McCULLOCH SERVICE BULLETIN

NO. 1712

MODEL: Power Mac 300 Series DATE: August 5, 1981

SUBJECT: Unit Modification Program

Our initial evaluation of the cause of fastener loosening on Power Mac 320 series units indicated a need to increase fastener diameter from 5mm to 6mm (see Service Bulletin 1709). On our on-going product improvement efforts on the PM 300 series, we have determined that:

I. Sprocket configuration could contribute to the vibration characteristic that was the cause of fastener loosening.

II. New methods of securing the top and bottom shrouds to the cylinder that would maintain the required torque had to be developed.

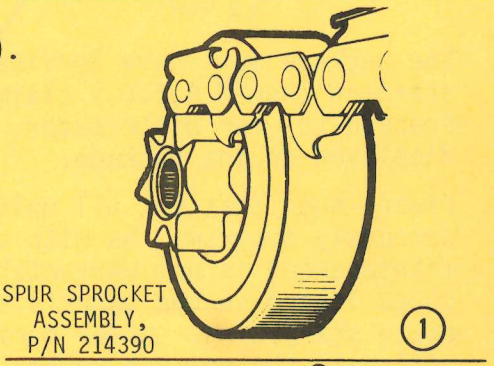
III. A change in muffler fasteners was needed. The unsupported weight of the extended head of the muffler screws contributed to some of the muffler fastener loosening.

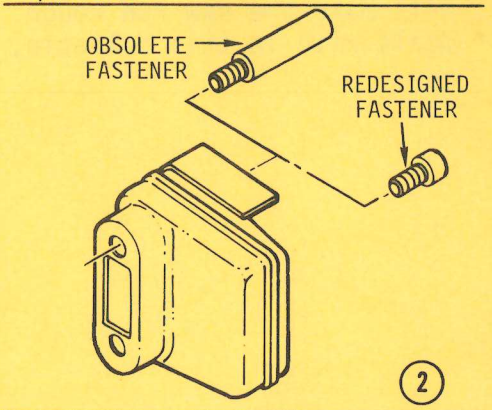
Having identified these problems through field reports (warranty claims) and pinpointing the causes through our continued evaluations, we have made three significant changes that have been incorporated on all current production PM 300 series units:

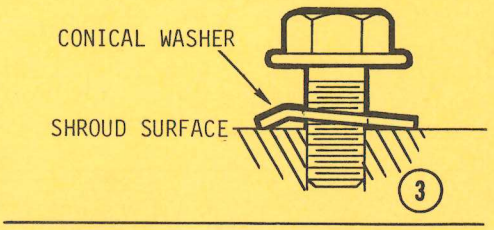
I. Replacement of the clover-leaf type sprocket with spur-type Sprocket/Drum/Bearing, P/N 214390 (Fig. 1). Because the spur sprocket is concentric, it drives the chain more smoothly, and is more tolerant of variances in chain condition.

II. A redesigned muffler assembly is currently used on all PM 300 units now being manufactured. The new muffler is secured to the cylinder with special screws that eliminate the unsupported mass (and weight) of the old shoulder screw (Figure 2).

III. Specially designed conical type washers have been developed for use with each of the shroud-to-cylinder fasteners (Figure 3). These convex washers provide increased locking capabilities and, in addition, allow for increased fastener torque.







Included with this Service Bulletin you will find a copy of Service Information 195, which details fixes in these three areas for problem units now in the field. The labor rates that apply vary according to the type of repair each unit requires. Time studies were performed on each rework and are listed below.

Section I. Labor Rate: 0.5 Hr.

Units repairs that require muffler and sprocket replacement (with good cylinder threads), and adding a conical washer to each shroud fastener.

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Section II. Labor Rate: 0.7 Hr.

Unit repairs that require muffler and sprocket replacement (with cylinder thread that must be tapped). And adding a conical washer to each shroud fastener.

Section III. Labor Rate: 0.9 Hr.

Unit repairs that require muffler and sprocket replacement (with cylinder threads that require a Heli-Coil), and adding a conical washer to each shroud fastener.

Each warranty claim submitted for this rework program must be sent with the replaced muffler and sprocket/drum assembly. Tie the components to be returned together for ease of shipment and to facilitate warranty processing on these claims. Components will be examined before the claim is approved and processed. Keep each warranty claim and associated parts separate from other claims.

Warranty claims submitted under this program must include date of sale, unit serial number and customer name and address. In addition, under the "Cause of Failure or Repairs Performed" section of the claim, reference this Service Bulletin and the Section number of the repair (e.g. Service Bulletin 1712, Section I).

If you are a M.A.S.C. dealer, send the claim and returned components Best Way, Surface, Prepaid to this address:

Master

McCulloch Corporation
5401 Beethoven Street
Los Angeles, CA 90066

The package must have Service Bulletin 1712 written prominantly on it. If this is a standard (non-M.A.S.C.) claim, send it and the replaced components Best Way, Surface, Prepaid to your distributor. Again, this Service Bulletin (1712) must be prominantly displayed on the package.

Please note that not all units returned for repair should be covered under this special warrantly program. As with any unit under warranty, customer abuse (lack of standard saw maintenance) is not warrantable. The customer is responsible for the maintenance procedures listed in the owner's manual, for example, tightening of all fasteners and regular chain sharpening. Under normal use, the saw's fasteners will loosen and a dull chain will make the saw run rough. These symptoms should not be confused with the problems dealt with in this bulletin.

McCULLOCH CORPORATION

Product Service Department

POWER MAC 300 SERIES REPAIR PROGRAM

The following service instructions are specific to the build level of each unit (identified by serial number prefix) and also the service problem encountered.

As noted in Service Bulletin 1712, this special program is divided into three types of repair. Before attempting any modification, first, identify the unit in question. Then, thoroughly inspect fastener and cylinder threads for signs of damage, elongation, rounding of threads and other indications that the component is unusable. Then proceed with the proper repair.

SECTION I. Units with serial number prefix 11- and 12-/no cylinder thread damage.

FLAT RATE TIME - .5 Hr.

REQUIRED COMPONENTS

P/N	DESCRIPTION	QTY.	MFG. SUGG. LIST PRICE
214390	Spur sprocket/Drum/Bearing Assembly 215252	1	$ 9.95
~~215412~~	Muffler Kit (5mm threads, 11-Level units)	1	7.95
215411	Muffler Kit (6mm threads, 12-Level units)	1	8.95
215429	Set - Conical Washer (5mm threads)*	1	.60
215430	Set - Conical Washer (6mm threads)*	1	.60
215622	Green Loctite (50cc)	A/R	11.95

* One set of conical washers is required for each unit repaired. Units with serial number prefix 11- (5mm screws) use Conical Washer Set, P/N 215429. Units with serial number prefix 12- (6mm screws) use Conical Washer Set, P/N 215430.

INSTALLATION

The repairs listed in this section are basic muffler and sprocket replacement. These repairs also include adding washers to the shroud screws. In each instance, follow the installation instructions contained in the service kit being installed.

1. Install the Spur Sprocket/Drum/Bearing Assembly, P/N 214390. Follow the instructions provided with the sprocket assembly,
2. Replace the muffler assembly. Use Muffler Kit, P/N 215412, for 11-level units with 5mm threads. Muffler Assembly, P/N 215411, is used as replacement on 11- and 12-level units with 6mm threads.
3. Install a conical washer on each cylinder-to-shroud retaining screw. The conical washers must be installed properly. Follow the instructions (included in kit) carefully.

SECTION II. Units with serial number prefix 11-(5mm)/ damaged cylinder threads.

FLAT RATE TIME - .7 Hr.

REQUIRED COMPONENTS

P/N	DESCRIPTION	QTY.	MFG. SUGG. LIST PRICE
214390	Spur Sprocket/Drum/Bearing Assembly	1	$ 9.95
215411	Muffler Kit (6mm threads)	1	8.95
213369	Shroud Screws (self-tapping)	4	.14
214350	Insulator	2	.35
215429	Set - Conical Washer	1	.60
215622	Green Loctite (50cc)	A/R	11.95

INSTALLATION

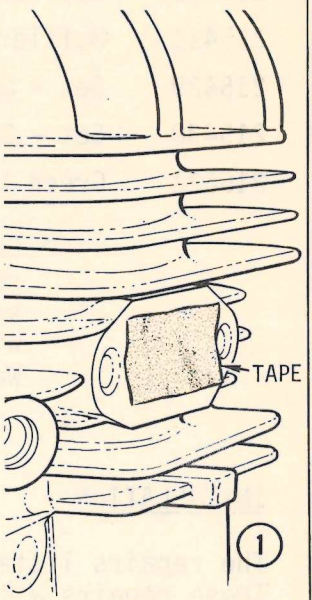
A. SPROCKET REPLACEMENT

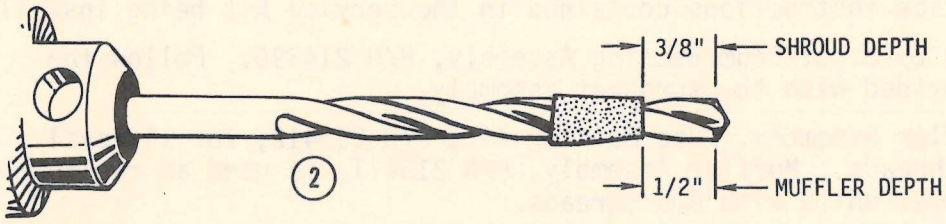
1. Install the Spur Sprocket/Drum/Bearing Assembly, P/N 214390. Follow the instructions provided with the sprocket assembly.

B. MUFFLER REPLACEMENT

1. Remove the muffler deflector plate and the old muffler body.
2. Place a piece of tape across both the exhaust port openings to prevent debris from entering the cylinder. ①
3. Using a #3 (.213") drill, enlarge the cylinder muffler retaining holes. These cylinder holes should be drilled to a depth of 1/2".

   CAUTION: Mark the drill bit at 1/2" from the tip. This will act as a guideline to ensure the proper depth when drilling. Do not exceed the 1/2" depth, or cylinder damage could result. ②





4. The muffler screws are not self-tapping. To cut threads into the cylinder hole, use the self-tapping shroud retaining screw, P/N 213369. Be certain the screws are installed square to muffler mounting surface to ensure a proper holding angle.

5. Remove the self-tapping screw. Install the muffler assembly using the special muffler screws included in the muffler kit. Apply Locquic, then green Loctite and torque 70-80 in. x lbs.

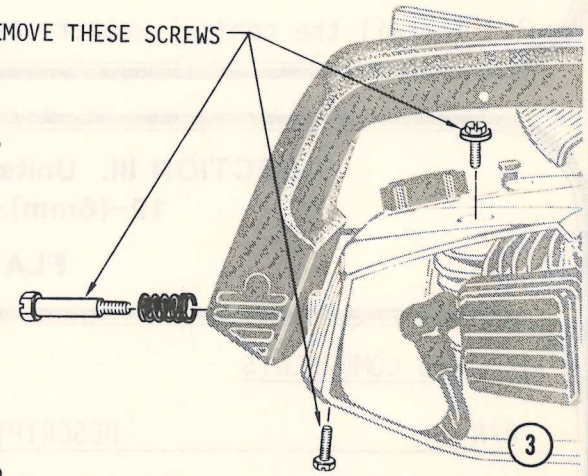
   NOTE: Before reinstalling a self-tapping screw, clean the screw threads with a wire brush to remove any shavings. Installing an uncleaned screw can damage cylinder threads, resulting in poor retention.

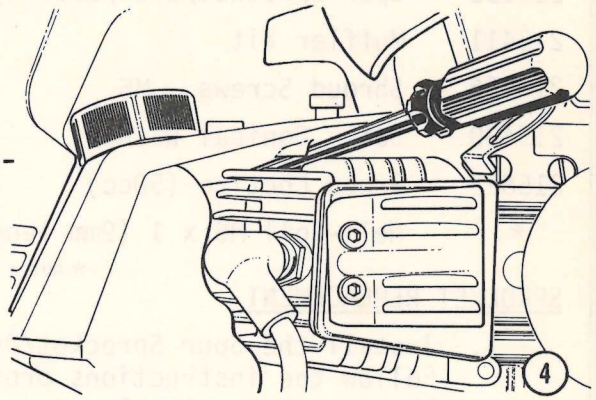
C. SHROUD MODIFICATION AND FASTENER REPLACEMENT

TOP SHROUD

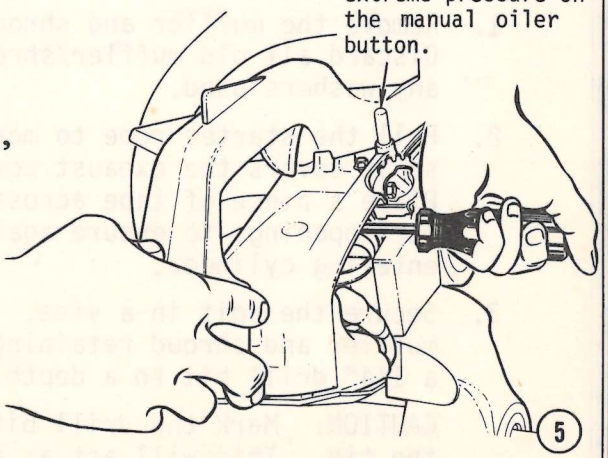
1. Remove the fan housing.
2. Remove the top rear shroud retaining screw, the bottom rear shroud screw, and the rear handle mount screw. ③
3. Remove and discard the old shroud screws and insulating washers (if equipped).
4. Loosen the top shroud screw, and pry the rear portion of the shroud up with a large screwdriver to remove the old insulator. ④
5. Secure the unit in vise or table top clamp. Pull the handle assembly up and to the side, being careful not to put extreme pressure on the manual oiler button. ⑤
6. Using a 3/8" (6.35mm) drill, enlarge the rear shroud hole.
7. With the shroud in line, enlarge the cylinder hole using a #3 (.213") drill. Drill the cylinder holes to the original depth of 5/8".

   CAUTION: When drilling out threads, very little resistance will be felt. To protect against drilling too deep, mark the drill bit at 5/8" from the tip. Use this mark as a guide line to ensure the proper depth when drilling, and to prevent damage to the cylinder.
8. Pry the shroud up, using a screwdriver and slip the new insulator into position.
9. Install conical washer on the Shroud Screw, P/N 213369. Apply Locquic, then Green Loctite, then install screw in the top rear shroud hole. Torque 90-100 in. x lbs.
10. Remove the top front shroud screw.
11. Using a #3 (.213") drill, enlarge the front shroud and cylinder hole at the same time. Hole depth should not exceed 5/8".
12. Install conical washer on the next shroud screw, P/N 213369, apply Locquic, then Green Loctite, and torque 90-100 in. x lbs.





CAUTION: Do not put extreme pressure on the manual oiler button.



BOTTOM SHROUD

If the bottom shroud is equipped with an insulator, use the same procedures used to modify the top shroud and cylinder holes.

If the bottom shroud is not equipped with an insulator:

1. Enlarge the bottom shroud holes and cylinder holes at the same time, using a #3 (.213") drill to a depth of 5/8".
2. Install the new insulator between the shroud and cylinder.
3. Install the conical washer, apply Green Loctite and torque 90-100 in. x lbs.

SECTION III. Units with serial number prefix 11- and 12-(6mm)/damaged cylinder threads.

FLAT RATE TIME - .9 Hr.

REQUIRED COMPONENTS

P/N	DESCRIPTION	QTY.	MFG. SUGG. LIST PRICE
214390	Spur Sprocket/Drum/Bearing Assembly	1	$ 9.95
215411	Muffler Kit	1	8.95
213166	Shroud Screws - M6	4	.18
215430	Set - Conical Washer	1	.60
215622	Green Loctite (50cc)	A/R	11.95
*	Heli-Coil M6 x 1 (9mm length)	6	- -

* Not a McCulloch service part.

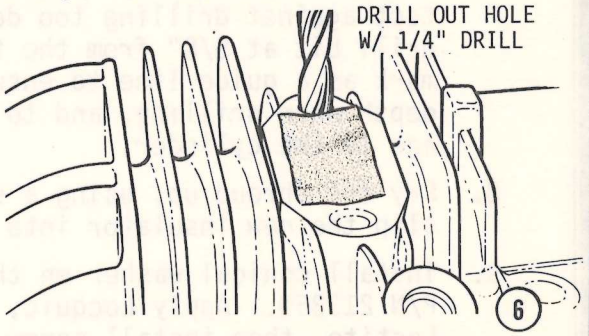
SPROCKET REPLACEMENT

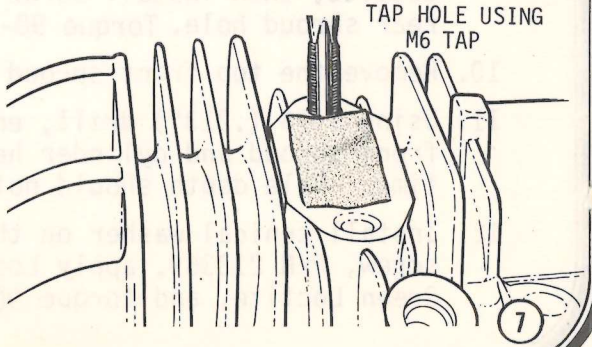
1. Install the Spur Sprocket/Drum/Bearing Assembly, P/N 214390. Follow the instructions provided with the sprocket assembly.

CYLINDER REPAIR

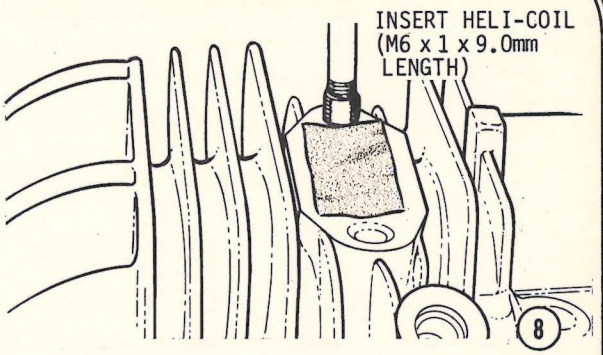
1. Remove the muffler and shrouds from unit. Discard all old muffler/shroud screws and any washers used.
2. Pull the starter rope to move the piston so it covers the exhaust port opening. Place a piece of tape across the exhaust port openings to ensure against debris entering cylinder.
3. Secure the unit in a vise. Enlarge the muffler and shroud retaining holes using a 1/4" drill bit to a depth of 3/8". ⑥

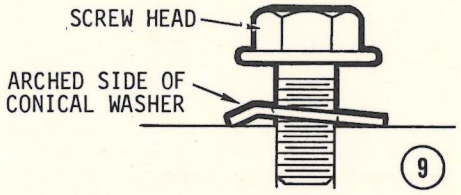
   CAUTION: Mark the drill bit 3/8" from the tip. This will act as a guideline to ensure the proper depth when drilling. Do not exceed the 3/8" depth, or cylinder damage could result.





4. Tap the shroud and muffler retaining holes using M6 tap. (7)
5. Wearing eye protection, blow the cylinder with low pressure air to remove all shavings. The cylinder retaining holes are now ready to accept the new 6mm fasteners.
6. Install an M6 x 1 (9mm in length) Heli-Coil in each hole. (8)
7. Install the muffler assembly, using green Loctite. Torque the screws 70-80 in. x lbs.
8. Install the shrouds by placing the conical washer over screws with the convex (arched) side of washer facing the shroud screw head. Install screws, torque 90-100 in. x lbs. (9)





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Supplement to Service Information (S.I. 195)

IMPORTANT

When cutting new threads for the shroud-to-cylinder fasteners (as described in SECTION II, S.I. 195), the cylinder threads must be pre-tapped to ensure the proper securing torque.

1. PRE-TAPPING CYLINDER THREADS

   A. Install the self-tapping screw, P/N 213369, WITHOUT the conical washer. The screw must be completely inserted so the screw head is flush with the shroud. Be certain the screw is installed square to the shroud surface to ensure the proper holding angle.

   B. Remove and thoroughly clean the self-tapping screw.

   C. Install conical washer on the self-tapping shroud screw. Apply Locquic, then green Loctite and re-install the screw. Torque 90 - 100 in. x lbs.

2. Please note the following corrections to Section II:

   A. Page 3, step 6 requires a 3/8" (9.5mm) drill bit.

   B. Conical Washer Set, P/N 215430 (6mm) must be used when repairing units.

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