McCULLOCH

SERVICE BULLETIN #1127

SUBJECT OVERSIZE PISTONS AND RINGS

MODEL **ALL**

DATE 3/23/61

NOTE: This Bulletin replaces S/B #1054.

Many earlier McCulloch chain saw engines, having given long, satisfactory service, are now being bored and honed. Installation of oversize pistons and rings in a rebored cylinder recalls to the engine much of its original power, provides a longer life, and often eliminates other costly repairs.

Principal conditions which should govern your decision to rebore and rering are . . .

- . . . if taper or out-of-round condition exceeds .005 inch.
- . . . if cylinder is scored, scratched, pitted, or scuffed.
- . . . if ports are pounded.
- . . . if new rings won't seal & engine lacks power (even though taper is less than .005").
- . . . if piston-to-cylinder clearance exceeds the high limit by .005 inch.

When boring or honing cylinders, oversize dimensions should be measured in even steps of .010 inch (.010, .020, .030) over the standard bore diameter of new engines. If the full dimension is not held, possible interference or tight fit will exist between piston and cylinder wall. In chain saw engines the piston-to-cylinder clearance is .0025 to .005 inch. In kart engines, because of higher temperatures resulting from more constant running, it is desirable to give a greater piston-to-cylinder clearance of .005 to .007 inch. This is particularly true when thin ring pistons are used.

If the cylinder is rebored, and removal of more than .010" of metal, but less than .020", will remove scuff marks, it will be necessary to continue boring until .020"-oversize is reached. Having done this, the .020"-oversize piston and piston rings must be used. If .010"-oversize piston and rings are used in a cylinder bored to the in-between oversize, piston-to-cylinder clearance will be too great to maintain adequate compression.

As a guide, a chart of dimensions, sizes and part numbers of pistons and piston rings for McCulloch engines has been compiled and will be found on succeeding pages.

Maximum taper or out-of-round permitted after reboring or rehoning is .0007". (Engines can be operated until taper has increased to .005" before reboring or rehoning will be necessary.)

Dimensional tolerance factor for the cylinders is .001" and is incorporated in the chart data.

Correct end gap for piston rings in chain saw engines is .004 to .012 inch. In kart engines using the thin rings, this end gap is .004 to .050 inch. End gap may be checked by pushing a ring halfway down in a new or rebored cylinder and using a feeler gauge to measure the gap between the ring ends.

NOTE: TO CHANGE DIMENSIONS GIVEN IN THE CHART TO CENTIMETERS, MULTIPLY THE DIMENSION BY THE FACTOR OF 2.54.

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Pistons & Rings

Dimensions and Part Numbers

Model	Size and Oversize	Piston Assembly Number	Piston Top Dimension	Piston Skirt Dimension	Cylinder Assembly Number	Cylinder Interior Dimension	Unplated Ring Set	Chrome Ring Set
3-25	Standard	19931A	1.9912/1.9907	1.9953/1.9948	19021	1.9980/1.9970		51747
47	0.010 OS	19910C	2.0012/2.0007	2.0053/2.0048				51748
	0.020 OS	19920C	2.0112/2.0107	2.0153/2.0148				51749
	0.030 OS	19907B	2. 0212/2.0207	2.0253/2.0248				51750
33	Standard	52379	1.7475/1.7470	1.7495/1.7490	36466A	1.7535/1.7525		52046
33B	0.010 OS	52380	1.7575/1.7570	1.7595/1.7590			52372	52047
35 MAC35	0.020 OS	52382	1.7675/1.7670	1.7695/1.7690				52048
MAC35A	0.030 OS	52384	1.7775/1.7770	1.7795/1.7790				52049
S-33	Standard	36616C	1.7475/1.7470	1.7495/1.7490	52328	1.7535/1.7525		52046
	0.010 OS	36663C	1.7575/1.7570	1.7595/1.7590				52047
	0.020 OS	36664C	1.7675/1.7670	1.7695/1.7690				52048
	0.030 OS	36665C	1.7775/1.7770	1.7795/1.7790				52049
4-30	Standard	28353A	2.1220/2.1215	2.1240/2.1235	28260	2.1285/2.1275		28886
4-30A	0.010 OS	28244C	2. 1320/2.1315	2.1340/2.1335				28887
49	0.020 OS	28247C	2.1420/2.1415	2.1440/2.1435				28888
	0.030 OS	28250C	2.1520/2.1515	2.1540/2.1535				28889
39	Standard	52045	1.7475/1.7470	1.7495/1.7490	52328	1.7535/1.7525		52046
	0.010 OS	52051	1.7575/1.7570	1.7595/1.7590				52047
	0.020 OS	52052	1.7675/1.7670	1.7695/1.7690				52048
	0.030 OS	52053	1.7775/1.7770	1.7795/1.7790				52049
D-44	Standard	51210B	1.9995/1.9950	1.9975/1.9970	55443	2.001/2.000		51747
	0.010 OS	51451B	2. 0055/2.0050	2.0075/2.0070			51489	51748
	0.020 OS	51452B	2. 0155/2.0150	2.0175/2.0170			51501	51749
	0.030 OS	51453B	2.0255/2.0250	2.0275/2.0270			51502	51750
S-44	Standard	55007A	2.1200/2.1195	2.1220/2.1215	55441	2.126/2.125		55123
S-55	0.010 OS	55057A	2.1300/2.1295	2.1320/2.1315				55124
	0.020 OS	55058A	2.1490/2.1395	2.1420/2.1415				55125
	0.030 OS	55059A	2.1500/2.1495	2.1520/2.1515				55126
S-44A	Standard	55310A	2.1200/2.1195	2.1220/2.1215	55438A	2.1260/2.1250		55123
S-55A	0.010 OS	55322A	2.1300/2.1295	2.1320/2.1315				55124
1-70	0.020 OS	55323A	2.1400/2.1395	2.1420/2.1415				55125
1-80	0.030 OS	55324A	2.1500/2.1495	2.1520/2.1515				55126

Model	Size and Oversize	Piston Assembly Number	Piston Top Dimension	Piston Skirt Dimension	Cylinder Assembly Number	Cylinder Interior Dimension	Unplated Ring Set	Chrome Ring Set
1-40	Standard	50206	2.1200/2.1195	2.1220/2.1215	50733	2.126/2.125		55123
D-30	.010							55124
	.020	50134	2.1490/2.1395	2.1420/2.1415				55125
	.030							55126
1-50	Standard	55007A	2.1200/2.1195	2.1220/2.1215	50737	2.126/2.125		55123
1-60	.010	55057A	2.1300/2.1295	2.1320/2.1315				55124
D-36	.020	55058A	2.1400/2.1395	2.1420/2.1415				55125
	.030	55059A	2.1500/2.1495	2.1520/2.1515				55126
1-41	Standard	50206	2.1200/2.1195	2.1220/2.1215	57409	2.126/2.125		55123
	.010							55124
	.020	50134	2.1400/2.1395	2.1420/2.1415				55125
	.030							55126
1-51	Standard	55007A	2.1200/2.1195	2.1220/2.1215	57420	2.126/2.125		55123
1-61	.010	55057A	2.1300/2.1295	2.1320/2.1315				55124
	.020	55058A	2.1400/2.1395	2.1420/2.1415				55125
	.030	55059A	2.1500/2.1495	2.1520/2.1515				55126
1-71	Standard	55310A	2.1200/2.1195	2.1220/2.1215	55557	2.126/2.125		55123
1-81	.010	55322A	2.1300/2.1295	2.1320/2.1315				55124
	.020	55323A	2.1400/2.1395	2.1420/2.1415				55125
	.030	55324A	2.1500/2.1495	2.1520/2.1515				55126
1-81HD	Standard	48695	2.1190/2.1184	2.1220/2.1214	55557	2.126/2.125		48691
(Thin Rings)	.010	48684	2.1290/2.1284	2.1320/2.1314				48692
	.020	48685	2.1390/2.1384	2.1420/2.1414				48693
	.030	48686	2.1490/2.1484	2.1520/2.1514				48694
MC-5	Standard	48844	2.1170/2.1165	2.1200/2.1195	48701	2.126/2.125		48691
MC-6 (Thin Ring)	.010	48845	2.1270/2.1265	2.1300/2.1295				48692
	.020	48846	2.1370/2.1365	2.1400/2.1395				48693
	.030	48847	2.1470/2.1465	2.1500/2.1495				48694
MC-10 Standard (Thin Ring)	Standard	48844	2.1170/2.1165	2.1200/2.1195	48612A	2.126/2.125		48691
	.010	48845	2.1270/2.1265	2.1300/2.1295				48692
	.020	48846	2.1370/2.1365	2.1400/2.1395				48693
	.030	48847	2.1470/2.1465	2.1500/2.1495				48694

Model	Size and Oversize	Piston Assembly Number	Piston Top Dimension	Piston Skirt Dimension	Cylinder Assembly Number	Cylinder Interior Dimension	Unplated Ring Set	Chrome Ring Set
MC-10 (Power Kit) (Thin ring)	Standard	48832	2.1170/2.1165	2.1200/2.1195	48612A	2.126/2.125		48691
	.010	48833	2.1270/2.1265	2.1300/2.1295				48692
	.020	48834	2.1370/2.1365	2.1400/2.1395				48693
	.030	48835	2.1470/2.1465	2.1500/2.1495				48694
MC-5 (Thick Ring)	Standard	55007A	2.1200/2.1195	2.1220/2.1215	48701	2.126/2.125		55123
	.010	55057A	2.1300/2.1295	2.1320/2.1315				55124
	.020	55058A	2.1400/2.1395	2.1420/2.1415				55125
	.030	55059A	2.1500/2.1495	2.1520/2.1515				55126
MC-10 Thick Ring	Standard	55310A	2.1200/2.1195	2.1220/2.1215	48612A	2.126/2.125		55123
	.010	55322A	2.1300/2.1295	2.1320/2.1315				55124
	.020	55323A	2.1400/2.1395	2.1420/2.1415				55125
	.030	55324A	2.1500/2.1495	2.1520/2.1515				55126