate or sharpen retaining the same angle of bevel (40°).
NOTE: Be careful not to drop screws into chipping chamber when removing.
NOTE: The blade life is determined by the point where the bevel face meets the slot in the chipper disc. See Fig 2. Dim. (x) **WARNING:** Do not exceed the point as the blade may fail.
 - viii) Clean the mating surfaces between the chipper disc and the blade.
 - ix) Replace the blade using a metal base grease on threads.
 - x) Finger tighten all screws first, tighten outside, middle and finally inside.
 - xi) Close access flap and tighten screws item 12.
7. After the blade is sharpened, the gap Dim. (y) (Fig. 2) Between the blade and anvil (0104-0002) must be checked. This gap should be 1.0 mm to 1.2 mm at outside circumference of blade and 0.4 mm to 1.2 mm at inside circumference of blade.
HINT: For stringy, fibrous or pulpy materials keep the gap as close as possible to the smallest size of the tolerance. For hard wood, use the upper size of the tolerance.
 - i) Remove spark plug leads and ensure engine is cool.
 - ii) Observe drawing No. 1 & 2 and Fig. 2.
 - iii) Remove chipping hopper (0805-0005)
 - iv) Remove screen (1905-0045)

- vi) While looking down the chipper throat, reach under machine and turn rotor until the knife is in view.
 - vii) Using feeler gauges, check the gap (Dim "y") It will be necessary to rotate the disc slightly to line the inside and outside edges individually.
 - viii) To adjust the gap, loosen the three bolts (Item 12) DRG 2, leave light pressure on the lock washers of the two bolts on either end, remove all pressure off the middle bolt.
 - ix) Tap the heads of the end bolts in or out to attain feeler gauge setting required. Repeat step **vii** as many times as necessary.
 - x) Tighten all three bolts from right to left and recheck gap.
 - xi) Reassemble all components before starting engine.
8. **Note:** If the gap between anvil and knife is excessive, you will have vibration when chipping and the blade will seem to be dull and metal fatigue may occur. If the gap is too small, the blade may strike the anvil.
9. If it becomes necessary to disassemble the chipper for repairs, the chipping disc (6) (0403-0003) **must be installed in exactly its correct position on the shaft.** Refer Drawing 2.
10. The Belt tension will need to be checked regularly. Refer Fig. 1.
- (i) Remove Spark Plug Leads and ensure engine is cool.
 - (ii) Place a pencil or similar object through access slot at top of belt guard, onto either of the belts and mark a line flush with the top of guard onto pencil.
 - (iii) Then mark another line 9mm above.
 - (iv) If tension is correct the top line will be flush with the guard when 1 to 1.5 kg force is applied to the end of the pencil.
- HINT:** To familiarise yourself with the required pressure, have kitchen scales nearby and press the centre of scales then the pencil and repeat until satisfied.
- (v) Repeat Step (ii) on the other belt.
- If belts have become slack, proceed with the following steps:
- (vi) Observe Drawing No. 3
 - (vii) Loosen Nuts Item 30 and 34. Bolts 27 and 31.
 - (viii) Loosen Lock Nut behind Nut 25 to allow adjustment.
 - (ix) Adjust Nut 25 to required setting.
- IMPORTANT.** Tighten engine mounting bolts as follows to ensure pulleys remain parallel. Tighten rear bolt 31 first. Front bolt 31 second. Finally tighten both bolts 27.
- (x) Tighten Lock Nut behind nut 21.
- NOTE:** The belts require periodic visual inspection. Remove excess grease from around rotor pulley. Check that the mounting of both pulleys is secure. **Replace belts in matched sets.**
11. Periodically check that the Chipping Disc is firmly secured to the Rotor Shaft by trying to wobble the Disc. The best opportunity is during Blade sharpening. Some fasteners may loosen under vibration. Periodically check that they remain tight. This is the responsibility of the owner.

The Rotor Pulley, Shaft and Chipper Disc

The collar is a taper lock bush. The bush and the pulley (or disc) have a matching taper with the big end of the taper on the outside. There is a special threaded hole pattern designed to pull the two tapers together and clamp onto the shaft or to push them apart for removal. If you were to find either the pulley or disc loose, proceed as follows:

- (i) Remove Spark Plug Leads.
- (ii) Observe Figure 3.
- (iii) Clean out all 3 holes on front of Taper Bush

FIGURE 1

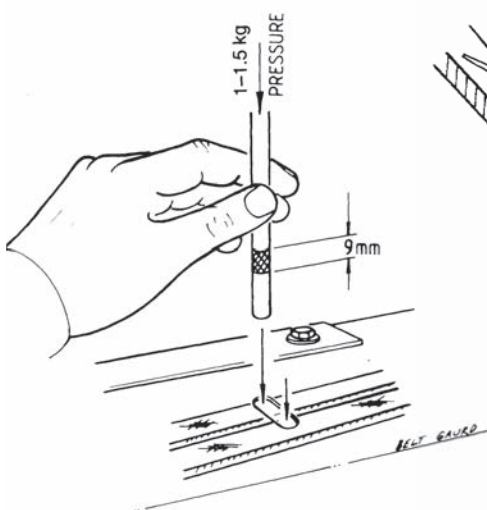


FIGURE 2

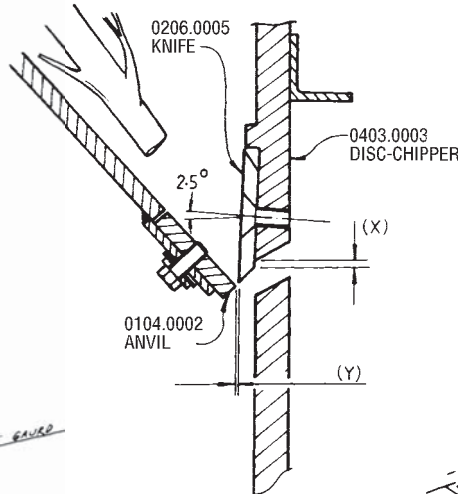
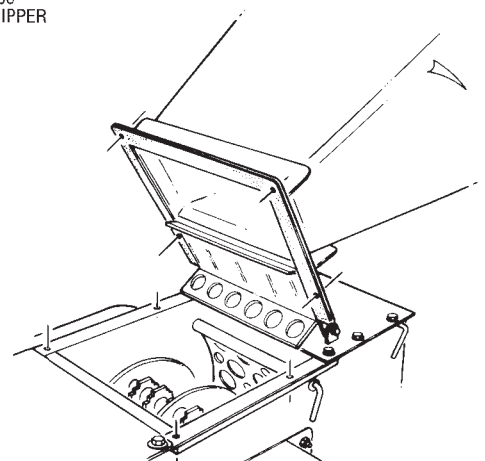


FIGURE 3



(iv) Use a 5mm Hex Key to tighten both Grub Screws (Socket Set Screws)

For REMOVAL of either Pulley or Disc continue as follows:

- (v) Slacken both Screws, then remove one. After oiling point and thread of Grub Screw, insert into the third hole.
- (vi) Tighten this screw until the two components push apart. It may be required to tap the Pulley with a punch and hammer just outside the join line of the two parts, directly opposite the Jacking Screw.
- (vii) For ease of removal gently tap a flat screw driver into the slot to spread bush.

ASSEMBLY

- (viii) Clean all components thoroughly. Insert the Bush and Line up the holes (half thread holes must line up with the half straight holes).
 - (ix) Lightly oil the Grub Screws and screw them into the two opposing holes. Do not tighten yet!
 - (x) Fit this assembly onto the shaft over key and locate in correct position along shaft.
 - (xi) Using a 5mm Hex Key gradually tighten the Grub Screws alternately to 20 Newton Metres.
 - (xii) After the drive has been operating under load for about an hour, check to ensure that the screws remain at the appropriate torque.
 - (xiii) Fill the empty hole and Hex sockets with grease to simplify cleaning next time.
12. Frequently check for fibrous material wrapped around rotor shaft ends. Remove if present, otherwise machine performance will be reduced and may cause clutch wear and heat.
13. If the cutting mechanism strikes any foreign object or if your machine should start making an unusual noise or vibration stop the engine. Allow the engine to cool. Disconnect spark plug wires from the spark plugs before:
- (a) Inspect for obvious damage
 - (b) Check for loose parts, bolts, or rods. Examine rotor visually for any obvious defects.



Trouble shooting Questions & Answers

1. My CMS80 stalls as soon as I put anything in it.

This could be a problem of a slow engine or loose belt. Does the rotor or engine or both stall? If the rotor stops but the engine keeps running, you may have a loose belt, a slipping clutch pulley, or a combination of both (Refer to No. 5). If the engine stalls, it may be a carburetor problem, dirty air filter or it is running too slow. The engine should operate at maximum preset rpm.

2. My Chipper/Mulcher/Shredder worked fine last year but now I can't chop anything.

This is probably due to excessive wear on the hammers. If you have processed sand, soil, phosphate rock, etc., your hammer tips will round off and wear away.

3. Which way should my feed hopper (0805-0001) be turned?

These are factory installed the correct way with the flat or vertical side toward the engine and sloping wall toward the discharge.

4. My centrifugal clutch (0310-0081) smokes and burns the belt.

The machine is working too hard and is not regaining full engine rpm. This will cause excessive heat build up and clutch slipping. Belt burning is a direct result of the clutch slipping. Worn clutch shoes or broken clutch shoe retainer springs will result in clutch failure. A clutch IPL (Integrated Parts List) is located on page 22 of this manual.

A loose drive belt may slip resulting in belt burning. Attempting to start the engine with material in the shredding chamber may prevent the rotor to turn as the engine comes to full operating rpm. This will result in clutch slippage and belt burning.

Check the machine interior for cleanliness. Excessive grease may come in contact with drive belts.

5. My chipping knife is dull after only an hour.

Unless you accidentally put metal or dirt in the chipping hopper, the clearance between the knife and anvil has changed. This will cause the knife to either not shear wood cleanly if the gap is too big or come into contact with anvil when the disc flexes forward on heavy cuts if the gap is too small. This gives the impression of dullness, creates excessive wear and vibration increases on your hands when using the chipper. Adjusting the anvil should solve this problem.

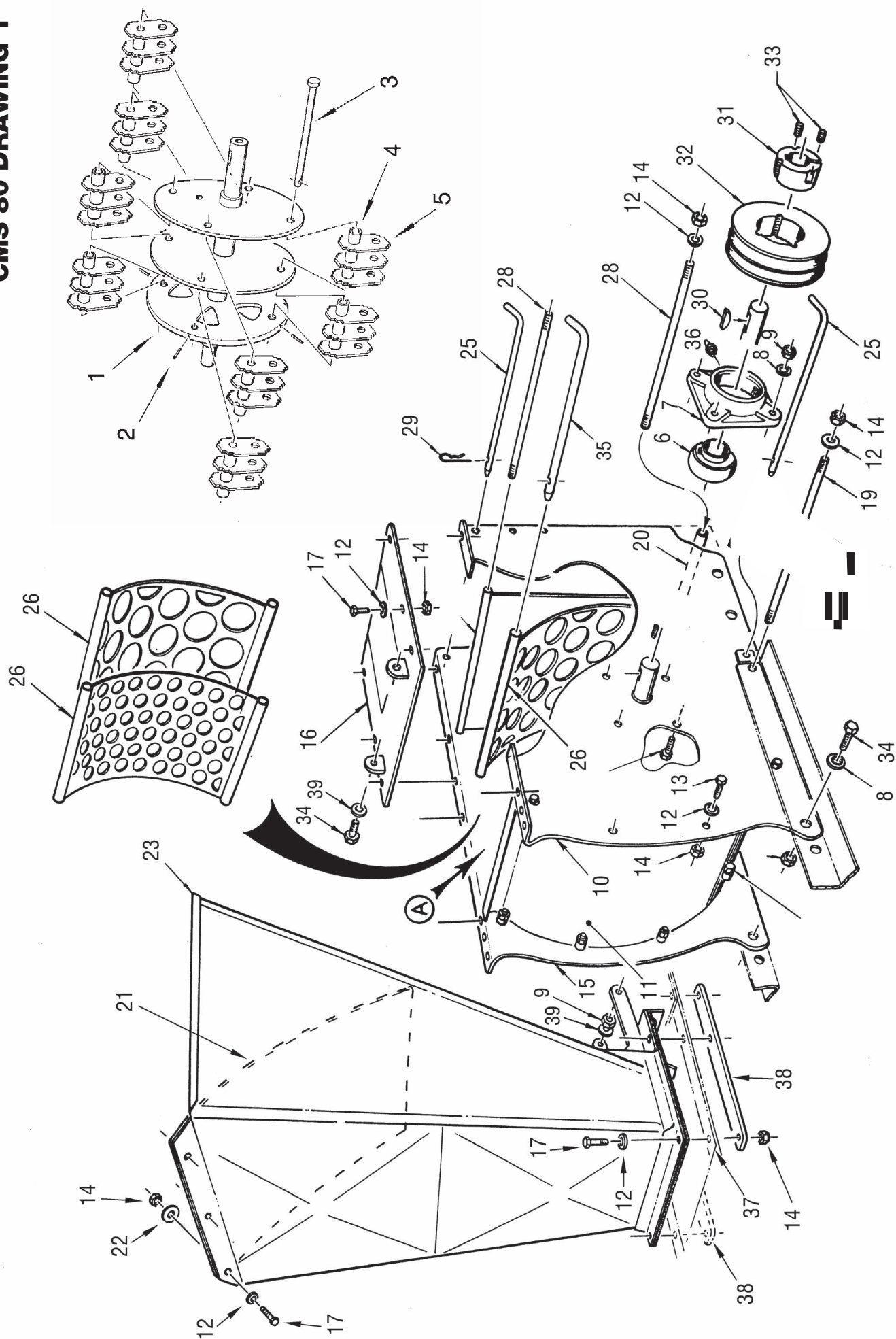


SHREDDING TIPS (TECHNIQUE)

1. Generally you can apply these rules. When material being processed is dry, brittle, hard or woody, use the standard 45mm perforated screen in the shredder. An optional 62mm screen can be used to advantage when shredding green fibrous materials such as sweet corn stalks, wet straw or manure. After processing wet or soggy materials, the shredding chamber can be cleaned quickly by re-installing the 45mm screen and grinding a few branches or wood chips.
2. The optional screens 6mm, 12mm, 19mm, 30mm, 62mm or bar are for special purposes, (Potting soil, grinding shell fish residue such as sea shells). First process the material through the 45mm screen, then through the smaller hole screen. This works very well on grains for poultry feed.
3. When grinding green or damp material (sweet corn stalks, potato vines, tomato plants, green or fresh pulled plants), remove the 45mm screen and install a 62mm screen. Direct the shredder to discharge into a compost pile or wall, large board or other obstruction. Feed sweet corn stalks by hand, slowly, several at a time until the last 50cm remain in your hand then let go. This will give you a coarsely shredded product several centimetres long and stripped. With a garden spade or pitchfork, re-process this material into the shredder again or until it reaches the condition you want. A sweetcorn stalk that has been processed this way, will break down within a day or two in your compost heap. For green materials such as tomato or potato vines, you may first have to snap off extending side shoots. Place vine in the hopper and prod further with a rugged stick. **NEVER USE YOUR HANDS.**
4. Always use chipper for branches over 19mm as it is quicker and easier on your machine. Never put large branches into the shredder as you will stall the engine and eventually damage the scroll.
5. For grinding dry leaves, use the 45mm perforated screen and dump leaves into the top feed hopper. If bridging occurs inside hopper, use a stick to stir leaves into the shredding chamber. Freshly fallen leaves do present a problem and it is best to pile these and allow to sit until they become quite soggy. If this is impractical, wet or damp leaves must be processed through the shredder with 62mm screen with other materials. For the most part, wet leaves will simply blow through the shredder. Soggy, partly decomposed leaves process very well. Using the 62mm screen or the bar grate dump in pitchfork loads and prod through with a stick.
6. For green hedge prunings, small diameter wood prunings (with leaves), rose or flower trimmings, process with the 45mm perforated screen installed. Enter bunches at a time through the top feed hopper. Experience will tell you how much your machine will handle at one time.
7. To process branches, dry or green, use the side chipping hopper. The 45mm screen may be left in the shredding chamber, but it serves no practical purpose when chipping. Clip off side twigs or limbs from the main branch. Enter one at a time if thicker than 50mm. Green branches process quicker and easier than dry branches and soft wood easier than hardwood. Push the branch in at the angle of the hopper and throat. Always use the hopper extension. **Never allow your hands to enter the hopper. As the branch being chipped shortens, finish chipping it by shoving in with the next branch to be chipped.** Only operator experience will tell you what screen to use, how fast to feed and how to process difficult materials. Some materials are easier to work with than others, but most common organic products available to a gardener can be processed by using your machine and common sense.
8. **REMEMBER! Work with the machine. Do not overload. Allow the chamber to clear and engine revolutions per minute to pick up before feeding more material through. Always work with engine at maximum rpm. Failure to do so will cause unnecessary wear and heat on the belts and clutch.**



CMS 80 DRAWING 1

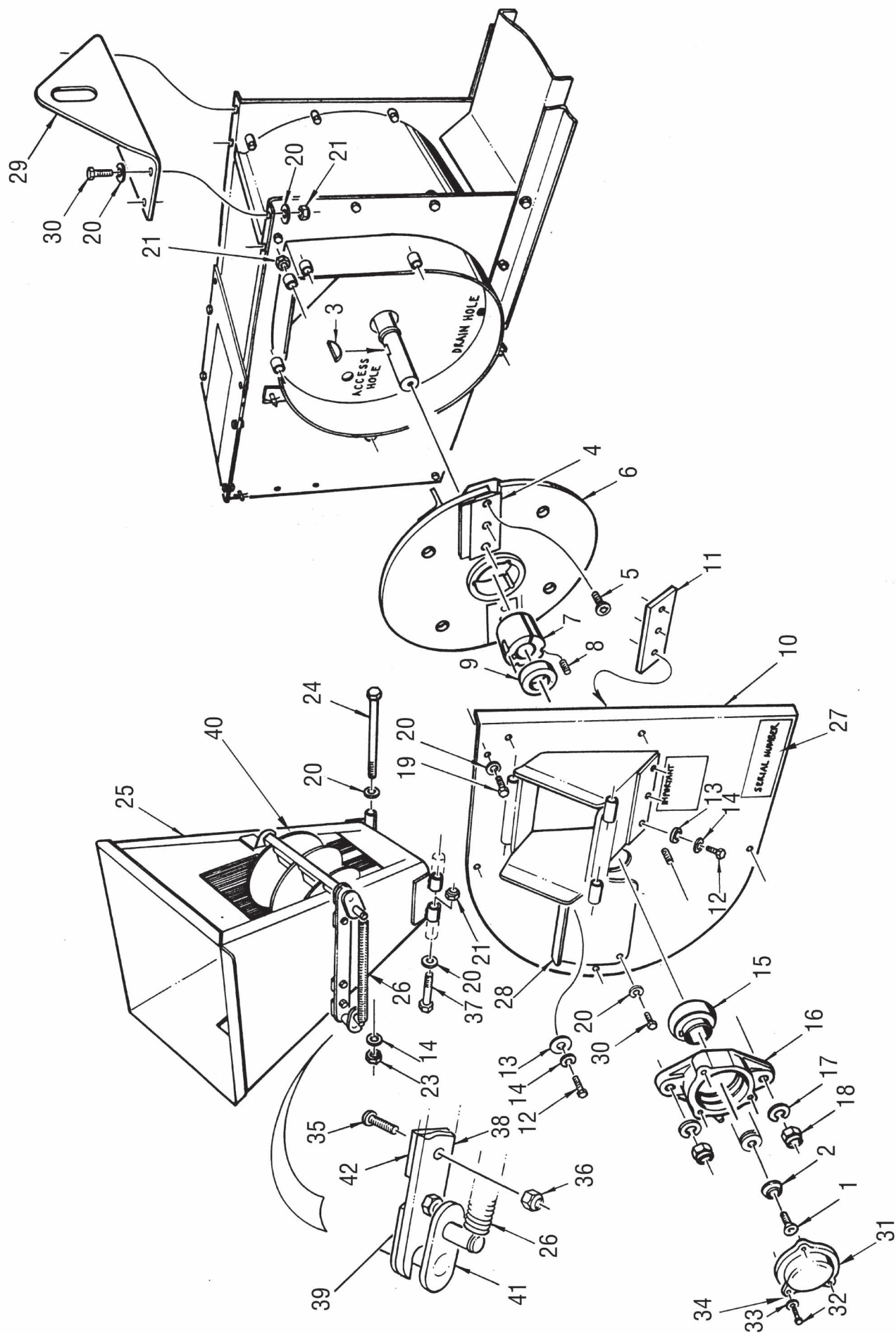


PARTS LIST FOR CMS 80 DRAWING 1

Item No.	Part No.	Description	Quantity
1	1807-0008	Rotor Assembly	1
*	1807-0007	Rotor Only	1
2	1604-0034	Pin Spiral Roll	4
3	1604-0024	Pin Rotor	4
4	1913-0025	Spacer	24
5	0206-0004	Blade, Hammer	24
6	0204-0012	Bearing, Rotor	2 Total
7	0806-0011	Housing Bearing Rotor	1
8	2301-0024	Washer	22 Total
9	1401-0034	Nut	20 Total
10	1605-0010	Plate Back	1
11	1908-0002	Scroll	1
12	2301-0018	Washer	44 Total
13	0209-0121	Bolt	10 Total
14	1401-0023	Nut	44 Total
15	1605-0011	Plate Middle	1
16	1605-0012	Plate Top	1
17	0209-0109	Bolt	14
18	0209-0125	Bolt	2
19	1808-0020	Rod Tie	1
20	1913-0027	Spacer	1
21	0601-0008	Flap Hopper (Guard)	1
22	2301-0033	Washer	3
23	0805-0001	Hopper, Large	1
24	1901-0028	Screw (1905-0062)	2
25	1604-0021	Pin Screen & Discharge Flap	2
26	1905-0045	Screen 45 mm	Standard
"	1905-0006	Screen 6 mm	Option
"	1905-0012	Screen 12 mm	Option
"	1905-0019	Screen 19 mm	Option
"	1905-0030	Screen 30 mm	Option
"	1905-0062	Screen 62 mm	Option
27	0601-0005	Flap Rear (Discharge)	1
28	1808-0021	Rod Tie	2
29	1604-0018	Pin R	2/3
30	1102-0014	Key	2
31	0215-0014	Bushing	1
32	1608-0022	Pulley Rotor	1
33	1901-0005	Screw Socket Set	4 Total
34	0209-0318	Bolt	2
35	1604-0022	Pin Top Discharge Screen	1
36	0603-0004	Zerk	1
37	0701-0010	Gasket, Hopper	1
38	0202-0004	Bar, Clamp	2
39	2301-0024	Washer, Flat	4
40	1604-0023	Pin W/Spring	1
		All Screens Except 1905-0062	
41	0313-0001	Container Not Shown	1
42	2002-0001	Tie, Container Not Shown	2

USE ONLY GENUINE RED ROO PARTS WHEN SERVICING YOUR MACHINE

CMS 80 DRAWING 2



PARTS LIST FOR CMS 80 DRAWING 2

Item No.	Part No.	Description	Quantity
1	1901-0012	Screw	1
2	0303-0007	Cap, End	1
3	1102-0014	Key	As noted
4	0206-0005	Blade (Double Bevel)	2
5	1901-0001	Screw Se t counter sunk	6
6	0403-0003	Disc C hipper	1
7	0215-0028	Bushing	1
8	1901-0005	Screw So cket Set	As noted
9	1913-0060	Spacer F ront	1
10	1605-0013	Plate F ront	1
11	0104-0002	Anvil	1
12	0209-0108	Bolt	4
13	2301-0021	Washer	4
14	2301-0004	Washer	4
15	0204-0012	Bearing	As noted
16	0806-0012	Housing Be aring	1
17	2301-0007	Washer	5
18	1401-0043	Nut	2
19	0209-0121	Bolt	As noted
20	2301-0018	Washer	As noted
21	1401-0023	Nut	As noted
22	0209-0157	Bolt	1
23	1401-0019	Nut	As noted
24	0209-0155	Bolt	1
25	0805-0005	Hopper C hipper Small	1
26	1916-0010	Spring Ex tension	1
27	0401-0049	Serial Number Plate	1
28	0314-0012	Cover, Blade Access	1
29	0214-0054	Bracket Li ft	1
30	0209-0109	Bolt	4
31	0314-0015	Cover, Bearing	1
32	0209-0031	Bolt	3
33	2301-0001	Washer, Lock	3
34	2301-0002	Washer, Flat	3
35	0209-0810	Bolt	2
36	1401-0504	Nut	2
37	0209-0141	Bolt	1
38	0704-0037	Bracket, Pivot Straight	1
39	0704-0036	Bracket	2
40	0704-0035	Fingers	2
41	0704-0035-005	Lever Spring	2
42	0704-0035-003	Gusset	2



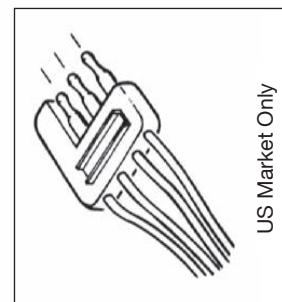
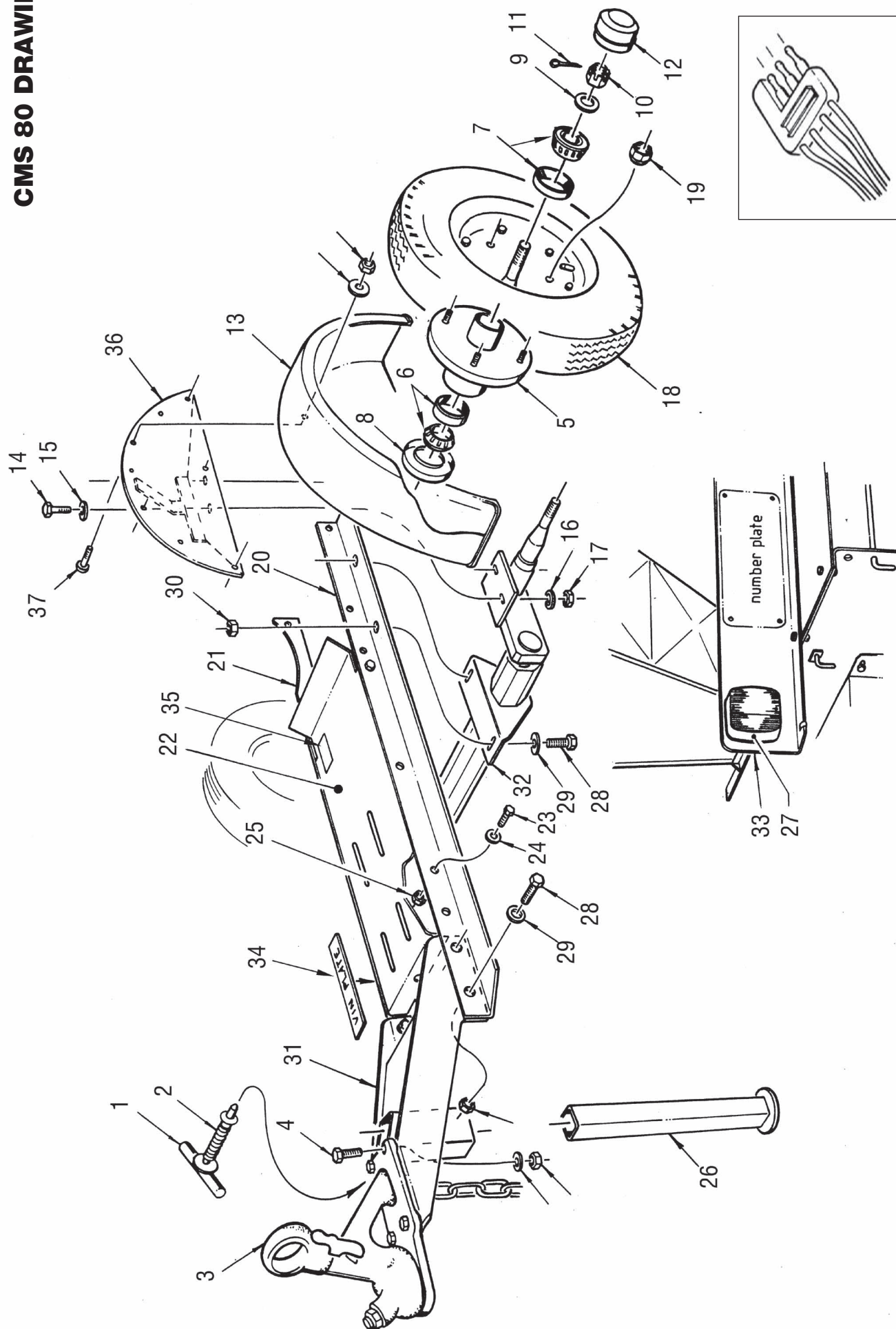
This technical diagram illustrates the exploded view of a motorized bicycle assembly. The components are numbered as follows:

- Motor and Drive System:** Includes the motor (50), drive sprocket (39), and various mounting hardware (30, 31, 32, 33, 34, 35, 36, 37, 38, 40, 41, 42, 43, 44, 45, 46).
- Frame and Chassis:** Shows the main frame (1), down tube (2), seat tube (3), and various mounting points (47, 48, 49).
- Wheels and Tires:** Includes the front wheel (12), rear wheel (22), and tires (11, 21).
- Handlebars and Controls:** Features the handlebars (5), grips (51), and various mounting hardware (6, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24, 25, 26, 27, 28, 29).
- Other Components:** Includes the pedal (22), chain (39), and various fasteners (40, 41, 42, 43, 44, 45, 46).

PARTS LIST FOR CMS 80 DRAWING 3

Item No.	Part No.	Description	Quantity
1	1801-0001	Rail R/H 4 Wheel	1
2	1303-0012	Mount Eng ine	1
3	1801-0002	Rail L/H 4 Wheel	1
4	0103-0005	Axle F ront	1
5	0801-0007	Handle	1
6	1604-0012	Pin Lync h	1
7	1604-0033	Pin H andle Hinge	1
8	2301-0043	Washer	10
9	0204-0006	Bearing Whe el	8
10	1604-0026	Pin Sp lit	4
11	2305-0007	Wheel Assy 4 Whe el	4
12	0215-0013	Bushing Sp acer	1
13	1913-0029	Spacer Pi vot thrust disc	1
14	0209-0521	Bolt	1
15	2301-0025	Washer	2
16	1401-0053	Nut	1
17	1401-0034	Nut	1
18	2301-0023	Washer	1
19	0209-0321	Bolt	1
20	1208-0005	Latch	1
21	1916-0015	Spring	1
22	0103-0006	Rear Axle	1
23	1901-0007	Screw Se t Counter Sunk	4
24	1401-0022	Nut	4
25	1401-0040	Nut	1
26	0214-0060	Bracket T ensioner	1
27	0209-0429	Bolt	2
28	2301-0026	Washer	4
29	2301-0007	Washer	2
30	1401-0042	Nut	2
31	0209-0322	Bolt	2
32	1918-0006	Strap	4
33	2301-0006	Washer	2
34	1401-0032	Nut	2
35	0310-0081	Clutch	1
36	2301-0017	Spacer, Clutch	1
37	2301-0006	Washer	1
38	0209-0300	Bolt	1
39	0205-0011	Belt	2
40	1102-0015	Key - Engine Shaft	1
41	0704-0021	Guard Be lt (Inner)	1
42	0704-0022	Guard Be lt	1
43	0704-0030	Guard Be lt (Outer)	1
44	0209-0108	Bolt	1
45	2301-0004	Washer	As noted
46	2301-0018	Nut, Washer	As noted
47	0214-0061	Bracket G uard Belt	1
48	2301-0024	Washer	1
49	0209-0348	Bolt	1
50	0503-0008	Engine	1
51	0703-0002	Grip	1
52	0101-0007	Adaptor	
53	0706-0009	Gauge, Maintenance Not Shown	1

CMS 80 DRAWING 4

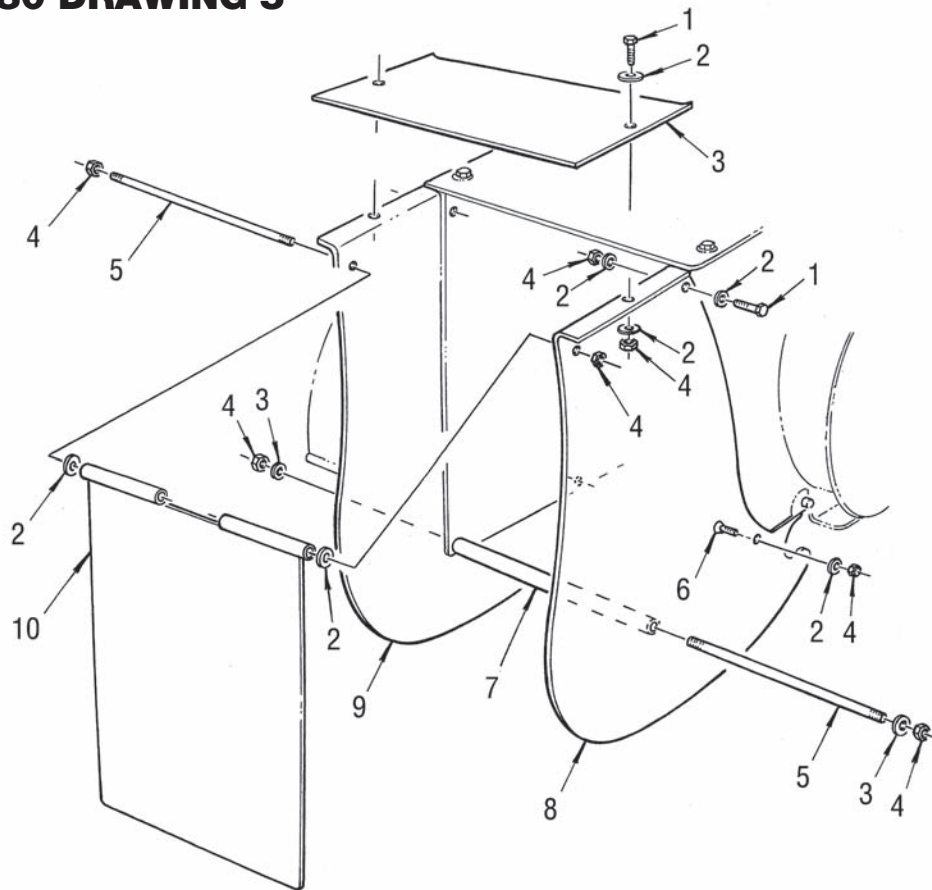


PARTS LIST FOR CMS 80 DRAWING 4

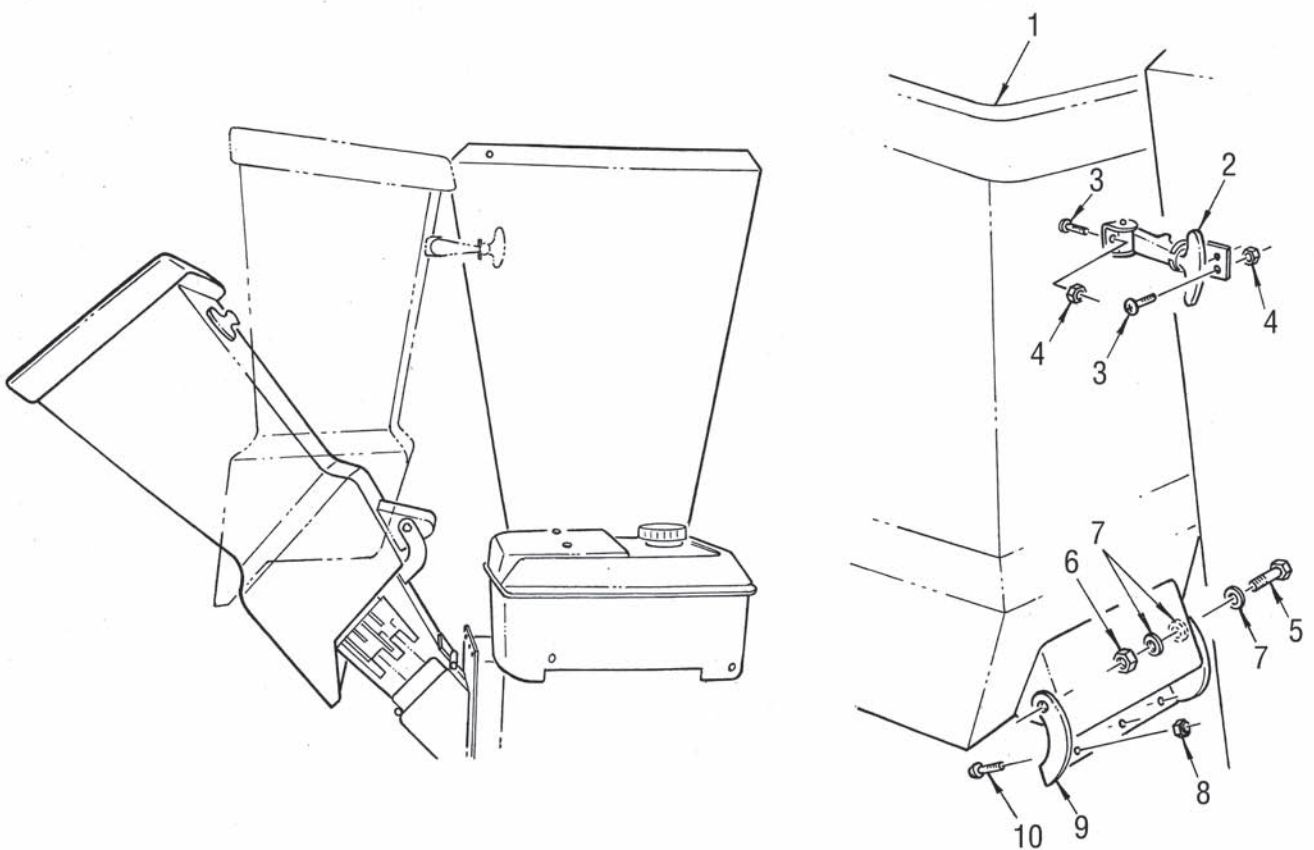
Item No.	Part No.	Description	Quantity
1	1208-0004	Latch Le g	1
2	1916-0012	Spring La tch	1
3	0316-0003	Coupling	1
4	0209-0519	Bolt	4
5	0806-0013	Hub Whe el	2
6	0204-0014	Bearing Assembly, Rear	2
7	0204-0034	Bearing Assembly, Front	2
8	1902-0007	Seal H ub	2
9	2301-0043	Washer	2
10	1401-0010	Nut C astle Axle	2
11	1604-0019	Pin C otter	2
12	1906-0001	Shield	2
*	1105-0006	Kit Trailer Hub Assembly	2
13	0606-0001	Mudguard	2
14	0209-0002	Bolt	4
15	2301-0018	Washer	As noted
16	2301-0004	Washer	As noted
17	1401-0019	Nut	As noted
18	2305-0010	Wheel Assy	2
19	1401-0055	Nut , Wheel Lug	8
20	1801-0003	Rail R/H Trailer	1
21	1801-0004	Rail L/H Trailer	1
22	1303-0012	Mount Eng ine Base	1
23	0209-0312	Bolt	9
24	2301-0024	Washer	As noted
25	1401-0034	Nut	As noted
26	1915-0001	Stand Sup port	1
27	1202-0002	Light	2
28	0209-0515	Bolt	8
29	2301-0025	Washer	16
30	1401-0053	Nut	12
31	0214-0066	Bracket, Coupling	1
32	0103-0004	Axle, Flexride	1
33	1105-0004	Light Kit Bracket	1
34	0401-0048	Vin Plate	1
35	0401-0050	Warning Plate	1
36	0606-0001-0002	Mudguard, Bracket	2
37	0209-0623	Bolt	10



CMS 80 DRAWING 5



CMS 80 DRAWING 6



PARTS LIST FOR CMS 80 DRAWING 5

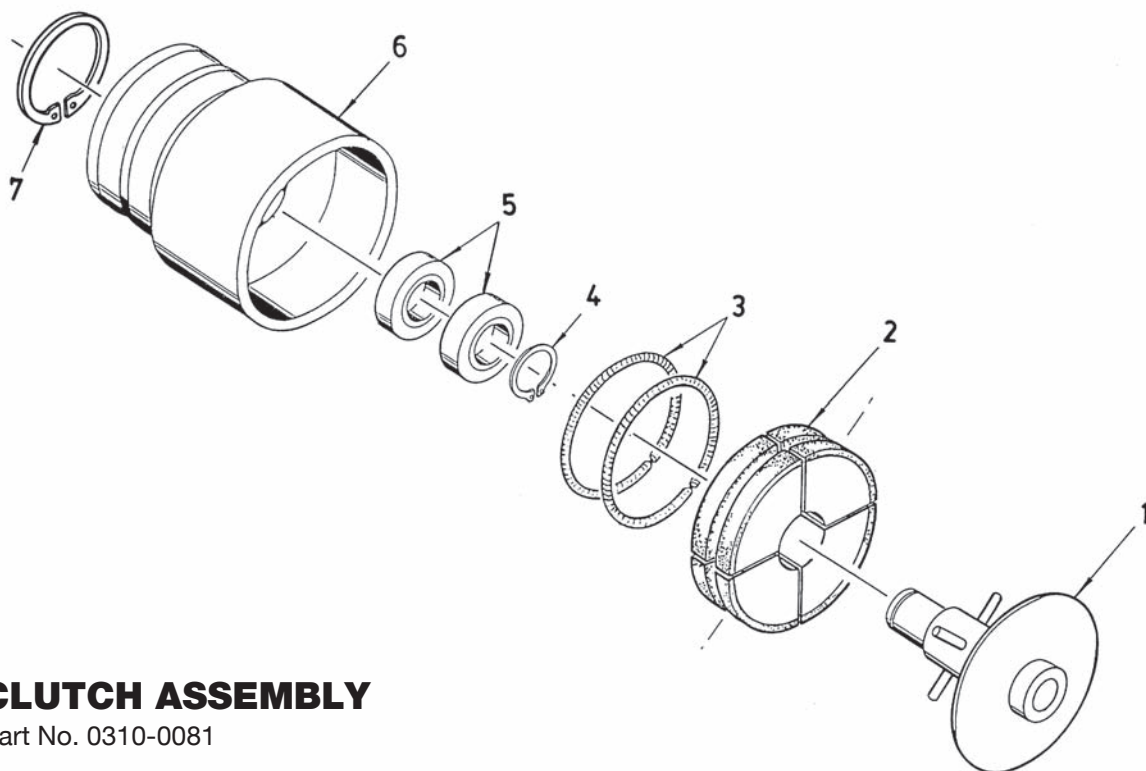
Item No.	Part No.	Description	Quantity
1	0209-0109	Bolt	4
2	2301-0018	Washer	14
3	0703-0039-003	Guard, Top Cover Extension	1
4	1401-0023	Nut	8
5	1808-0020	Rod, Tie	2
6	1901-0001	Screw	2
7	1913-0027	Spacer, Tube	1
8	0704-0039-001	Guard, Rear Extension Right Hand	1
9	0704-0039-002	Guard, Rear Extension Left Hand	1
10	0601-0005	Flap, Rear Discharge	1
	0704-0039	Rear Extension Kit, CMS 80 F/W Complete	
	1105-0015	Rear Extension Kit, CMS 80 T Complete	

**WHEN ORDERING, ALWAYS REFER TO THE PART BY PART NUMBER
USE ONLY GENUINE RED ROO PARTS WHEN SERVICING YOUR MACHINE**

PARTS LIST FOR CMS 80 DRAWING 6

Item No.	Part No.	Description	Quantity
1	1105-0016-001	Chute, Extension	1
2	1208-0023	Latch, Assembly	1
3	0208-0601	Bolt	4
4	1401-0002	Nut	4
5	0209-0318	Bolt	2
6	1401-0034	Nut	2
7	1401-0022	Washer	6
8	1401-0501	Nut	3
9	1105-0016-002	Hinge	1
10	1901-0616	Screw	3
	1105-0014	Kit, Side Chute Complete	





CLUTCH ASSEMBLY

Part No. 0310-0081

PARTS LIST FOR CLUTCH ASSEMBLY

Item No.	Part No.	Description	Quantity
1	0304-0001	Centre	1
2	1909-0003	Shoes, Clutch	1
3	1916-0014	Spring	2
4	1806-0004	Ring, Snap, External	1
5	0204-0013	Bearing	2
6	0406-0005	Drum	1
7	1806-0005	Ring, Snap, Internal	1

USE ONLY GENUINE RED ROO PARTS



STOP ENGINE IMMEDIATELY IF CHIPPER DISCHARGE CLOGS WITH MATERIAL OR THE CHIPPER DISC JAMS. FAILURE TO DO SO WILL RESULT IN CLUTCH DAMAGE.

CLUTCH DOES NOT REQUIRE LUBRICATION



0401-0065



0401-0034



0401-0062



0401-0044



0401-0095



0401-0076



0401-0053



0401-0001



0401-0093



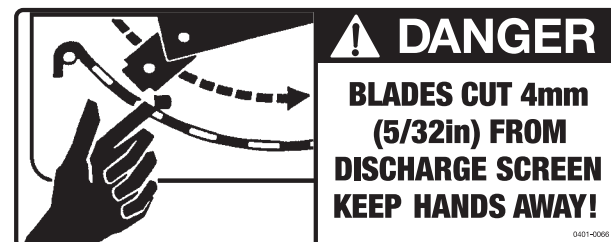
0401-0070



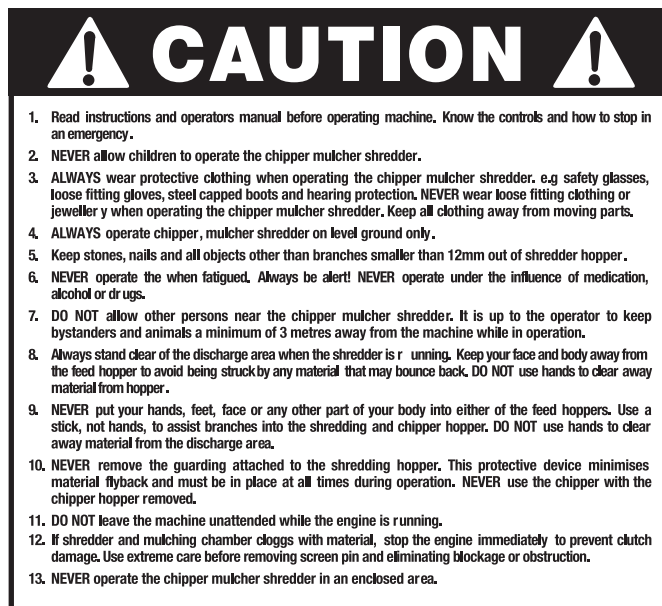
0401-0079



0401-0077



0401-0066



0401-0056

Superseding Warranty
Red Roo Group of Companies
Warranty Policy
effective January 1, 2010

Replaces all undated previous Warranties and all Warranties dated prior to January 1, 2010.

"For a time period shown below from date of purchase, pending owner registration, Red Roo Sales & Service Company, P/L, herein referred to as "MANUFACTURER", will, at its option, repair or replace for the original purchasers of new Red Roo equipment, free of charge, any part, or parts of the unit (excluding Power Unit, warranty coverage provided by respective engine manufacturer), found upon inspection and testing by a Factory Authorised Agent, or by the Factory at Keysborough, Victoria, to be defective in material or workmanship or both under normal operating conditions; this is the exclusive remedy. All transportation charges on parts submitted to the MANUFACTURER for replacement under this Warranty are the responsibility of the purchaser.

This Warranty shall not apply to any product that has been altered, modified, or operated in a manner not approved or recommended by the MANUFACTURER. Warranty will be null and void in the following circumstances: (1) repairs or attempted repairs have been performed by persons other than agents authorised by the MANUFACTURER; (2) repairs are required because of normal wear; (3) the unit has been subject to abuse or involved in an accident; (4) misuse is evident, such as that caused by an application that unit is not intended to perform.

The MANUFACTURER reserves the right to modify, alter, or otherwise improve any product or part.

The purchaser is responsible for the performance of regular maintenance services as specified in the operator manual applicable to the unit. Untimely and/or improper care and replacement of normal maintenance items (eg.: filters, belts, drive chains, blades, knives, lubricants) may void Warranty. Use of non genuine Red Roo parts may void Warranty.

THERE IS NO OTHER EXPRESS WARRANTY. IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO 14 DAYS FROM PURCHASE, AND TO THE EXTENT PERMITTED BY LAW ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED. LIABILITY FOR CONSEQUENTIAL DAMAGES UNDER ANY AND ALL WARRANTIES ARE EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW. RED ROO GROUP OF COMPANIES DOES NOT AUTHORISE ANY PERSON OR ENTITY TO CREATE FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH ITS PRODUCTS OR SERVICES. Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state."

Red Roo Sales & Service Company, P/L
James A. Kerr III
Managing Director

Warranty Period

	Consumer Use*	Commercial Use*
All Equipment	365 Days	90 Days

* For the purposes of this warranty policy, "consumer use" shall mean personal residential household use by the original retail consumer. "Commercial use" shall mean all other uses, including use for commercial, income producing or hire purposes. Once a unit has experienced commercial use, it shall thereafter be considered as a commercial use unit for purposes of this warranty policy.

Proper registration of your Red Roo equipment is required to obtain warranty service. It is the responsibility of the original purchaser to register equipment within 10 days of purchase.