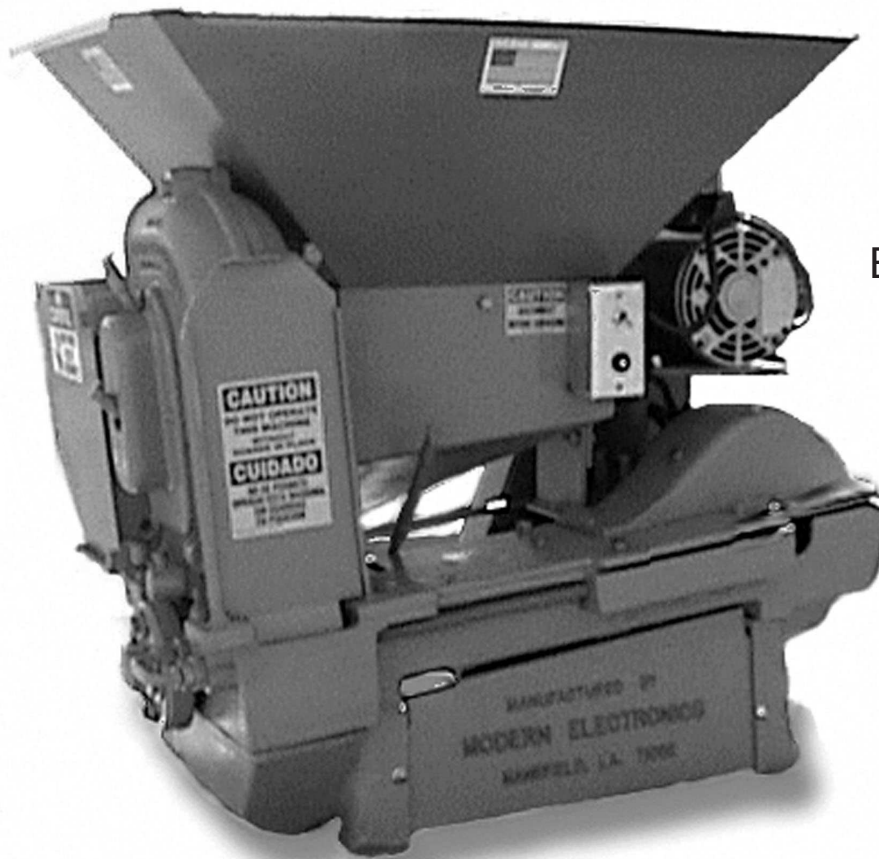




OPERATION & MAINTENANCE MANUAL

MODERN ELECTRONICS & EQUIPMENT, INC.

AUTOMATIC PECAN CRACKER



Food Processing
Equipment and Machinery
Specializing in the Pecan
Industry

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OPERATION & MAINTENANCE MANUAL

AUTOMATIC PECAN CRACKER

Instructions and helpful tips to operate your Automatic Pecan Cracker:

The cracker is shipped with the hopper bolted in place. Be sure to check the hopper before running the machine to remove any foreign objects that may be in the hopper.

General Instructions

The Pecan Cracker should be oiled before each use. An S.A.E. 20, or comparable light oil is recommended throughout the unit. Oil all Red Cups twice a day using 3-4 squirts of the oiler provider with a new Cracker or using a hand pump oiler. When maintaining the Pecan Cracker, pay special attention to the Slide Cover, C-6009. This part requires 6-8 squirts of oil twice a day, so that the oil can get to the moving parts of the Cracking Box. The Gray Cups should be kept full at all times. This is to make sure the Olite Bushings are replenished.

Part numbers and their location can be found on Drawing C-6108 in the back of the manual. These cleaning and re-lubrication instructions should be repeated at intervals during the life of the cracker. The frequency with which this should be done depends to a large extent upon the regularity with which the Cracking Box is lubricated during service. With regular lubrication the oil will aid in keeping the working parts clean. During cleaning process it is good

practice to check for parts that may be worn or need replacing. After crackers have been operating for several seasons on long runs, it may be more economical to return the entire Cracking Box to Modern Electronics for a complete reworking instead of replacing single parts. It depends entirely on the overall condition of the Cracking Box which method of upkeep is best.

After crackers have been in operation for about six months of daily operation, it is advisable that the Cracking Box be removed from the cracker for cleaning and re-lubrication to insure the highest efficiency in Cracking Box operation.

To Set Crack Adjustment:

Loosen red Set Screw, #115, located behind the Feed Chain and Hopper Bracket, C-8007-A. Use screwdriver to turn Crack Adjustment Screw located directly above Chain Adjustment Cap, C-2030, and Discharge Chute at front of machine. Turn clockwise for more crack, counter-clockwise for less crack. After desired adjustment is made, re-tighten Red Set Screw. This adjustment should be made with the Pecan Cracker running.

To Adjust Tension on Feed Chain Assembly:

Remove Inspection Plate, C-4020, located immediately above the Chain Adjustment Cap, C-2030. Insert a punch into one of the holes in the Chain Adjustment Nut, C-2394. Move punch

toward the right to tighten chain, toward the left to loosen chain. Care should be taken to tighten chain only sufficiently to prevent slack. Too tight adjustment on the chain will result in excessive wear.

To Adjust Feed Chain Timing:

On new crackers Feed Chain Timing Adjustment should be made within two to three weeks after Pecan Cracker is placed in operation. Inspection of Feed Chain Timing Adjustment should then be made about twice a month to make sure that the Nut Pockets are clearing the Cracking Box Die properly. Clearance between the Nut Pockets and the Cracking Box Die, as it moves through the Nut Pockets, must be maintained or Cracking Box Parts may be damaged.

To check adjustment the Cracker Drive Pulley, C-4507, should first be turned by hand until the Cracking Box Die has moved to the backside of the Nut Pocket. The Cracking Box Die should not be in the Nut Pocket at this time. Next, check to see if bottom of Nut Pocket is 1/16" to 3/32" below the Cracking Box Die. If this clearance is correct, no further adjustments is necessary. If clearance is not correct, adjustment may be needed.

To adjust Feed Chain Timing, remove the Inspection Plate, C-4020, and loosen the four cap screws in Chain Adjustment Cap, C-2030. Next, insert the Feed Chain Wrench, C-2141, in



Since 1966, Modern Electronics and Equipment has been serving the pecan industry nationwide by specializing in the fabrication of standard and custom pecan shelling equipment. Product lines consist of three different sizes of pecan shellers, pecan crackers, and a host of commercial and non-commercial equipment used during the pecan shelling process.

MODERN ELECTRONICS & EQUIPMENT, INC.

OUR SERVICES:

Modern Electronics and Equipment specializes in the fabrication of standard and custom pecan shelling equipment. We have been serving the needs of pecan shellers for more than 36 years. Our product line ranges from the most standard elevators to rare pieces of equipment such as gas chambers.

Modern Electronics can also build equipment for any food processing operation. We are here to produce the proper equipment needed to make an operation run as smooth as possible. Our expert staff will work with you to not only populate your plant to your specifications, we also have the expertise and knowledge to fulfill your most daunting custom fabrication needs. We also manufacture all the replacement parts for products previously owned by Meyer Machine Company.

There is no parts order is too small to fulfill.



NOTICE

Parts illustrated, and listed by number on the following pages, are for the latest model Modern Electronics & Equipment Pecan Cracker. When ordering replacement parts, please give serial number of your Pecan Cracker, plus the following additional information when ordering Cracking Box Yoke, C-2251 or Slide Plate, C-4165: Cracking Box Yoke, show diameter of pins, 1/2", 9/16", or 5/8". Slide Plate, show thickness of bottom plate, 3/8" or 1/2".

Please Note: Crackers after serial number 945 are considered "New Type", shipped 12-1957.

slot of the Sprocket Idler Shaft, C-2074. Turn Sprocket Idler Shaft in clockwise direction until proper clearance is obtained; if necessary, remove the four cap screws in the Chain Adjustment Cap, C-2030, to advance to the next Nut Pocket. NEVER TURN FEED CHAIN COUNTER-CLOCKWISE TO MAKE FEED CHAIN ADJUSTMENTS.

After proper clearance is obtained, tighten or reinstall the four cap screws in the Chain Adjustment Cap. Next, turn the Cracker by hand through two complete cycles to make sure the Cracking Box Die to Nut Pocket clearance is correct. If clearance is correct, operate machine.

To Change Nut Pockets:

Insert T-handled Wrench, C-2142, provided into socket head screws which fasten Nut Pockets to Feed Chain. Loosen screws, then remove Nut Pockets and replace with desired size Nut Pocket. In changing from one size set of Nut Pockets to another size, it is also necessary to remove the Tongue Casting** located at the bottom of the Nut Hopper. Also remove the Cracking Box Die (see next paragraph).

To remove Tongue Casting unscrew 3/8" cap screw, then slide casting out of machine. After the Nut Pockets have been changed, check the clearance with the Cracking Box Die and if necessary adjust as in preceding instructions.

** #11 and #13 Nut Pockets use Tongue Casting C-2087 while #15 and #18 Nut Pockets use Tongue Casting C-4460. Refer to Drawing C-6108.

To Remove Cracking Box:

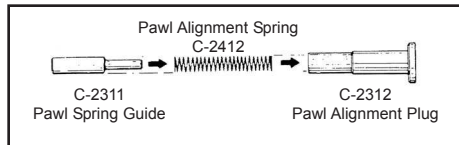
Unscrew Knockout Rod Bushing, C-2054, at the rear of the machine and remove the Knockout Rod, C-2420-B. Remove Cracking Box Slide Cover, C-6009, unscrew Drive Stud, C-2287, and lift the box out. After the Cracking Box has been removed, it can be clamped in a vise, taking care that clamping force is applied only to the bottom plate of the box. The Die Rack Spring may then be removed by removing the Die Rack Spring Nut. Use the T-Handle allen wrench supplied to hold pressure against the Die Rack Spring Nut as you unscrew it. Then ease the spring pressure off and remove Die Rack Spring. Failure to use caution in disassembling Cracking Box will cause bodily harm.

Cracking box and all parts should be cleaned in a suitable cleaning fluid, such as kerosene, and dried. Care should be taken that the small hole in the center of the Die Rack, C-4024, leading to the Cracking Die is cleaned of all dust and fine shell. This can be done by using a small round brush which can be passed through the hole.

In reassembling parts in the Cracking Box, care should be taken that parts are replaced in their proper working positions. Special attention should also be given to the Pawl Spring Adjustment Assembly, to make sure that Pawl Spring Guide C-2311 is assembled in spring and pawl alignment plug as shown below.

Parts should be re-lubricated as they are reassembled in the Cracking Box. After assembly of all parts, including Cracking Box Cover, C-2180, the Cracking Box can be replaced in the Cracker Frame and the Connecting Arm, C-2281, connected to the Drive Gear, C-4008, by inserting and tightening the Drive Stud, C-2287. The Slide Cover can then be replaced and reassembly is complete.

Drawing C-2728



IMPORTANT:

When reassembling a Cracking Box, be sure that Pawl Spring Guide, C-2311, Pawl Alignment Spring, C-2412, and Pawl Alignment Plug, C-2312, are assembled as shown to insure proper operation.

To Change Cracking Box Die:

Remove Cracking Box Slide Cover Assembly, C-6008-A, turn Drive Pulley, C-4507, counter-clockwise until Cracking Box is at the rear of machine, then place a punch against the shoulder of back of the die and drive forward and out. For correct combination of Nut Pockets, Tongue Casting and Cracking Die, refer to Drawing C-6108 on the back page of the Manual.

Position the tapered end of the Cracking Box Die into the end of the Cracking Box Die Rack, C-4024, with clean-out hole in the die facing the floor. Also the number stamped on the die should face the installer. Turn the Drive Pulley, C-4507, counter-clockwise until Cracking Box is at the front of the machine. Lift Inspection Door, C-2036, insert brass rod through Inspection Door opening until it contacts the Cracking Box Die. Then use a hammer to drive the Cracking Box Die into the Die Rack.

Carrier Chain Oil Cup:

The red cup, on the front of the Pecan Cracker, MUST BE FILLED EACH DAY while the Cracker is in operation. Periodic inspection of the Carrier Chain should be made by removing the Inspection Cover, C-4020, on the front of the Feed Chain Plate, C-8008-A.

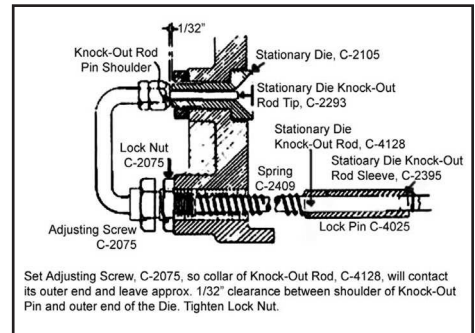
A properly lubricated Carrier Chain should ride freely in a straight vertical line between sprockets. If the Chain shows a tendency to buckle, it is not receiving sufficient lubrication. In such instance, additional oil should be applied to the Carrier Chain until it runs free. If this oil cup remains full, cup and tubing should be immediately checked for possible clogging. Insufficient lubrication will result in excessive chain wear, binding of chain, and mis-alignment of Nut Pockets with Cracking Box Die.

Removing Stationary Die Knockout Rod:

Refer to Drawing C-2440. Simply loosen Lock Nut, C-2075, and the entire assembly can be removed by unscrewing the Adjusting Screw.

Drawing C-2440

Note A:



For proper crack, follow directions as outlined in paragraph labeled "To Set Crack Adjustment". Adjust Pecan Cracker just hard enough to crack shell completely around all nuts.

Note B:

When reassembling chain, make sure that Nut Pocket attachment holes are on bottom ends of chain links on cracking side of unit. Refer to Drawing C-6108.

Safety Guidelines:

The Modern Electronics Pecan Cracker comes equipped with Protective Guards. DO NOT OPERATE THIS MACHINE WITHOUT PROTECTIVE GUARDS IN PLACE. Stop the Pecan Cracker before performing maintenance and before performing any other activities that will require removal of Protective Guards. Stop the Cracker before reaching inside the machine with body parts (i.e. hands, fingers, etc.) or tools. Failure to follow these guidelines can result in severe injury or even death. Unless otherwise specified, before operating this machine, alert employees of safety guidelines. As always, common sense and direct and clear instruction will keep everyone safe.

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Cracker Box Parts



C-2054 Cracking Box Rod Bushing
 C-2057 #18 Cracking Box Die
 C-2060 Crack Adjustment Spring Holder
 C-2076 Carriage Spring Plug
 C-2104 #13 Cracking Box Die
 C-2108 Square Yoke Bushing, for 1/2" Slide Plate
 C-2132 #11 Cracking Box Die
 C-2134 #15 Cracking Box Die
 C-2180 Cracking Box Cover with (4) #132 Screws
 C-2251-C Cracking Box Yoke
 C-2281 Connecting Arm
 *C-2282-A Rear Die Block without Tubes and Holes
 *C-2282-B Rear Die Block with Holes, Machined with C-2422 & C-2283
 *C-2283 Carriage Spring Holder Welded to C-2282
 *C-2284 Wrist Pin Block

*C-2285 Front Die Block
 *C-2286 Adjustment Spring Guide
 C-2287 Drive Stud
 C-2288-C Tapered Pawl 5/8": A=1/2", B=9/16"
 C-2311 Pawl Spring Guide
 C-2312 Pawl Alignment Plug
 C-2407 Crack Adjustment Spring
 C-2412 Pawl Spring
 *C-2420-A Cracking Box Knockout Rod (Old) Goes thru Casting with 2 Cotter Keys- No Photo
 C-2420-B Cracking Box Knockout Rod (New) Has Bushing that Screws in with Collar
 C-2421 Wrist Pin, New Type
 C-2423 Die Rack Spring Nut
 C-2424 Die Rack Spring Guide
 C-2454-D Die Rack Spring
 C-2455 Carriage Spring (Slide Return)

C-2726-D Square Yoke Bushing, State Size of Bore: 1/2", 9/16", 5/8"
 C-4024-B Cracking Box Die Rack for 1/2" Slide Plate
 **C-4165-B Slide Plate, Thickness of Bottom Plate: 1/2"
 ***C-6042 Cracking Box Frame
 *C-7776 Cracking Box Assembly
 *C-7776-H Cracking Box Assembly, Heat Treated
 #130 3/8" x 7/8" SAE Allen Head Dog Point Set Screw
 #119 3/8" SAE Lock Nut
 #132 1/4" x 3/4" Flat Head or Socket Cap Screws
 #133 1/8" x 3/4" Cotter Key
 #188 #4 x 1-5/8" Taper Pin
 #194 5/16" x 3/4" Dowel Pin
 *#195 1/4" x 1/2" Socket Head Cap Screw

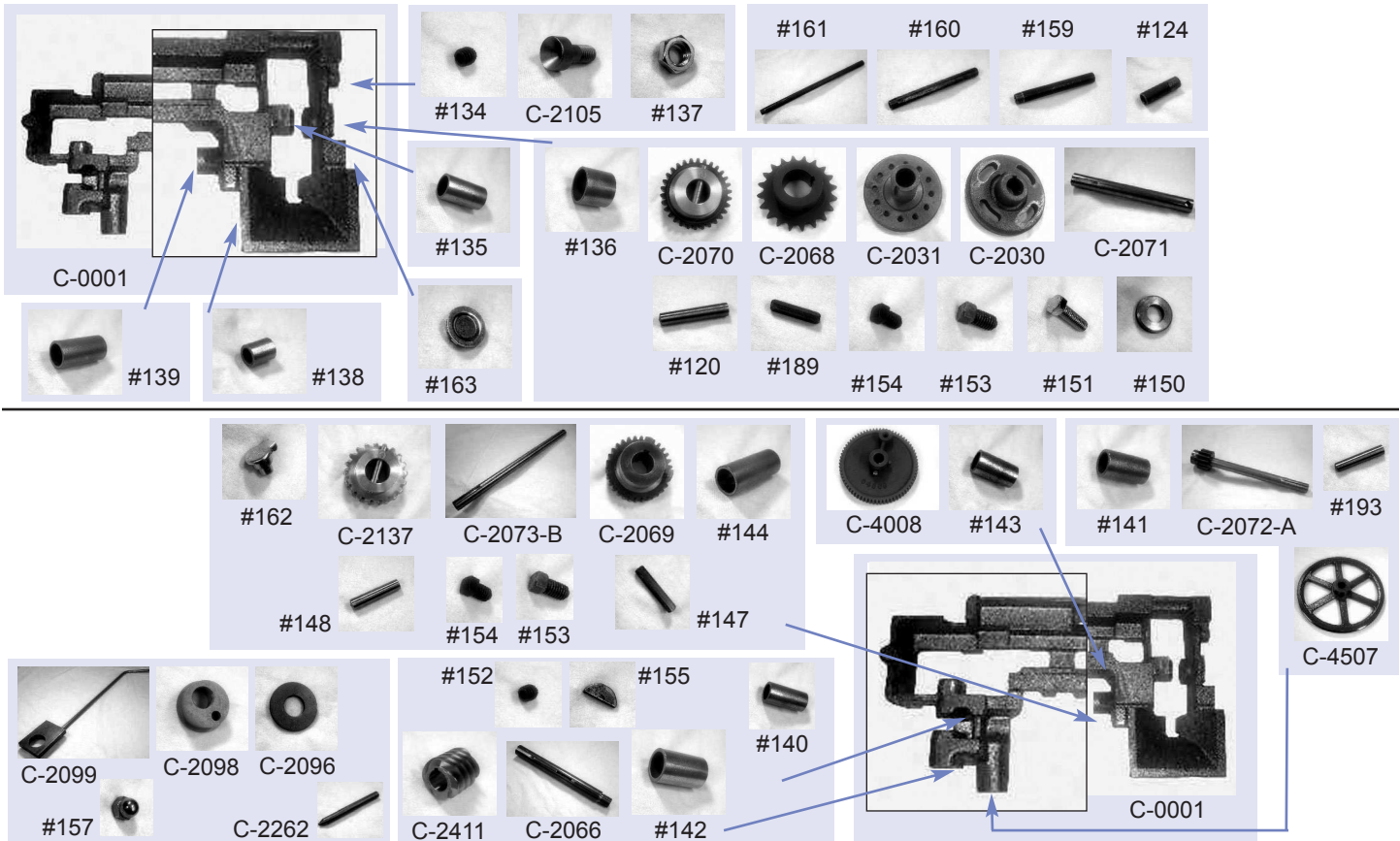
* Not Pictured

** C-4165-A Slide Plate, 3/8" NO LONGER AVAILABLE - Must Purchase Conversion Kit Consisting of: C-2108-A, C-2251-C, C-2288-C, C-2726-D, C-4024-B, and C-4165-B.

*** C-6042 Cracking Box Frame is available as one part. It consists of C-2282 Rear Die Block, C-2283 Carriage Spring Holder, C-2284 Wrist Pin Block, C-2285 Front Die Guide, and C-2286 Adjustment Spring Guide.

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Cracker Frame Parts

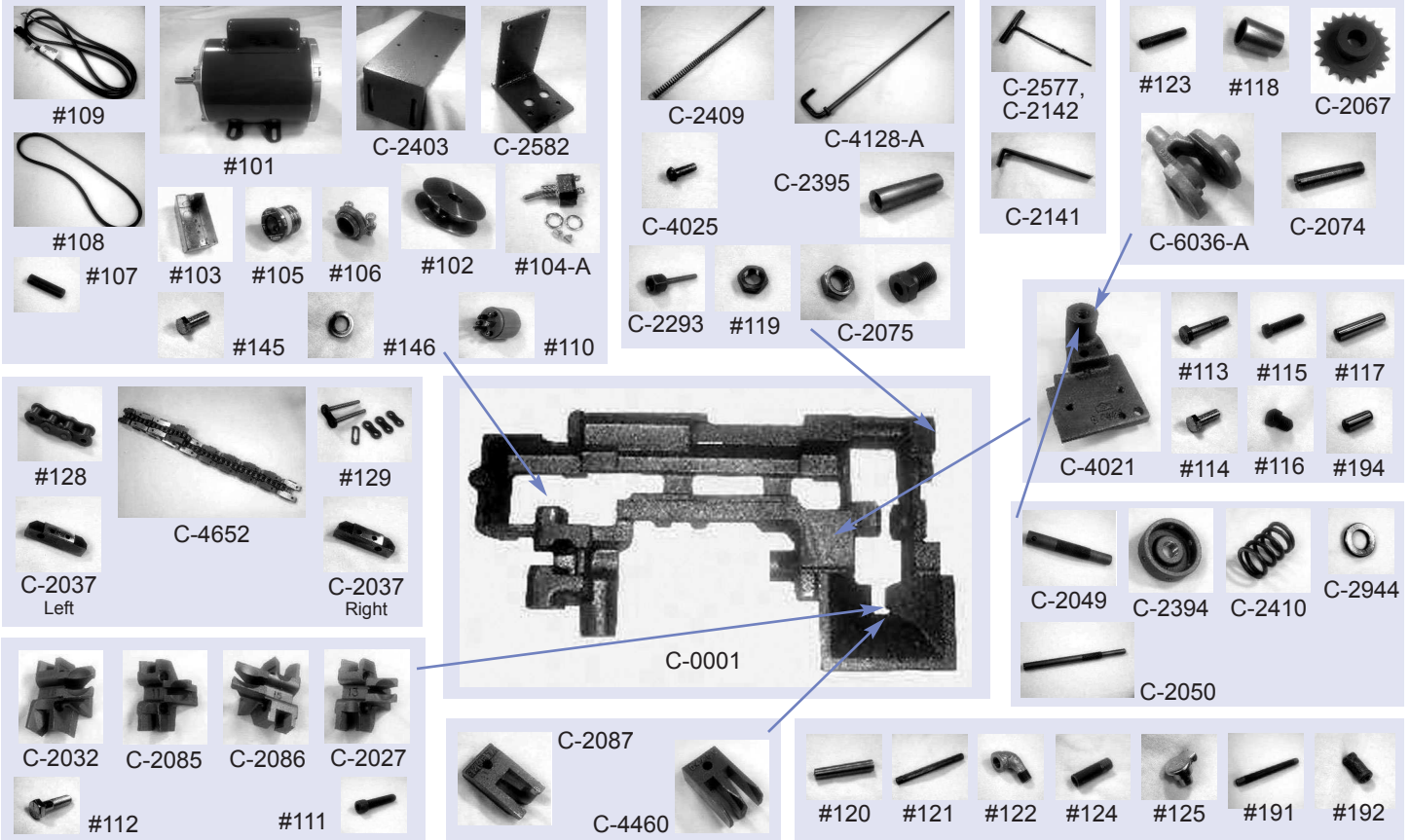


C-0001	Cracker Frame (with bushings)	C-2096	Eccentric Washer	#143	7/8" x 1-1/8" x 2" Bronze Bushing
C-2030	Chain Adjustment Cap with #189 Key	C-2098	Vibrator Eccentric	#144	1" x 1-1/4" x 3" Bronze Bushing
C-2031	Sprocket Adjustment Bearing with #189 Key	C-2099	Vibrator Shaft with C-2097 Connector	#147	1/4" x 1/4" x 1-3/4" Key
C-2066	Cracker Drive Shaft	C-2105	Stationary Die	#148	#7 x 1-3/4" Taper Pin
C-2068	Lower Chain Sprocket, 20 Tooth with #189 Key	C-2137	Bronze Worm Gear-Hub out or in with #148 Taper Pin	#150	7/16" x 1" x 3/16" Washer
C-2069	Drive Shaft Gear, 30 Tooth with #147 Key	C-2262	Drive Shaft Pin	#151	7/16" x 1-1/4" Hex Head Cap Screws
C-2070	Sprocket Shaft Gear, 30 Tooth with #120 Taper Pin	C-2411	Steel Worm, Hardened & Polished	#152	3/8" x 3/8" Allen Head Set Screw
C-2071	Sprocket Drive Shaft with #120 Taper Pin	C-4008	Drive Gear	#153	3/8" x 5/8" Square Head Set Screw
*C-2072	Pinion Shaft Only with #193 Taper Pin	C-4507	Drive Pulley	#154	3/8" x 1/2" Square Head Set Screw
C-2072-A	Pinion Gear and Shaft Assembly	#120	#7 x 2" Taper Pin	#155	#19 x 3/16" x 1-1/4" Woodruff Key
*C-2072-B	Pinion Gear Only with #193 Taper Pin	#124	Oil Pipe, 1-1/4" Long	#157	3/8" Acorn Nut
*C-2073-A	Feed Chain Drive Shaft with #148 Taper Pin (Old 18-7/8")	#134	3/8" x 3/8" Allen Head Set Screw	#159	Oil Pipe, 3-1/4" Long
C-2073-B	Feed Chain Drive Shaft with #148 Taper Pin (New 19-5/8")	#135	1" x 1-1/4" x 2-1/4" Bronze Bushing	#160	Oil Pipe, 4-1/4" Long
		#136	1-1/2" x 1-3/4" x 1-1/2" Bronze Bushing	#161	Oil Pipe, 8-1/2" Long
		#137	5/8" Hex Nut	#162	Glt's Oil Cup, #325
		#138	7/16" x 5/8" x 3/4" Bronze Bushing	#163	Plug
		#139	1-1/4" x 1" x 2-1/2" Bronze Bushing	#189	1/4" x 1-1/4" Key
		#140	3/4" x 1" x 2" Bronze Bushing	#193	#4 x 1-1/4" Taper Pin
		#141	3/4" x 1" x 1-3/4" Bronze Bushing		
		#142	7/8" x 1-1/8" x 1-3/4" Bronze Bushing		

* Not Pictured

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Cracker Drive Parts

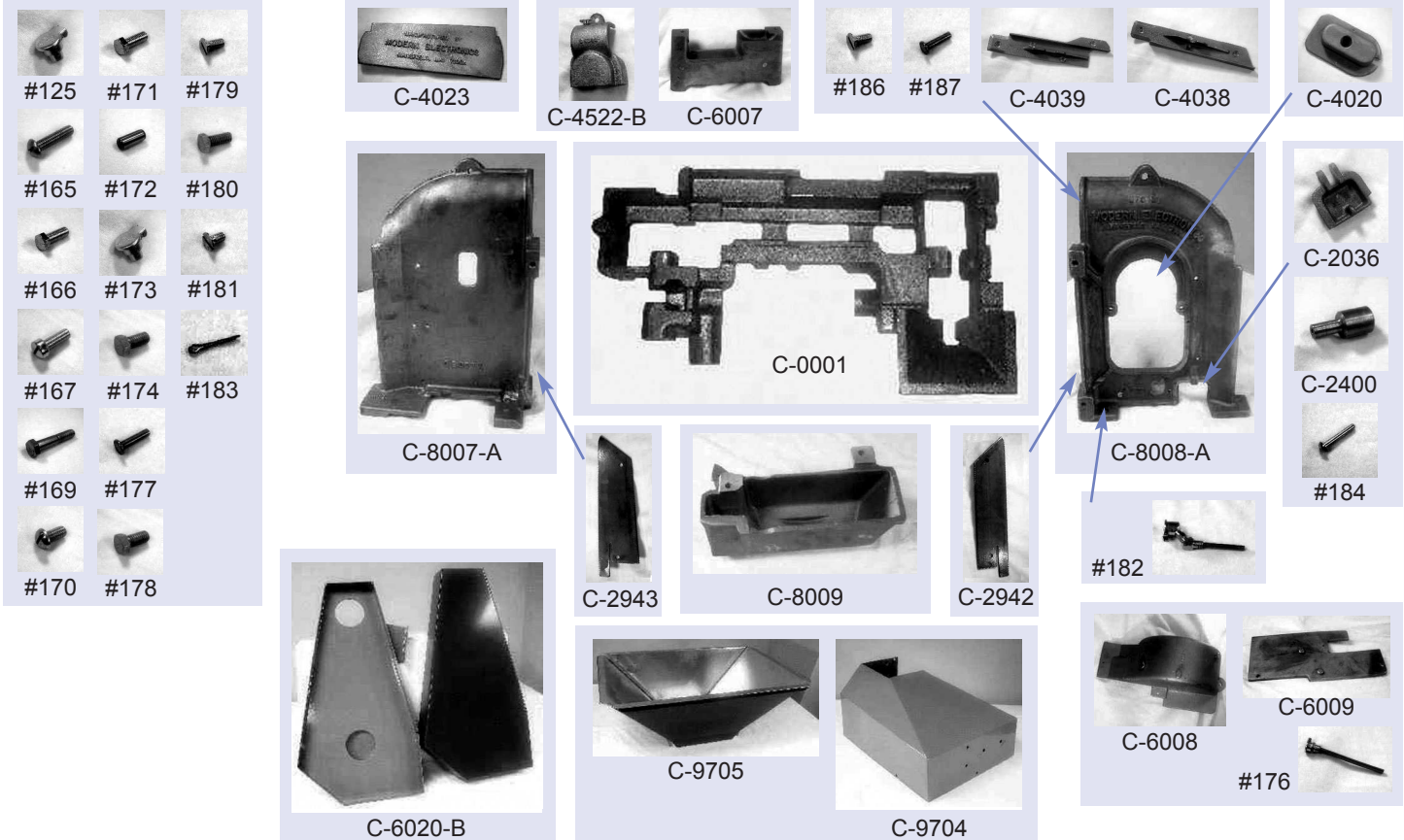


C-2027	#13 Nut Pocket	C-2944	Chain Yoke Washer	#111	5/16" x 1-1/2" Socket Head Cap Screw
C-2032	#18 Nut Pocket	C-4021	Lower Chain Bracket	#112	3/8" x 1-1/2" Hex Cap Screw
C-2037	Chain Bar, Right Hand	C-4025	Lock Pin	#113	3/8" x 2" Hex Head Cap Screw
C-2037	Chain Bar, Left Hand	C-4128-A	Stationary Die Knockout Rod	#114	3/8" x 1" Hex Head Cap Screw
C-2049	Chain Adjustment Pin	*C-4128-B	Stationary Die Knockout Rod Assembly	#115	3/8" x 1/2" Square Head Set Screw
C-2050	Crack Adjustment Screw	C-4460	#15, #18 Tongue Casting	#116	3/8" x 1/2" Square Head Set Screw
C-2067	Top Chain Sprocket, 20 Teeth with #120 Taper Pin	C-4652	Feed Chain Assembly without Nut Pockets	#117	5/16" x 1/2" Dowel Pin
C-2074	Sprocket Idler Shaft with #120 Taper Pin	C-6036-A	Chain Yoke Assembly with (2) #118	#118	1" x 1-1/4" x 1-3/4" Bronze Bushing
C-2075	Knockout Rod Screw and Nut	#101	1/3 HP Master Motor, 110-220 Volt	#119	3/8" SAE Lock Nut
C-2085	#11 Nut Pockets	#102	Motor Pulley with #107	#120	#7 x 2" Taper Pin
C-2086	#15 Nut Pockets	#103	Motor Switch Box	#121	Oil Pipe, 4-1/4" Long
C-2087	#11, #13 Tongue Casting	*#104	Motor Switch & Circuit Breaker Assembly	#122	Street Ell - 1/8" Pipe
C-2141	Feed Chain Wrench	#104-A	Toggle Switch	#123	Oil Pipe, 2-1/4" Long
C-2142	Nut Pocket Wrench	#105	8 Amp Fuse	#124	Oil Pipe, 1-1/4" Long
C-2293	Stationary Die Knockout Rod Tip	*#105-A	10 Amp Circuit Breaker	#125	Gits Oiler 5/16", #325
C-2394	Chain Adjustment Nut	#106	Motor Cord Clamp	#128	Chain Section
C-2395	Stationary Die Knockout Rod Sleeve	#107	Motor Pulley Key	#129	Chain Pin Link
C-2403	Motor Bracket	#108	V Belt	#145	3/8" x 1" Hex Head Cap Screws
C-2409	Stationary Die Knockout Rod Spring	#109	Motor Cord (14/3 Wire)	#146	3/8" Lock Washer
C-2410	Chain Yoke Washer	#110	Motor Cord Male Plug (3 Prong)	#191	4" Oil Pipe
C-2577	Die Rack Spring Wrench			#192	45° Elbow
C-2582	Vertical-Horizontal Brace Plate			#194	5/16" x 3/4" Dowel Pin

* Not Pictured

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Cracker Cover Parts



C-2036 Inspection Door
 C-2400 Inspection Door Weight
 C-2942 Left Hand Nut Pocket Guide
 C-2943 Right Hand Nut Pocket Guide
 C-4020 Inspection Plate
 C-4023 Name Plate
 C-4038 Nut Guide Strip, Right
 C-4039 Nut Guide Strip, Left
 C-4522-B Worm Gear Guard, New Type
 C-6007 Rear Leg
 C-6008 Drive Gear Cover (New Only)
 *C-6008-A Drive Gear Cover/Slide Cover Assembly
 C-6009 Slide Cover with (2) #177
 C-6020 Sheet Metal Belt Guard
 C-8007-A Feed Chain and Hooper Bracket

C-8008-A Feed Chain Plate
 C-8009 Front Leg
 C-9704 Hopper Base
 C-9705 Hopper Top

 #125 Gits Oil Cup, #325
 #165 5/16" x 1-1/4" Round Head Screw
 #166 3/8" x 1" Hex Head Cap Screw
 #167 3/8" x 1" Fillister Head Screw
 #169 3/8" x 2" Hex Head Cap Screw
 #170 5/16" x 5/8" Round Head Machine Screw
 #171 3/8" x 1" Hex Head Cap Screw
 #172 5/16" x 3/4" Dowel Pin
 #173 Gits Oil Cup, #325
 #174 3/8" x 3/4" Round Head Bolt

#176 Gits Oiler with Copper Tubing
 #177 #10 x 5/8" Rivets
 #178 3/8" x 3/4" Hex Head Cap Screw
 #179 1/4" x 5/8" Flat Head Screw
 #180 5/16" x 3/4" Hex Head Cap Screw
 #181 1/4" x 1/2" Flat Head Screw
 #182 Chain Oiler with Copper Tubing and 40° or 45° Elbow
 #183 1/16" x 1/2" Cotter Pin
 #184 3/16" x 1-1/8" Dowel Pin
 *#185 1/16" Flat Washer
 #186 1/4" x 5/8" Flat Head Screw
 #187 1/4" x 1/2" Flat Head Screw

* Not Pictured

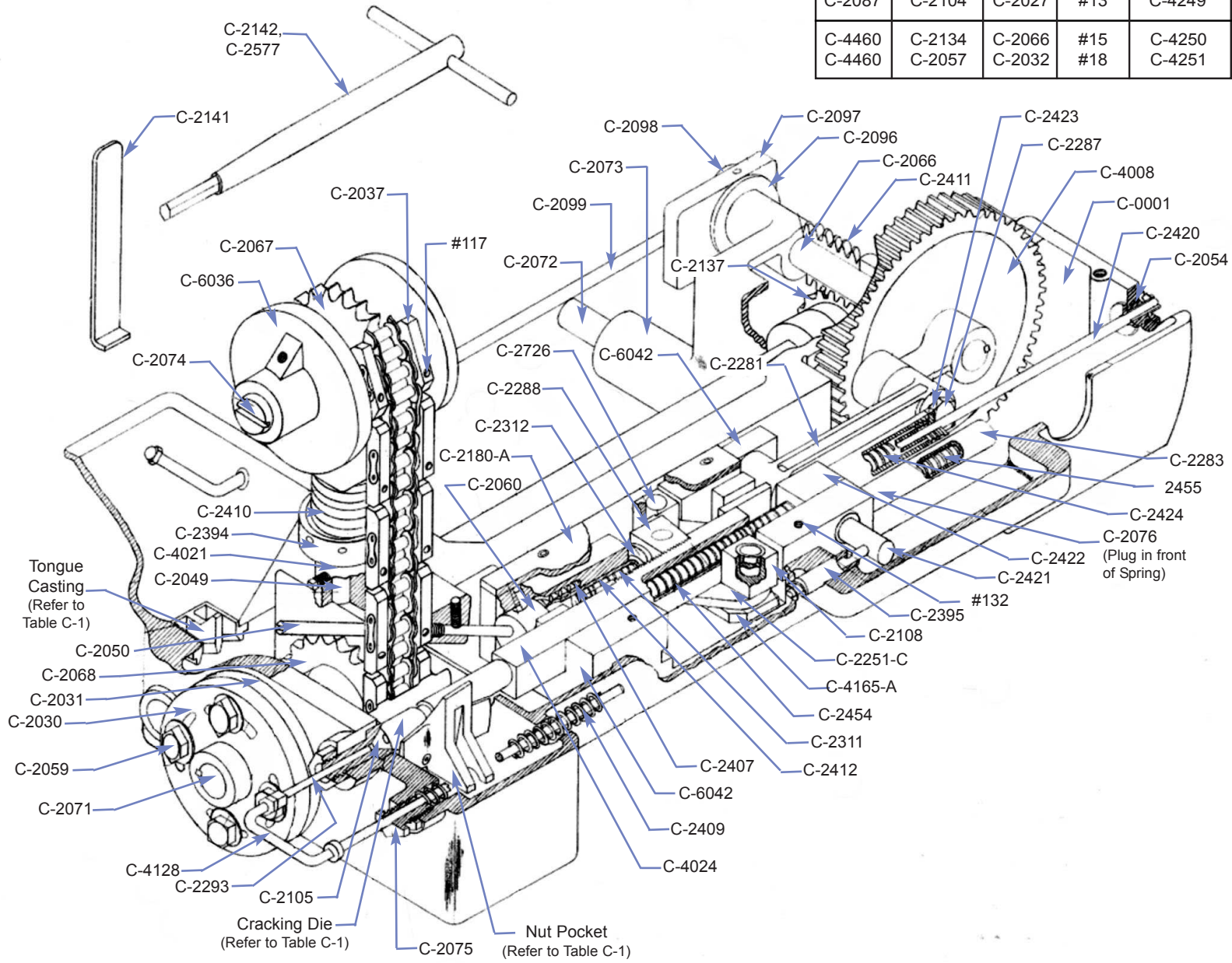


TABLE C-1				
Tongue Casting	Cracking Die	Nut Pocket	Pecan Size	Nut Pocket Machining
C-2087	C-2132	C-2085	#11	C-4248
C-2087	C-2104	C-2027	#13	C-4249
C-4460	C-2134	C-2066	#15	C-4250
C-4460	C-2057	C-2032	#18	C-4251

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