

CONTINENTAL

O-470 AND IO-470 SERIES

ILLUSTRATED PARTS CATALOG

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**ILLUSTRATED
PARTS CATALOG
FOR
O-470 AND IO-470 SERIES
AIRCRAFT ENGINES**

CURRENT STATUS OF PAGES AS OF MARCH 1979

THE ORIGINAL DATE OF THIS PUBLICATION IS NOVEMBER 1975

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and
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SECTION I

INTRODUCTION

1-1. This parts catalog is presented in looseleaf form so changes can be made to the affected pages only. A registration card is included. Those purchasers who register their catalog will be advised of changes as they occur, at a price to be determined at that time. The registrants will also be advised which pages are affected by the change.

1-2. Page iii of this publication depicts the current status of pages as of the date listed. Each page in the catalog is also dated. To be current, the date on the page should match the date listed for that page on the Status Page. With each change to the catalog issued, a change to the current Status Page will necessarily be issued.

1-3. In this edition, currently available parts are listed for all O-470 and IO-470 engines. If accessories or parts attached to any engine installed in an aircraft manufactured in the United States under a production model number do not appear in this catalog, determine whether they are available from the aircraft manufacturer before placing an order with a Teledyne Continental Authorized Distributor.

1-4. Section II contains 75 figures, in each of which one of the major assemblies or groups of the engine is illustrated in "exploded" form. Each figure has its own set of index numbers to indicate the sub-parts. The list of parts in the assembly or group appears on the same page with the illustration or on an adjacent page. The first column of each assembly group list contains the figure number (not repeated on all lines) and, following a dash, the index numbers of the sub-parts in numerical order. Do not order parts by index number. Use the part number, which appears in the second column. Use the name of the part which appears in the column under the title "DESCRIPTION."

1-5. Do not order any parts listed herein when "NO NUMBER" appears on the same line in the

part number column or when "NOT SOLD" herein abbreviated as "NS" appears in the "UNITS PER ASSEM" column, because these parts are not suitable for installation without factory equipment, or they are major parts of assemblies and are more economically supplied in the assembled condition, or they are assemblies which would have to be disassembled for installation. To replace any detail part "NOT SOLD" order the smallest assembly containing the part (listed above, with name beginning one column to left). To replace any assembly "NOT SOLD," order whatever subassemblies and detail parts (listed below it, with names indented) that are in need of replacement.

1-6. Oversize and undersize parts are listed in Section III. These parts must be ordered by the numbers listed herein, with correct descriptions, to avoid errors. Corresponding standard size part numbers in Section II are preceded by a symbol (t) to indicate the availability of the non-standard size. (Refer to list of abbreviations and symbols.)

1-7. Sets of parts listed in Section IV are usually wanted in such groups for overhaul work and should be ordered by set part numbers.

1-8. Section V contains a list of part numbers arranged in numerical order in the first column. If the number of any desired part is known, the name may be located by referring to the figure and index number in Section II, which is listed opposite the part number in Section V.

1-9. Section VI contains a list of customer specifications of each engine model. The parts and accessory differences between the spec and basic engine are listed, as well as a Figure and Index column which will refer back to Section II or to the rear of Section VI for an illustration.

NOTE . . . The aircraft manufacturer occasionally changes certain accessories per customer request.

LIST OF ABBREVIATIONS AND SYMBOLS

SYMBOL	DEFINITION	SYMBOL	DEFINITION
AR	As Required	RF	Refer to
Dia.	Diameter	NPT	National Pipe Tap (or thread)
ID	Inside Diameter	US	Undersize
In.	Inches	No.	Number
mm	Millimeters	†	Oversize parts available
OD	Outside Diameter	†	Undersize parts available
OP	Optional	* * * *	End of group of attaching parts
OS	Oversize	NS	Not Sold
PD	Pitch Diameter (thread)	&	Parts included in a set

ACCESSORY MANUFACTURERS

AC	AC Spark Plug Division General Motors Corporation Flint, Michigan	Harrison	Harrison Radiator Division General Motors Corporation Lockport, New York
Air-Maze	Air-Maze Division Rockwell-Standard Corporation Cleveland, Ohio	Marvel	Marvel-Schebler Products Division Borg-Warner Corporation Decatur, Illinois
Bendix	Bendix Products Division Bendix Corporation South Bend, Indiana	Modine	Modine Manufacturing Company Racine, Wisconsin
Bendix- Scintilla	Bendix Corporation Scintilla Division Sidney, New York	Prestolite	The Prestolite Company Division of Eltra Corporation Toledo, Ohio
Champion	Champion Spark Plug Company Detroit, Michigan	Slick	Slick Electro Incorporated Rockford, Illinois
Delco-Remy	United Motors Service General Motors Building Detroit 2, Michigan		

CUSTOMER SPECIFICATION TO SERIAL NUMBER CROSS REFERENCE

O-470-A

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O-470-B

SPEC. 6 50001, 50002, 50005 thru 50022, 50025 thru 50031, 50034 thru 50040, 50045, 50046, 50048 thru 50051, 50053 thru 50070, 50073 thru 50091, 50093, 50099 thru 50131, 50139 thru 50178, 50181 thru 50188, 50190 thru 50211, 50216 thru 50231, 50233 thru 50236, 50238 thru 50251, 50253 thru 50256, 50258 thru 50294, 50296 thru 50324, 50336 thru 50343, 50345 thru 50372, 50375, 50381 thru 50399, 50401 thru 50430, 50433 thru 50436, 50438, 50448 thru 50452, 50454 thru 50482, 50489, 50492 thru 50515, 50517 thru 50537, 50542 thru 50592, 50594 thru 50617, 50624 thru 50628, 50643 thru 50652, 50654, 50660 thru 50663, 50668, 50685, 50686, 50691, 50813, 50814, 50817

SPEC. 7 50003, 50004, 50023, 50024, 50041 thru 50044, 50072, 50092, 50094 thru 50098, 50132 thru 50138, 50329 thru 50335, 50376 thru 50380, 50432, 50437, 50439 thru 50447, 50453, 50483 thru 50485, 50629 thru 50638, 50664 thru 50666, 50669, 50671 thru 50677, 50679, 50680, 50682, 50683

SPEC. 17 50189, 50232, 50237, 50252, 50257, 50295, 50344, 50400, 50431, 50516, 50538 thru 50541, 50593, 50619 thru 50623, 50640 thru 50642, 50653, 50655 thru 50659, 50667, 50670, 50678, 50681, 50684, 50687 thru 50690, 50802 thru 50806, 50808 thru 50812

O-470-E

SPEC. 3 60001 thru 60026, 60028 thru 60042, 60045 thru 60074, 60078, 60079, 60081 thru 60087, 60089, 60092, 60093, 60095, 60098, 60099, 60103

O-470-G

SPEC. 1 70001 thru 70067, 70069 thru 70110, 70112 thru 70164, 70166 thru 70492, 70494 thru 70500, 85504, 85505, 85514, 85515, 85524

O-470-J

SPEC. 1 45001 thru 45175, 45177 thru 45239, 45214 thru 45329, 45331 thru 45335, 45337 thru 45353, 45356 thru 45367, 45369 thru 45372, 45374 thru 45377, 45379 thru 45386, 45388 thru 45399, 45401 thru 45423, 45425 thru 45438, 45441 thru 45448, 45450, 45451, 45453 thru 45458, 45460 thru 45481, 45483 thru 45500, 45503 thru 45514, 45516 thru 45520, 45523 thru 45535, 45537 thru 45553, 45555 thru 45557, 45559 thru 45561, 45563 thru 45570, 45576, 45579 thru 45600, 45602 thru 45632, 45634 thru 45656, 45658 thru 45670, 45672 thru 45686, 45688 thru 45704, 45706, 45707, 45726, 45731, 45732, 45734 thru 45752, 45754 thru 45799, 45801 thru 45836, 45838 thru 45841, 45843 thru 45860, 45862, 45863, 45865 thru 45873, 45875 thru 45878, 45880 thru 45892, 45895 thru 45926, 45928 thru 45931, 45933 thru 45941, 45943 thru 45945, 45965 thru 45975, 45977 thru 45981, 46002, 46004, 46007 thru 46009, 46074, 46075, 46163, 46164, 46170 thru 46175, 46186, 46198, 46215, 46221, 46236 thru 46238, 46255, 46271, 46278

SPEC. 3 45176, 45240, 45330, 45336, 45354, 45355, 45368, 45378, 45400, 45424, 45439, 45440, 45482, 45515, 45521, 45522, 45562, 45571, 45572, 45578, 45601, 45657, 45671, 45687, 45708, 45842, 45864, 45879, 45927, 45942, 45946 thru 45949, 45953 thru 45955, 45960, 45962, 45976, 45982 thru 45987, 45989 thru 45991, 45994 thru 45996, 45999 thru 46001, 46003, 46005, 46010, 46018, 46019, 46025 thru 46028, 46030 thru 46034, 46039, 46045, 46049 thru 46052, 46063 thru 46068, 46073, 46077 thru 46079, 46082, 46088 thru 46091, 46104, 46105, 46107, 46116, 46122, 46124, 46127, 46132 thru 46145, 46149 thru 46152, 46154 thru 46158, 46160 thru 46162, 46165, 46166, 46168, 46176 thru 46178, 46192, 46225, 46239

SPEC. 4 45387, 45536, 45554, 45558, 45573 thru 45575, 45577, 45723 thru 45725, 45727 thru 45730, 45733, 45753, 45837, 45874, 45932, 45959, 45993, 45997, 45998, 46006, 46014, 46020 thru 46023, 46035, 46046, 46053, 46059, 46061, 46062, 46081, 46083 thru 46086, 46117 thru 46121, 46123, 46125, 46128 thru 46130, 46146 thru 46148, 46153, 46159, 46169, 46181, 46183 thru 46186, 46188, 46190, 46194, 46195, 46199, 46200, 46203 thru 46205, 46208, 46209, 46211, 46213, 46217 thru 46219, 46222 thru 46224, 46227 thru 46230, 46272, 46276, 46279 thru 46282

SPEC. 6 45459, 45861, 45893, 45894, 45958, 45961, 45963, 45964, 46011, 46024, 46029, 46036 thru 46038, 46041 thru 46044, 46055 thru 46058, 46060, 46069 thru 46072, 46102, 46103

O-470-K

- SPEC. 1** 47001 thru 47271, 47273 thru 47292, 47294 thru 47323, 47325 thru 47375, 47377 thru 47473, 47475 thru 47487, 47489 thru 47512, 47514, 47515, 47517 thru 47579, 47581 thru 47601, 47604 thru 47608, 47610 thru 47614, 47617, 47619 thru 47623, 47625 thru 47643, 47645 thru 47671, 47674 thru 47740, 47742 thru 47760, 47762 thru 47799, 47801 thru 47808, 47812, 47813, 47815, 47817 thru 47851, 47853 thru 47858, 47861, 47864, 47870 thru 47873, 47900, 47902 thru 47919, 47921, 47922, 47929, 47957 thru 47959, 47961 thru 47986, 48013 thru 48026, 48033 thru 48048, 48050, 48054 thru 48056, 48065 thru 48083, 48088 thru 48091, 48093, 48094, 48096 thru 48098, 48100, 48124, 48154 thru 48157, 48159, 48160, 48162 thru 48198, 48201, 48211, 48219, 48220, 48222, 48228, 48230 thru 48238, 48240 thru 48242, 48244, 48247, 48250, 48320, 48349, 48369 thru 48371, 48396, 48403, 48405, 48407, 48415, 48416, 48418, 48421, 48422, 48437 thru 48440, 48444, 48453, 48454, 48465, 48466, 48499, 48500, 48508, 48530, 48590, 48621, 48643, 48689, 48696, 48701 thru 48750, 48791 thru 48793, 48811, 48823, 48833, 48836, 48837, 48839, 48844, 48847, 48848, 48850, 48859, 48862, 48864, 48866, 48895, 48896, 48927, 48950, 48963, 48967, 48970, 48971, 48973, 48976, 48978, 48980, 48983, 48985, 48991, 48996 thru 48998, 55102, 55103
- SPEC. 3** 47293, 47474, 47516, 47609, 47615, 47616, 47618, 47624, 47644, 47741, 47761, 47816, 47859, 47860, 47865, 47866, 47874, 47875, 47901, 47950 thru 47955, 48031, 48032, 48049, 48051, 48057, 48058, 48061 thru 48064, 48099, 48153, 48161, 48214, 48216 thru 48218, 48221, 48239, 48282, 48321, 48327, 48348, 48401, 48402, 48417, 48455, 48479, 48483, 48488, 48502, 48503, 48507, 48509, 48539 thru 48541, 48566, 48592, 48613, 48616 thru 48618, 48664, 48666 thru 48668, 48677, 48688, 48690, 48695, 48789, 48840 thru 48842, 48851 thru 48854, 48856 thru 48858, 48860, 48865, 48867, 48875 thru 48877, 48883, 48886, 48887, 48893, 48898, 48899, 48903, 48905, 48908 thru 48910, 48914, 48915, 48919, 48922, 48924 thru 48926, 48928 thru 48930, 48932, 48935, 48936, 48939, 48940, 48943, 48945 thru 48949, 48951, 48953, 48958 thru 48960, 48965, 48974, 48975, 48979, 55111,
- SPEC. 5** 47488, 47513, 47602, 47603, 47800, 47809 thru 47811, 47814, 47852, 47862, 47863, 47867, 47868, 47876 thru 47878, 47946, 47949, 47956, 47960, 47997, 47998, 48027 thru 48030, 48052, 48053, 48059, 48060, 48084 thru 48086, 48095, 48100, 48101 thru 48106, 48199, 48202 thru 48206, 48223 thru 48225, 48245, 48249, 48276 thru 48281, 48283, 48315 thru 48319, 48330 thru 48333, 48344 thru 48347, 48350 thru 48352, 48372 thru 48381, 48408 thru 48414, 48423 thru 48429, 48458 thru 48461, 48542
- SPEC. 9** 47880 thru 47899, 47925 thru 47928, 47930 thru 47945, 47987 thru 47996, 47999 thru 48012, 48108 thru 48123, 48125, thru 48152, 48158, 48207 thru 48210, 48212, 48213, 48215, 48248, 48254, 48258, 48285 thru 48295, 48382 thru 48395, 48404, 48556 thru 48565, 48631, 48633 thru 48642, 48644 thru 48663, 48665, 48710, 48712, 48714 thru 48732, 48743 thru 48764, 48768 thru 48770, 48790, 48796 thru 48810, 48814 thru 48816, 48818 thru 48822, 48824 thru 48831, 48834, 48835
- SPEC. 14** 48226, 48227, 48229, 48243, 48246, 48250, 48251 thru 48253, 48255 thru 48257, 48259 thru 48275, 48430 thru 48436, 48441 thru 48443, 48445 thru 48452, 48456, 48462 thru 48464, 48467 thru 48477, 48480 thru 48482, 48484 thru 48487, 48489 thru 48498, 48504 thru 48506, 48510 thru 48529, 48531 thru 48538, 48543 thru 48555, 48567 thru 48582, 48586, 48593 thru 48595, 48597 thru 48612, 48614, 48615, 48619, 48620, 48622 thru 48630, 48632, 48669 thru 48676, 48678, 48681 thru 48687, 48691 thru 48693, 48699 thru 48709, 48711, 48713, 48734 thru 48741, 48765 thru 48767, 48771 thru 48786, 48788, 48794, 48812, 48813
- SPEC. 15** 48296 thru 48314, 48322 thru 48326, 48328, 48329, 48334 thru 48343, 48353 thru 48368

- SPEC. 1** 66001 thru 66520, 66522 thru 66705, 66707 thru 66893, 66899 thru 66937, 66939 thru 67086, 67088 thru 67096, 67098 thru 67220, 67222 thru 67327, 67330 thru 67341, 67343 thru 67349, 67356, 67359, 67367, 67368, 67370 thru 67706, 67740, 67741, 67743, 67764, 67766 thru 67779, 67859, 67869, 67871, 67889 thru 67926, 67928 thru 67935, 67937 thru 67952, 67955 thru 68206, 68208 thru 68234, 68236 thru 68252, 68326, 68361 thru 68400, 68438, 68443 thru 68456, 68458 thru 68500, 68502 thru 68628, 68630 thru 68764, 68766 thru 68790, 68810 thru 68829, 68831 thru 69005, 69015, 69038, 69059, 69060, 80001 thru 80023, 80025 thru 80067, 80083 thru 80149, 80171 thru 80178, 80202, 80222, 80224, 80227, 80228, 80231 thru 80259, 80292, 80299, 80305, 80308 thru 80312, 80314, 80316 thru 80342, 80344 thru 80388, 80390 thru 80516, 80650, 80667, 80671, 80682, 80685 thru 80735, 80737, 80771 thru 80780, 80783 thru 80793, 80795, 80796, 80801 thru 80810, 80812 thru 80918, 80920 thru 81049, 81071, 81073 thru 81093, 81095 thru 81097, 81099 thru 81102, 81125, 81132, 81137, 81188, 81190 thru 81195, 81206 thru 81224, 81238, 81383, 81776, 81871, 81933, 81983, 82046, 82083, 82098, 82119, 82124, 82125, 82128, 82132, 82138, 82149, 82151, 82162, 82163, 82165 thru 82167, 82173, 82180, 82182, 82189, 82195, 82197, 82202, 82203, 82207, 82235, 82244, 82266, 82267, 82274
- SPEC. 2** 66894 thru 66898, 66938, 67087, 67221, 67369, 67875, 67953, 67954, 68207, 68235, 68501, 68629, 80343, 80389, 80781, 80782, 80811, 80919, 81070, 81145, 81147, 81149, 81150, 81198, 81237, 81239, 81340, 81432, 81550, 81719, 81788, 81789, 81872, 81873, 81906, 81932, 81982, 82039, 82042, 82043, 82049, 82065, 82071 thru 82073, 82075 thru 82080, 82085, 82087, 82089 thru 82091, 82093, 82094, 82096, 82101 thru 82106, 82108, 82109, 82114, 82120 thru 82123, 82127, 82133 thru 82137, 82139 thru 82142, 82145, 82146, 82150, 82153, 82154, 82156, 82159 thru 82161, 82170, 82177, 82193, 82199, 82222, 82224, 82230, 82234, 82241, 82242, 82243, 82272
- SPEC. 5** 67707, 67725, 67729 thru 67739, 67744 thru 67763, 67765, 67780 thru 67807, 68253 thru 68284, 68296, 80542 thru 80600, 81050 thru 81069, 81123, 81124, 81139 thru 81141
- SPEC. 6** 67708 thru 67724, 67726 thru 67728, 67742, 67808 thru 67858, 67860 thru 67868, 67870, 67872 thru 67874, 67876 thru 67888, 67927, 68285 thru 68295, 68297 thru 68325, 68327 thru 68360, 68401 thru 68437, 68439 thru 68442, 68457, 68765, 68791 thru 68805, 68807 thru 68809, 69006 thru 69014, 69016 thru 69037, 69039 thru 69058, 80024, 80068 thru 80082, 80150 thru 80159, 80161 thru 80169, 80179 thru 80201, 80203 thru 80221, 80223, 80225, 80226, 80229, 80230, 80260 thru 80280, 80282 thru 80291, 80293 thru 80298, 80300 thru 80304, 80306, 80307, 80313, 80315, 80517 thru 80541, 80601 thru 80666, 80668 thru 80670, 80672, 80673, 80675 thru 80681, 80683, 80684, 80736, 80738 thru 80771, 80794, 80797 thru 80800, 81094, 81098, 81103 thru 81122, 81126 thru 81131, 81133 thru 81136, 81138, 81142 thru 81144, 81146, 81148, 81151 thru 81169, 81171 thru 81187, 81189, 81199 thru 81205, 81225 thru 81231, 81236, 81240 thru 81299
- SPEC. 10** 81072, 81196, 81197, 81232 thru 81235, 81300 thru 81339, 81341 thru 81364, 81394 thru 81399, 81461 thru 81543, 81545, 81547 thru 81549, 81643 thru 81675, 81785 thru 81787, 81791 thru 81793, 81821 thru 81823, 81836, 81842 thru 81849, 81851 thru 81861, 81895 thru 81905, 81907, 81909 thru 81931, 81934 thru 81952, 81958 thru 81981, 81984 thru 81998, 82007 thru 82036, 82041, 82048, 82050 thru 82064, 82066 thru 82070, 82074
- SPEC. 12** 81747 thru 81775, 81777 thru 81784, 81790, 81794 thru 81817, 81819, 81824, 81827, 81828, 81837 thru 81841, 81862 thru 81870, 81874, 81875, 81877 thru 81895, 81952 thru 81957
- SPEC. 13** 81365 thru 81382, 81384 thru 81393, 81400 thru 81431, 81433 thru 81460, 81544, 81546, 81551 thru 81615, 81618 thru 81642, 81676 thru 81718, 81720 thru 81746, 81818, 81825, 81826, 81829 thru 81835, 81850

O-470-M

SPEC. 1 51001 thru 51077, 51079 thru 51179, 51181 thru 51204, 51206 thru 51212, 51217 thru 51286, 51289 thru 51354, 51356, 51358 thru 51407, 51410 thru 51471, 51475 thru 51477, 51480, 51481, 51489 thru 51519, 51521, 51523 thru 51607, 51609 thru 51612, 51615, 51617 thru 51633, 51650, 51653, 51656, 51659, 51671, 51674, 51675, 51677, 51685, 51686, 51688, 51690, 51692, 51695 thru 51697, 51700, 51707, 51733, 51737, 51759, 51760, 51762, 51763, 51768, 51773 thru 51779, 51781, 51782, 51790, 51792, 51816, 51832 thru 51851, 51853 thru 51856, 51863, 51871 thru 51873, 51875 thru 51905, 51927 thru 51937, 51939 thru 51958, 51960 thru 51967, 51987 thru 51998, 52000, 52002 thru 52005, 52007 thru 52023, 52027, 52032, 52035 thru 52043, 52048 thru 52102, 52104, 52105, 52108 thru 52128, 52130 thru 52132, 52138 thru 52142, 52144, 52145, 52149, 51151 thru 52157, 52159 thru 52176, 52179, 52181 thru 52214, 52236 thru 52273, 52278 thru 52281, 52298 thru 52312, 52367 thru 52388, 52390, 52391, 52429, 52436 thru 52453, 52456, 52464 thru 52467, 52494, 52496, 52517 thru 52536, 52547, 52548, 52559, 52563, 52567, 52569, 52571, 52580, 52583, 52612 thru 52615, 52617, 52619 thru 52621, 52630, 52643, 52643, 52645 thru 52647, 52650, 52673, 52674, 52695 thru 52699, 52800, 52805, 52808, 52809, 52810, 52811, 52812, 52814, 52815, 52820,, 53700, 53708, 53711, 53721, 53723 thru 53725, 53728 thru 53734, 53744, 53747, 53748, 53753 thru 53755, 53757, 53766, 53767, 53771 thru 53774, 53781, 53782, 53787, 53788, 53791, 53797, 53798

SPEC. 8 51634 thru 51645, 51648, 51651, 51652, 51654, 51655, 51657, 51658, 51660 thru 51668, 51670, 51672, 51673, 51678, 51682, 51684, 51687, 51689, 51693, 51694, 51699, 51702, 51706, 51708 thru 51710, 51712 thru 51732, 51734 thru 51736, 51741 thru 51755, 51772, 51784 thru 51789, 51791, 51793 thru 51811, 51830, 51831, 51852, 51857 thru 51862, 51864 thru 51866, 51868 thru 51871, 51874, 51906 thru 51916, 51919 thru 51926, 51938, 51968 thru 51986, 52024 thru 52026, 52133 thru 52135, 52137, 52143, 52146 thru 52148, 52150, 52274 thru 52277, 52282, 52284, 52285, 52287, 52288, 52290 thru 52293, 52295, 52296, 52317 thru 52346, 52362 thru 52366, 52389, 52392 thru 52403, 52407 thru 52428, 52430 thru 52435, 52454, 52455, 52457 thru 52463, 52468 thru 52482, 52511 thru 52516, 52538 thru 52543, 52545, 52550 thru 52558, 52560 thru 52562, 52566, 52568, 52570, 52573 thru 52579, 52581, 52582, 52584 thru 52601, 52749, 52750, 52765

SPEC. 10 51680, 51681, 51769, 51999, 52001, 52006, 52177, 52495, 52670, 52671, 52801, 52807, 52813, 52816, 52817, 53726, 53727, 53746, 53752, 53757 thru 53760, 53768, 53769, 53777 thru 53780

SPEC. 11 51738, 51739, 51764 thru 51767, 51770, 51771, 51783, 51813 thru 51815, 51817 thru 51825, 51829, 52215 thru 52235, 52313 thru 52316, 52404 thru 52406

SPEC. 12 51669, 51676, 51679, 51683, 51698, 51700, 51701, 51703 thru 51705, 51756 thru 51758, 51827, 51828, 52283, 52286, 52289, 52294, 52297, 52347 thru 52361, 52483 thru 52492, 52497 thru 52510, 52537, 52544, 52546, 52549, 52564, 52565, 52602 thru 52611, 52622 thru 52629, 52631 thru 52642, 52644, 52651 thru 52669, 52672, 52675 thru 52694, 53701 thru 53707, 53709, 53710, 53712 thru 53720, 53722, 53735 thru 53743, 53745

O-470-P

SPEC. 1 75001 thru 75015

O-470-R

- SPEC. 1** 83001 thru 83004, 83006 thru 83237, 83240 to 83281, 83315, 83316, 83318, 83319, 83322 thru 83355, 83358 thru 83360, 83362 thru 83386, 83391 thru 83600, 83602 thru 83632, 83635, 83637, 83669, 83671 thru 83699, 83715 thru 83837, 83848 thru 83850, 83852 thru 83857, 83859 thru 83862, 84100, 84158, 84161, 84162, 84164, 84408, 84671, 84673, 84964, 130164, 130354 thru 130356, 130406, 130577, 131187
- SPEC. 2** 83238, 83239, 83282 thru 83314, 83317, 83320, 83321, 83356, 83357, 83361, 83387 thru 83390, 83633, 83634, 83636, 83638 thru 83668, 83670, 83700 thru 83714, 83838 thru 83847, 83851, 83858, 83863 thru 83894, 83896 thru 83914, 83930 thru 83936, 83938, 83942 thru 83946, 83948, 83950 thru 83964, 83990, 84086, 130052
- SPEC. 3** 83895, 83915 thru 83925, 83937, 83939 thru 83941, 83947, 83949, 83965 thru 83989, 83991 thru 84085, 84087 thru 84099, 84101 thru 84113, 84144 thru 84153, 84155 thru 84157, 84159, 84160, 84163, 84165 thru 84179, 84181 thru 84253, 84255 thru 84288, 84311 thru 84407, 84409 thru 84478, 84480 thru 84633, 84635 thru 84658, 84660 thru 84670, 84672, 84675 thru 84746, 84748 thru 84760, 84762 thru 84765, 84767 thru 84813, 84815, 84826, 84827, 84838 thru 84840, 84842, 84866, 84915 thru 84945, 84950 thru 84963, 84965 thru 84967, 84969 thru 84990, 84992 thru 84999, 130000, 130001, 130008 thru 130036, 130038 thru 130042, 130044 thru 130049, 130051, 130053, 130094, 130095, 130106, 130109 thru 130136, 130138 thru 130161, 130163, 130165 thru 130172, 130174 thru 130190, 130192, 130195, 130208, 130210, 130212, 130214, 130216 thru 130221, 130223, 130225, 130227, 130229, 130231, 130233 thru 130235, 130237, 130239, 130243 thru 130257, 130259 thru 130269, 130271 thru 130277, 130279 thru 130331, 130334 thru 130353, 130357 thru 130359, 130361 thru 130368, 130370 thru 130402, 130404, 130407 thru 130428, 130448, 130449, 130451 thru 130455, 130458, 130480, 130486 thru 130488, 130515, 130519, 130520, 130523 thru 130529, 130531 thru 130543, 130545 thru 130557, 130561, 130567, 130573, 130575, 130576, 130579, 130580, 130583, 130585, 130586, 130589, 130591, 130593 thru 130595, 130597 thru 130605, 130607 thru 130609, 130611 thru 130613, 130615 thru 130624, 130627 thru 130632, 130634 thru 130639, 130646, 130648, 130650, 130652 thru 130654, 130656, 130657, 130659, 130661 thru 130677, 130680, 130684, 130698, 130783, 130786, 130807, 130839, 130858, 130881, 130884, 131207, 131213, 131241, 131372, 131430, 131501, 131502, 131633, 131852, 131853, 131930, 132355, 132359, 132360, 132498, 132765, 133096 thru 133098, 133459 thru 133461, 133559, 133590, 133591, 133750, 133751, 133762, 133912, 133914, 133947, 133948, 191047, 191049, 191125, 191126, 191130, 191131, 191236, 191343, 191577, 191578
- SPEC. 4** 84114 thru 84143, 84289 thru 84309, 84814, 84841, 84848 thru 84858, 84860 thru 84865, 84867 thru 84873, 84875 thru 84878, 84880 thru 84914, 84947 thru 84949, 130096, 130191, 130193, 130194, 130196 thru 130207, 130209, 130211, 130213, 130215, 130222, 130224, 130226, 130228, 130230, 130232, 130236, 130238, 130240 thru 130242, 130403, 130429 thru 130436, 130440 thru 130443, 130445, 130446, 130456, 130460 thru 130463, 130465, 130467, 130469, 130471, 130473, 130475, 130477, 130479, 130481, 130483, 130501, 130503, 130513, 130687 thru 130697, 130699 thru 130707, 130709 thru 130727, 130747, 133104

- SPEC. 9** 84816 thru 84825, 84828 thru 84837, 84843 thru 84847, 84991, 130007, 130037, 130043, 130050, 130054 thru 130081, 130083 thru 130093, 130099 thru 130105, 130107, 130108, 130437 thru 130439, 130444, 130447, 130457, 130459, 130464, 130466, 130468, 130470, 130472, 130474, 130476, 130478, 130482, 130484, 130485, 130489 thru 130492, 130494 thru 130500, 130502, 130504 thru 130512, 130514, 130516 thru 130518, 130521, 130522, 130558 thru 130560, 130562 thru 130566, 130568 thru 130572, 130574, 130581, 130582, 130584, 130587, 130588, 130590, 130596, 130606
- SPEC. 11** 130082, 130098, 130258, 130332, 130333, 130405, 130450, 130493, 130544, 130644, 130708, 130811, 130879, 130883, 130327, 130328, 131438, 133731, 191051, 200023, 200034 thru 200036
- SPEC. 15** 130530, 130610, 130614, 130625, 130626, 130633, 130640 thru 130643, 130645, 130647, 130649, 130651, 130655, 130658, 130660, 130678, 130679, 130681 thru 130683, 130685, 130686, 130729 thru 130746, 130748, 130749, 130751 thru 130782, 130784, 130785, 130787 thru 130806, 130808 thru 130810, 130812 thru 130838, 130840 thru 130857, 130859, 130861 thru 130878, 130885 thru 130892, 130894 thru 130966, 130971 thru 131135, 131137 thru 131186, 131188 thru 131206, 131209 thru 131212, 131214 thru 131240, 131242 thru 131319, 131321 thru 131326, 131329 thru 131356, 131358 thru 131371, 131373 thru 131407, 131409 thru 131429, 131431 thru 131437, 131439 thru 131471, 131473 thru 131500, 131503 thru 131600, 131613 thru 131623, 131626 thru 131632, 131634 thru 131762, 131764 thru 131851, 131855 thru 131909, 131916 thru 131929, 131931 thru 132312, 132314, 132319, 132639 thru 132641, 133117, 133118, 133250, 133462, 133463, 133735, 133949, 191053, 191176, 191426, 191782
- SPEC. 20** 132313, 132315 thru 132318, 132320 thru 132354, 132361 thru 132447, 132449 thru 132530, 132532, 132534 thru 132554, 132556 thru 132615, 132618 thru 132634, 132636, 132637, 132645 thru 132764, 132772 thru 132927, 132929 thru 132931, 132933 thru 133066, 133068, 133069, 133071 thru 133093, 133104 thru 133116, 133119 thru 133127, 133129 thru 133136, 133138, 133140, 133141, 133144, 133145, 133147, 133149 thru 133151, 133153, 133155 thru 133249, 133251 thru 133294, 133314, 133315, 133321 thru 133339, 133341 thru 133348, 133350 thru 133372, 133398 thru 133457, 133476, 133479, 133484, 133485, 133497, 133498, 133500, 133505, 133508, 133510 thru 133558, 133560 thru 133589, 133592 thru 133730, 133732 thru 133734, 133738 thru 133740, 133752 thru 133758, 133761, 133763, 133766 thru 133876, 133883 thru 133911, 133913, 133919 thru 133946, 133951 thru 133999, 191001 thru 191009, 191011 thru 191046, 191048, 191054 thru 191124, 191127 thru 191129, 191132 thru 191174, 191177 thru 191234, 191237 thru 191342, 191352 thru 191356, 131371 thru 191388, 191390 thru 191394, 191397 thru 191422, 191432 thru 191480, 191485, 191489 thru 191494, 191496 thru 191503, 191505 thru 191507, 191509, 191510, 191514 thru 191519, 191521 thru 191526, 191528 thru 191560, 191585, 191587 thru 191781, 191783 thru 191851, 191856 thru 191912, 191914 thru 191957, 191963 thru 191999, 194551 thru 194580, 194587 thru 194613, 194619 thru 194659, 194662 thru 194709, 194711 thru 194720, 194726, 194729, 194732, 194735 thru 194737, 194739, 202619

SPEC. 23 132531, 132533, 132555, 132616, 132617, 132635, 132638, 132642 thru 132644, 132766 thru 132771, 132928, 132932, 133067, 133070, 133128, 133137, 133139, 133142, 133143, 133146, 133148, 133152, 133154, 133295 thru 133298, 133300 thru 133313, 133316 thru 133320, 133373 thru 133397, 133464 thru 133475, 133477, 133478, 133480 thru 133483, 133486 thru 133496, 133498, 133501 thru 133504, 133506, 133507, 133509, 133744 thru 133749, 133877 thru 133882, 191175, 191179, 191344 thru 191351, 191357 thru 191370, 191389, 191481 thru 191484, 191486 thru 191488, 191495, 191504, 191508, 191511 thru 191513, 191520, 191527, 191561 thru 191576, 191579 thru 191581, 191583, 191852 thru 191855, 194618, 202970, 203098, 222419, 222636, 222637, 222638

SPEC. 25 194742, 194750 thru 194758, 194760 thru 194919, 194921 thru 194924, 194926 thru 195000, 200000 thru 200019, 200030, 200038 thru 200134, 200136 thru 200138, 200140 thru 200199, 202501 thru 202555, 202557, 202558, 202560 thru 202565, 202568 thru 202618, 202620 thru 202790, 202793 thru 202812, 202814 thru 202888, 202892 thru 202931, 202933, 202938, 202941 thru 202947, 202950, 202952, 202962 thru 202969, 202971 thru 203067, 203069 thru 203096, 203099, 203100, 203102 thru 203170, 203172 thru 203178, 203181 thru 203200, 203202 thru 203296, 203299 thru 203329, 203331, 203332, 203333, 203335 thru 203342, 203344 thru 203355, 203357 thru 203374, 203388 thru 203391, 203395 thru 203440, 203442 thru 203500, 211000 thru 211029, 211031 thru 211111, 211113 thru 211120, 211124 thru 211145, 211147, 211150, 211151, 211152, 211154, 211156, 211158, 211159, 211160, 211168, 211171 thru 211189, 211191 thru 211198, 211200 thru 211232, 211234 thru 211245, 211247 thru 211262, 211266 thru 211301, 211306, 211309, 211310, 211314, 211316 thru 211369, 211371 thru 211384, 211386 thru 211407, 211410 thru 211418, 211420 thru 211424, 211426, 211428, 211430 thru 211467, 211469 thru 211474, 211476 thru 211480, 211483, 211484, 211485, 211487 thru 211495, 211497, 211498, 211500 thru 211510, 211512, 211513, 211516 thru 211535, 211539 thru 211547, 211550 thru 211554, 211556 thru 211564, 211567, 211568, 211574 thru 211583, 211585, 211588 thru 211593, 211596 thru 211606, 211609 thru 211613, 211618 thru 211623, 211625 thru 211635, 211638, 211639, 211640, 211642, 211643, 211644, 211646, 211647, 211654 thru 211664, 211669 thru 211676, 211678 thru 211687, 211689, 211691 thru 211697, 211699 thru 211704, 211707, 211714 thru 211730, 211732, 211734 thru 211747, 211754, 211755, 211757 thru 211763, 211765 thru 211771, 211777, 211778, 211779, 211784 thru 211793, 211798, 211800, 211801, 211802 thru 211809, 211811 thru 211821, 211823, 211826, 211828, 211830, 211832, 211834, 211836, 211837, 211839, 211841, 211843, 211848 thru 211864, 211866 thru 211879, 211881, 211883 thru 211890, 211892 thru 211908, 211910, 211912 thru 211919, 211921, 211923 thru 211927, 211929 thru 211935, 211939 thru 211944, 211946, 211947, 211948, 211952 thru 211962, 211964, 211966 thru 211983, 211986 thru 211200, 222401 thru 222404, 222406, 222410, 222412 thru 222415, 222420 thru 222429, 222432 thru 222440, 222443 thru 222458, 222462 thru 222478, 222480, 222482, 222484 thru 222489, 222492 thru 222499, 222501 thru 222503, 222505 thru 222545, 222547 thru 222556, 222559, 222568 thru 222570, 222572 thru 222575, 222578 thru 222589, 222591 thru 222600, 222642 thru 222667, 222670 thru 222691, 222693, 222695 thru 222712, 222714 thru 222716, 222720 thru 222737, 222739, 222741 thru 222744, 222747 thru 222797, 222800 thru 222816, 222819 thru 222829, 222831 thru 222834, 222836 thru 222840, 222842 thru 222849, 222851 thru 222859, 222871, 222873 thru 222898, 222900 thru 222902, 222904, 222907, 222909, 222911, 222912, 222927 thru 222949, 222951, 222953 thru 222954, 222957, 222959 thru 222966, 222968 thru 223000, 223500 thru 223521, 223524 thru 223528, 223534 thru 223552, 223554 thru 223556, 223560 thru 223595, 223599 thru 223618

SPEC. 35 211408, 211409, 211419, 211468, 211475, 211481, 211482, 211486, 211496, 211499, 211511, 211514, 211515, 211536, 211537, 211538, 211548, 211549, 211555, 211566, 211570 thru 211573, 211584, 211586, 211587, 211594, 211595, 211607, 211608, 211645, 211648, 211649, 211651, 211652, 211653, 211665 thru 211668, 211690 211698, 211701 thru 211705, 211708 thru 211713, 211733, 211748 thru 211751, 211753, 211756, 211764, 211772 thru 211776, 211780 thru 211783, 211794, 211795, 211799, 211801, 211810, 211822, 211824, 211825, 211827, 211829, 211831, 211833, 211835, 211838, 211840, 211842, 211844, 211845, 211846, 211865, 211880, 211882, 211891, 211905, 211909, 211911, 211920, 211922, 211928, 211936, 211937, 211938, 211945, 222984, 222985, 222405, 222407 thru 222409, 222411, 222430, 222431, 222441, 222442, 222459 thru 222461, 222483, 222490, 222491, 222500, 222546, 222560 thru 222562, 222571, 222576, 222577, 222590, 222601 thru 222635, 222638, 222639, 222669, 222692, 222694, 222713, 222717 thru 222719, 222738, 222740, 222745, 222746, 222798, 222799, 222817, 222835, 222868 thru 222870, 222872, 222899, 222908, 222910, 222913 thru 222926, 222950, 222952, 222955, 222956, 222958, 222967, 223522, 223529 thru 223533, 223553, 223557 thru 223559, 223596 thru 223598

IO-470-C

SPEC. 1 71005 thru 71020, 71022 thru 71117, 71119 thru 71121, 71123 thru 71159, 71161 thru 71315, 71317 thru 71385, 71387 thru 71496, 71498 thru 71678, 71681 thru 71749, 71751 thru 71801, 71803 thru 71807, 71809 thru 71870, 71872 thru 71911, 71913 thru 71946, 71948 thru 72033, 72036 thru 72257, 72259 thru 72299, 72301, 72302, 72303, 72306 thru 72314, 72317 thru 72333, 72335 thru 72342, 72345 thru 72349, 72351 thru 72364.

IO-470-D

SPEC. 1 75001 thru 75011, 75013 thru 75077, 75079 thru 75081, 75084 thru 75118, 75120 thru 75129, 75131 thru 75135, 75142, 75160 thru 75184, 75186 thru 75235, 75238, 75241 thru 75264, 75266 thru 75339, 75341 thru 75344, 75346 thru 75355, 75357, 75367, 75370, 75453 thru 75460, 75464 thru 75471, 75473 thru 75476, 75478, 75481, 75492, 75493, 75495 thru 75502, 75506 thru 75510, 75512 thru 75518, 75520 thru 75524, 75526, 75527, 75529 thru 75532, 75535 thru 75549, 75551 thru 75553, 75555, 75557 thru 75563, 75566 thru 75568, 75570, 75575 thru 75578, 75664 thru 75669, 75722, 75741, 75743 thru 75749, 75772, 75954, 75955, 75964, 75965, 79011, 79040, 79043, 79050, 79055, 79134, 79145, 79158, 79159, 79191, 79275, 79391, 79476, 79616, 79618, 79622, 79626, 79644, 79645, 79683, 79687, 104047, 104136, 104137, 104180, 104181

SPEC. 4 75130, 75136 thru 75141, 75143 thru 75159, 75340, 75345, 75356, 75358 thru 75366, 75368, 75369, 75371 thru 75377, 75380 thru 75392, 75394 thru 75417, 75419, 75420, 75422 thru 75425, 75427, 75428, 75461 thru 75463, 79112, 79114, 104362, 104363

SPEC. 5 75236, 75237, 75239, 75240, 75443, 75451, 75482, 75483, 75511, 75519, 75528, 75550, 75600, 75601, 79205, 79209, 79236, 79237, 79338, 79625, 79627

SPEC. 7 75421, 75426, 75429 thru 75442, 75444 thru 75450, 75452, 75472, 75477, 75479, 75480, 75484 thru 75488, 75490, 75494, 75503 thru 75505

SPEC. 9 75525, 75533, 75534, 75554, 75556, 75564, 75565, 75571 thru 75574, 75579 thru 75599, 75602 thru 75612, 75620 thru 75637, 75642, 75651, 75717 thru 75721, 75723 thru 75740, 75742, 75750 thru 75770, 75773, 75774, 75776 thru 75859, 75861 thru 75874, 75876 thru 75953, 75956 thru 75963, 75966 thru 75991, 79001, 79016 thru 79039, 79041, 79042, 79044 thru 79049, 79051 thru 79054, 79056 thru 79064, 79072 thru 79083, 79102 thru 79111, 79174, 79176 thru 79178, 79195, 79198, 79272, 79273, 79381, 79382, 79438, 79491, 79521, 79562, 79578, 79601, 79614, 79659 thru 79662, 79684, 79711 thru 79713, 79785, 79830, 104021, 104022, 104036, 104038, 104048, 104100, 104108, 104145, 104358, 104371

- SPEC. 12** 75613 thru 75617, 75638 thru 75641, 75643 thru 75648, 75650, 75653 thru 75655, 75657 thru 75663, 75670 thru 75690, 75692 thru 75716, 75992 thru 75999, 79002 thru 79010, 79013 thru 79015, 79084 thru 79100, 79113, 79115 thru 79126, 79128 thru 79133, 79135 thru 79144, 79146 thru 79157, 79160, 79161, 79166, 79170 thru 79173, 79175, 79179 thru 79190, 79192 thru 79194, 79196, 79197, 79200, 79202 thru 79204, 79206, 79208, 79229, 79628, 79641, 79658, 79685, 79686, 79710, 79932, 79933, 104020, 104060, 104086, 104187, 104188, 104288 thru 104291, 104317, 104318, 104407, 104412, 104413, 104432, 104447, 104450, 104451, 104453, 104605, 104637, 104638
- SPEC. 15** 79162 thru 79165, 79168, 79169, 79199, 79201, 79207, 79210 thru 79227, 79238 thru 79242, 79244 thru 79271, 79274, 79276 thru 79278, 79285 thru 79337, 79339 thru 79343, 79345 thru 79365, 79368, 79369, 79383 thru 79390, 79392 thru 79413, 79415, 79419 thru 79421, 79426, 79427, 79429 thru 79437, 79439 thru 79475, 79477 thru 79489, 79492, 79493, 79495 thru 79520, 79522 thru 79526, 79528 thru 79538, 79540 thru 79542, 79544, 79546 thru 79551, 79553, 79556 thru 79558, 79560, 79564, 79566 thru 79577, 79579, 79581 thru 79600, 79603 thru 79609, 79613, 79615, 79617, 79619, 79808, 79809, 79811, 79831, 79850, 79851, 79854, 79855, 79857, 79879, 79880, 104465, 104494, 104514, 104539, 104540
- SPEC. 19** 79629 thru 79640, 79642, 79646, 79649 thru 79654, 79663 thru 79682, 79688 thru 79694, 79697, 79700 thru 79709, 79714 thru 79743, 79747 thru 79750, 79752 thru 79757, 79760, 79761, 79763 thru 79765, 79767 thru 79784, 79786 thru 79807, 79810, 79812 thru 79817, 79819 thru 79823, 79825 thru 79828, 79832 thru 79846, 79852, 79853, 79856, 79858 thru 79878, 79881 thru 79901, 79904 thru 79906, 79908 thru 79925, 79934 thru 79965, 79967, 79968, 79971, 79973 thru 79999, 104000 thru 104008, 104010 thru 104017, 104023 thru 104029, 104033, 104037, 104039 thru 104044, 104046, 104049 thru 104052, 104056, 104058, 104063 thru 104065, 104068, 104448, 104486, 104487, 104527, 104528, 104536 thru 104538, 104556 thru 104559, 104569, 104570, 104587, 104588, 104610, 104611, 104628, 104629, 104634, 104642, 104657 thru 104660, 104683, 104686
- SPEC. 25** 79766, 79818, 104009, 104218, 104244, 104245, 104294, 104295, 104380, 104405, 104436, 104437, 104442, 104466 thru 104468, 104492, 104495 thru 104497, 104501 thru 104508
- SPEC. 27** 104053 thru 104055, 104057, 104059, 104061, 104062, 104069 thru 104082, 104084, 104087 thru 104093, 104095, 104097 thru 104099, 104101 thru 104107, 104109 thru 104115, 104117, 104119 thru 104135, 104138 thru 104144, 104146 thru 104152, 104158 thru 104168, 104171 thru 104179, 104182 thru 104186, 104190 thru 104207, 104209 thru 104214, 104216, 104217, 104219, 104220, 104223, 104226, 104228 thru 104243, 104246 thru 104267, 104269 thru 104284, 104287, 104292, 104293, 104299 thru 104309, 104311 thru 104316, 104319 thru 104341, 104343 thru 104352, 104354 thru 104357, 104364 thru 104369, 104372 thru 104379, 104381, 104382, 104384 thru 104387, 104389 thru 104399, 104402 thru 104404, 104418 thru 104421, 104423 thru 104430, 104457, 104488, 104489, 104526, 104560 thru 104562, 104572, 104573, 104575, 104576, 104591, 104592, 104598, 104601, 104609, 104613 thru 104617, 104630, 104632, 104645 thru 104650, 104665, 104666, 104684, 104685
- SPEC. 30** 79966, 79972, 104034, 104035, 104094, 104096, 104154, 104221, 104222, 104310, 104401, 104414, 104440, 104460, 104461, 104462, 104469, 104474, 104481, 104483, 104490, 104491, 104512, 104513, 104520, 104532, 104533, 104567, 104568, 104571, 104574, 104581, 104582, 104585, 104586, 104594, 104602, 104607, 104619, 104620, 104621, 104631, 104633, 104636, 104639, 104640, 104641, 104643, 104644, 104653, 104654, 104663, 104664
- SPEC. 42** 104477, 104478, 104510, 104511, 104550, 104551, 104564, 104565, 104577 thru 104580, 104593, 104595 thru 104597, 104599, 104600, 104608, 104612, 104622 thru 104627, 104655, 104656, 104667, 104668, 104671 thru 104682, 104687 thru 104702
- SPEC. 50** 104635, 104651, 104652

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- SPEC. 1** 77001, 77006 thru 77325, 77346, 77387 thru 77389, 77393 thru 77526, 77573 thru 77580, 77582, 77585 thru 77587, 77591, 77592, 77610, 77621, 77639, 77643, 77772, 77866, 77898, 77907, 77911, 77922, 77929
- SPEC. 5** 77347 thru 77386, 77390 thru 77392, 77532 thru 77560, 77562 thru 77572, 77622, 77623
- SPEC. 6** 77581, 77583, 77584, 77589, 77590, 77595 thru 77609, 77611 thru 77620, 77624 thru 77638, 77640 thru 77642, 77645 thru 77706, 77708 thru 77747, 77749 thru 77771, 77773 thru 77784, 77786, 77789, 77835 thru 77851, 77862 thru 77865, 77867 thru 77877, 77879, 77883, 77885, 77895, 77897, 77899, 77900, 77903, 77905, 77906, 77910
- SPEC. 7** 77785, 77787, 77788, 77790 thru 77816, 77818 thru 77829

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- SPEC. 1** 76001 thru 76088, 76090 thru 76124, 76126, 76128 thru 76135, 76938, 135103, 135125, 135126, 135140, 135155, 135162, 135165, 135187, 135203, 135204, 135218, 135219, 135277, 135281 thru 135284, 135287, 135299, 135303, 135305 thru 135309, 135311, 135318, 135319, 135324, 135326, 135345, 135368 thru 135370, 135372, 135389 thru 135401, 135421 thru 135425, 135448, 135450, 135451, 135453, 135459 thru 135461, 135463 thru 135467, 135472 thru 135481, 135496 thru 135501, 135508, 135533 thru 135535, 135545 thru 135549, 135555, 135556, 135560, 135562, 135564, 135567, 135578, 135588 thru 135590, 135592 thru 135599, 135616, 135618, 135619, 135644, 135646, 135647, 135662, 135668, 135672, 135710, 135711, 135717, 135732, 135733, 135750, 135752
- SPEC. 3** 76125, 76127, 76136 thru 76385, 76387 thru 76436, 76438 thru 76450, 76452 thru 76570, 76577 thru 76606, 76612 thru 76661, 76663, 76664, 76668, 76673 thru 76677, 76679 thru 76684, 76728, 76730, 76736, 76737, 76741, 76756, 76790, 76802, 76804, 76807, 76824, 76835, 76857, 76862, 76863, 76907, 76913, 76917, 76966, 135021, 135041, 135045, 135061, 135065, 135067, 135096, 135099, 135113, 135133, 135139, 135145, 135160, 135213 thru 135215, 135260, 135261, 135294, 135310, 135371, 135377, 135384 thru 135386, 135426, 135452, 135470, 135471, 135484 thru 135488, 135505, 135506, 135520, 135538 thru 135540, 135563, 135569, 135570, 135577, 135579 thru 135586, 135611, 135612, 135622, 135623, 135649, 135657, 135658, 135663, 135674, 135675, 135677, 135702, 135709, 135712, 135713, 135715, 135716
- SPEC. 5** 76437, 76751 thru 76576, 76607 thru 76609, 76611, 76662, 76665 thru 76667, 76669, 76671, 76678, 76696, 76697, 76703, 76707, 76713, 76720, 76727, 76729, 76738, 76744, 76749, 76757, 76758, 76765, 76769, 76789, 76801, 76803, 76806, 76808, 76810, 76815, 76827, 76861, 76871, 76878, 76906, 76908, 76911, 76914 thru 76916, 76929, 76941, 76945, 76946, 76983, 76984, 135022, 135038 thru 135040, 135057, 135063, 135064, 135066, 135068 thru 135071, 135074, 135101, 135102, 135109 thru 135112, 135127 thru 135130, 135137, 135138, 135142, 135158, 135161, 135179, 135211, 135212, 135246, 135293, 135374, 135402, 135405 thru 135412, 135483, 135521, 135757, 135762, 135782, 135797
- SPEC. 7** 76670, 76672, 76685 thru 76695, 76698 thru 76702, 76704 thru 76706, 76722 thru 76724, 76731 thru 76735, 76751 thru 76755, 76759 thru 76764, 76766 thru 76768, 76770 thru 76778, 76780 thru 76788, 76791 thru 76800, 76809, 76811 thru 76814, 76816 thru 76821, 76829, 76836 thru 76839, 76848 thru 76856, 76901 thru 76905, 76912, 76918 thru 76928, 76930 thru 76936, 76939, 76940, 76942 thru 76944, 76947 thru 76964, 76968 thru 76970, 76974, 76977, 76981, 76982, 76985 thru 76993, 135012 thru 135020, 135023 thru 135026, 135028 thru 135037, 135042 thru 135044, 135051 thru 135056, 135058, 135059, 135107, 135108, 135132, 135494, 135495, 135518, 135519, 135613, 135634, 135653 thru 135656, 135660, 135673, 135745, 135761, 135763 thru 135770, 135774, 135776, 135799, 135801
- SPEC. 8** 76708 thru 76712, 76739, 76740, 76742, 76743, 76745 thru 76748, 76750, 135542

- SPEC. 9** 76714 thru 76719, 76779 thru 76785, 76965, 76967, 76972, 76973, 76975, 76976, 76978 thru 76980, 76995 thru 76999, 135004 thru 135011, 135046 thru 135050, 135131, 135134 thru 135136, 135457
- SPEC. 11** 76822, 76823, 76826, 76828, 76830 thru 76834, 76840 thru 76847, 76859, 76860, 76864, 76870, 76886 thru 76900, 76910, 76994, 135072, 135073, 135141, 135143, 135144, 135146 thru 135154, 135163, 135164, 135168, 135169, 135171 thru 135176, 135180, 135186, 135189, 135192, 135194, 135195, 135201, 135205
- SPEC. 17** 135060, 135062, 135075 thru 135095, 135097, 135098, 135100, 135104 thru 135106, 135114 thru 135124, 135157, 135159, 135166, 135167, 135170, 135177, 135178, 135181 thru 135184, 135206 thru 135210, 135232, 135237, 135238, 135241, 135242, 135244, 135248, 135249, 135251, 135256 thru 135258, 135262, 135264, 135266, 135268, 135270 thru 135276, 135278 thru 135280, 135285, 135286, 135288, 135290, 135291, 135297, 135300 thru 135302, 135304, 135312 thru 135317, 135327, 135332 thru 135339, 135351 thru 135367, 135373, 135375, 135376, 135378 thru 135383, 135388, 135456, 135708, 135718 thru 135721
- SPEC. 18** 135216, 135217, 135220 thru 135227, 135229 thru 135231, 135233, 135239, 135240, 135243, 135245, 135247, 135250, 135252, 135253, 135259, 135263, 135265, 135267, 135269, 135289, 135292, 135295, 135296, 135298, 135328 thru 135331, 135341 thru 135344, 135348 thru 135351, 135403, 135404, 135414, 135416 thru 135420, 135428, 135430 thru 135443, 135446, 135449, 135454, 135455, 135458, 135462, 135482, 135502, 135503, 135507, 135512 thru 135517, 135522, 135524 thru 135532, 135536, 135541, 135543, 135544, 135550 thru 135554, 135557 thru 135559, 135561, 135565, 135566, 135568, 135571 thru 135576, 135600 thru 135606, 135608, 135609, 135610, 135615, 135620, 135621, 135624 thru 135633, 135635, 135636, 135638, 135640, 135641, 135643, 135652, 135669, 135722, 135753, 135754, 135759, 135760, 135779, 135780, 135781, 135785, 135786, 135796, 135798

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- SPEC. 1** 87002 thru 87009, 87011 thru 87099, 87100 thru 87169

IO-470-J

- SPEC. 1** 85101 thru 85270, 85272 thru 85399, 85400 thru 85416, 85420, 85421, 85424, 85426, 85427, 85432, 85433, 85434

IO-470-K

- SPEC. 3** 86001 thru 86258, 86260 thru 86310, 86313 thru 86532, 86534 thru 86583, 86585 thru 86611, 86613 thru 86716, 86718 thru 86741, 86744 thru 86798, 86800 thru 86805, 86809 thru 86851, 86854, 86856 thru 86946, 86949 thru 86969, 86971, 86972, 86974, 86975, 86977 thru 86980, 86984, 86985, 86986, 86989

- SPEC. 11** 86981, 86982, 86996 thru 87000, 203501 thru 203505, 203508 thru 203511, 203518 thru 203536

IO-470-L

- SPEC. 1** 90001 thru 90060, 90063 thru 90252, 91236, 91237, 91242, 91674, 91675, 155268
- SPEC. 3** 90253 thru 90422, 90424 thru 90458, 90460 thru 90522, 90524 thru 90551, 90553 thru 90559, 90564, 90722, 90918, 91673, 91768, 91954, 91955, 155056, 155528, 155529, 155547, 155894, 155895

- SPEC. 5** 90552, 90560 thru 90563, 90565 thru 90596, 90598 thru 90606, 90609 thru 90645, 90647 thru 90668, 90670 thru 90713, 90715, 90718 thru 90721, 90723 thru 90740, 90742 thru 90763, 90766 thru 90833, 90835 thru 90912, 90914, 90916, 90917, 90919 thru 90942, 90944 thru 91043, 91045 thru 91071, 91073 thru 91098, 91100 thru 91153, 91155 thru 91235, 91238 thru 91241, 91243 thru 91260, 91262 thru 91265, 91267, 91268, 91270 thru 91304, 91306 thru 91320, 91322 thru 91355, 91357 thru 91457, 91459 thru 91515, 91518 thru 91564, 91566 thru 91672, 91676 thru 91702, 91704 thru 91716, 91746, 91747, 91790, 91836, 91854 thru 91857, 91872, 91886, 91926, 91930, 91931, 91934, 91939, 91940, 91956, 155011, 155017, 155019, 155020, 155093, 155106, 155108, 155120, 155233, 155236 thru 155238, 155267, 155285, 155530, 155557, 155877
- SPEC. 8** 91703, 91718 thru 91745, 91748 thru 91767, 91769 thru 91789, 91791 thru 91795, 91798, 91800 thru 91810, 91812 thru 91835, 91837 thru 91853, 91858 thru 91871, 91873 thru 91885, 91887 thru 91925, 91932, 91933, 91935, 91937, 91938, 91941 thru 91953, 91957 thru 91984, 91986 thru 91999, 155001 thru 155010, 155012 thru 155016, 155018, 155021 thru 155045, 155048 thru 155055, 155057 thru 155087, 155089 thru 155092, 155094 thru 155105, 155109 thru 155112, 155192, 155195, 155230, 155231, 155263 thru 155265, 155293, 155295, 155300, 155373 thru 155378, 155415, 155418, 155421, 155438 thru 155440, 155471, 155473, 155477 thru 155481, 155485, 155537, 155539, 155541, 155542, 155582, 155586, 155587, 155596, 155597, 155684 thru 155687, 155975, 155976, 201076, 201155
- SPEC. 9** 155118, 155121 thru 155156, 155159, 155162 thru 155170, 155176 thru 155191, 155193, 155194, 155196 thru 155199, 155202 thru 155229, 155232, 155234, 155235, 155239 thru 155262, 155269 thru 155284, 155286 thru 155292, 155294, 155296 thru 155333, 155336, 155338 thru 155349, 155352, 155353, 155355 thru 155372, 155386, 155388 thru 155414, 155416, 155417, 155419, 155420, 155423 thru 155437, 155441 thru 155449, 155452, 155453, 155472, 155482, 155486, 155488, 155491 thru 155493, 155495, 155497 thru 155501, 155509, 155511, 155512, 155514 thru 155516, 155519, 155525, 155534 thru 155536, 155538, 155540, 155543 thru 155546, 155573 thru 155580, 155590 thru 155595, 155598 thru 155603, 155606 thru 155617, 155620 thru 155630, 155635 thru 155677, 155688 thru 155762, 155764 thru 155767, 155769 thru 155782, 155784 thru 155789, 155792 thru 155876, 155879 thru 155883, 155885 thru 155888
- SPEC. 13** 155379 thru 155384, 155387, 155422, 155454 thru 155468, 155483, 155484, 155502 thru 155508, 155510, 155517, 155518, 155526, 155527, 155531 thru 155533, 155548 thru 155554, 155558 thru 155572, 155583, 155588, 155589, 155604, 155605, 155618, 155619, 155631 thru 155634, 155783
- SPEC. 15** 155878, 155884, 155889 thru 155893, 155896 thru 155942, 155944 thru 155973, 155977, 155979 thru 15600, 201001 thru 201021, 201023, 201025 thru 201028, 201031 thru 201052, 201056 thru 201060, 201150, 201156, 201377, 201458
- SPEC. 18** 155790, 155791, 201147, 201148, 201153, 201168, 201351, 201425, 201426, 201434, 201459, 201551, 201552
- SPEC. 19** 201063 thru 201075, 201077 thru 201082, 201085 thru 201146, 201157 thru 201167, 201171 thru 201199, 201200 thru 201215, 201218, 201219, 201222 thru 201269, 201272 thru 201305, 201308 thru 201347, 201349, 201350, 201352 thru 201357, 201359 thru 201366, 201378 thru 201393, 201395, 201404 thru 201424, 201429 thru 201433, 201435 thru 201453, 201455, 201456, 201465 thru 201505, 201508 thru 201521, 201532, 201533, 201534, 201550, 201604, 201678, 201679
- SPEC. 21** 201523 thru 201527, 201529, 201530, 201535, 201536 thru 201549, 201553 thru 201575, 201577 thru 201595, 201597, 201598, 201600 thru 201602, 201605 thru 201671, 201674, 201675, 201677, 201680 thru 201724

IO-470-M

- SPEC. 1** 93001 thru 93028, 93031 thru 93199, 93200 thru 93216, 93228 thru 93232, 93235

IO-470-N

- SPEC. 1** 95001 thru 95251, 95253 thru 95446, 95453 thru 95455, 95458 thru 95491, 95493, 95494, 95496 thru 95502, 95504 thru 95512, 95514 thru 95625, 95627 thru 95649, 95651 thru 95780, 95784 thru 95789, 95792 thru 95799, 95800, 95801, 95802, 95809, 95810, 95811, 95813 thru 95832, 95834, 95835, 95836, 95838
- SPEC. 7** 95650, 95839 thru 95850, 95898, 95901, 95912
- SPEC. 10** 95851 thru 95894, 95813
- SPEC. 11** 95895, 95896, 95897, 96899, 95900, 95902 thru 95911, 95913 thru 95916

IO-470-S

- SPEC. 1** 102001 thru 102275, 102532, 102997
- SPEC. 2** 102276 thru 102297, 102301 thru 102323, 102329 thru 102357, 102360 thru 102363, 102365, 102368 thru 102425, 102427, 102428, 102433, 102434, 102440, 102443, 102444, 102446, 102449, 102451, 102452, 102454, 102456, 102457, 102461 thru 102472, 102477 thru 102482, 102492 thru 102497, 102503 thru 102507, 102510 thru 102528, 102530, 102531, 102533 thru 102535, 102537 thru 102539, 102541 thru 102544, 102546, 102547, 102555 thru 102569, 102589 thru 102610, 102619 thru 102632, 102635, 102644 thru 102664, 102668 thru 102671, 102675, 102677 thru 102695, 102700 thru 102707, 102709, 102712, 102714 thru 102755, 102761 thru 102768, 102774 thru 102785, 102792, 102794, 102796, 102798, 102800 thru 102820, 102822 thru 102825, 102827, 102836 thru 102842, 102844 thru 102870, 102872 thru 102879, 102881 thru 102883, 102886 thru 102901, 102912, 102914, 102919 thru 102937, 102939 thru 102959, 102961 thru 102967, 102969, 102970, 102994, 102995, 102999, 103002, 103005 thru 103009, 103011, 103013 thru 103018, 103020, 103021, 103023, 103025 thru 103028
- SPEC. 3** 102298 thru 102300, 102324 thru 102328, 102358, 102359, 102364, 102366, 102367, 102426, 102429, 102430, 102432, 102441, 102442, 102445, 102447, 102448, 102449, 102450, 102453, 102455, 102458 thru 102460, 102473 thru 102476, 102483 thru 102491, 102508, 102509, 102536, 102578 thru 102586, 102611 thru 102618, 102633, 102634, 102636 thru 102643, 102665 thru 102667, 102672 thru 102674, 102708, 102710, 102711, 102713, 102756 thru 102760, 102769 thru 102773, 102786 thru 102791, 102793, 102795, 102797, 102799, 102821, 102826, 102828 thru 102835, 102843, 102871, 102880, 102990, 102996, 103001, 103003, 103004, 103010, 103019, 103022, 103024, 103030
- SPEC. 4** 102435 thru 102439, 102498 thru 102502, 102529, 102540, 102545, 102548 thru 102554, 102570 thru 102577, 102587, 102588, 102884, 102885, 102902 thru 102911, 102913, 102915 thru 102918

IO-470-U

- SPEC. 1** 115001 thru 115738, 115740 thru 115742, 115744 thru 115792, 115808 thru 115836, 115839 thru 115847, 115854 thru 115864, 115866 thru 115873, 115875, 115884, 115886, 115888, 115890 thru 115907, 115909 thru 115912, 115915, 115916, 115918 thru 115929, 115933 thru 115936

IO-470-V

- SPEC. 1** 147001 thru 147099, 147101 thru 147360, 147362 thru 147493, 147497, 147498, 147511, 147519, 147562 thru 147564, 147846, 147851, 147937, 147938, 147948, 147949, 147951, 147953, 147956, 147971, 147977, 148906
- SPEC. 2** 147494 thru 147496, 147499 thru 147510, 147512 thru 147518, 147520 thru 147561, 147565 thru 147706, 147708 thru 147845, 147847 thru 147850, 147852 thru 147936, 147939 thru 147947, 147950, 147952, 147954, 147955, 147957 thru 147970, 147972 thru 147976, 147978 thru 147987, 147990 thru 148001, 148877, 148898
- SPEC. 6** 149235, 149301, 149395, 149579
- SPEC. 8** 147988, 147989, 148002 thru 148093, 148095 thru 148386, 148391 thru 148395, 148398 thru 148403, 148405, 148406, 148417, 148420 thru 148422, 148427 thru 148433, 148468, 148511, 148512
- SPEC. 9** 148900 thru 148905, 148907 thru 148974, 148976 thru 148997, 148999 thru 149079, 149083 thru 149118, 149121 thru 149234, 149236 thru 149299, 149302 thru 149328, 149331 thru 149359, 149362 thru 149394, 149397 thru 149445, 149447 thru 149450, 149452 thru 149501, 149503 thru 149555, 149558 thru 149578, 149580 thru 149647
- SPEC. 10** 148975, 148998, 149080 thru 149082, 149119, 149120, 149300, 149329, 149330, 149360, 149361, 149396, 149446, 149451, 149502, 149556, 149557

SECTION II

GROUP ASSEMBLY PARTS LIST

MARCH 1979

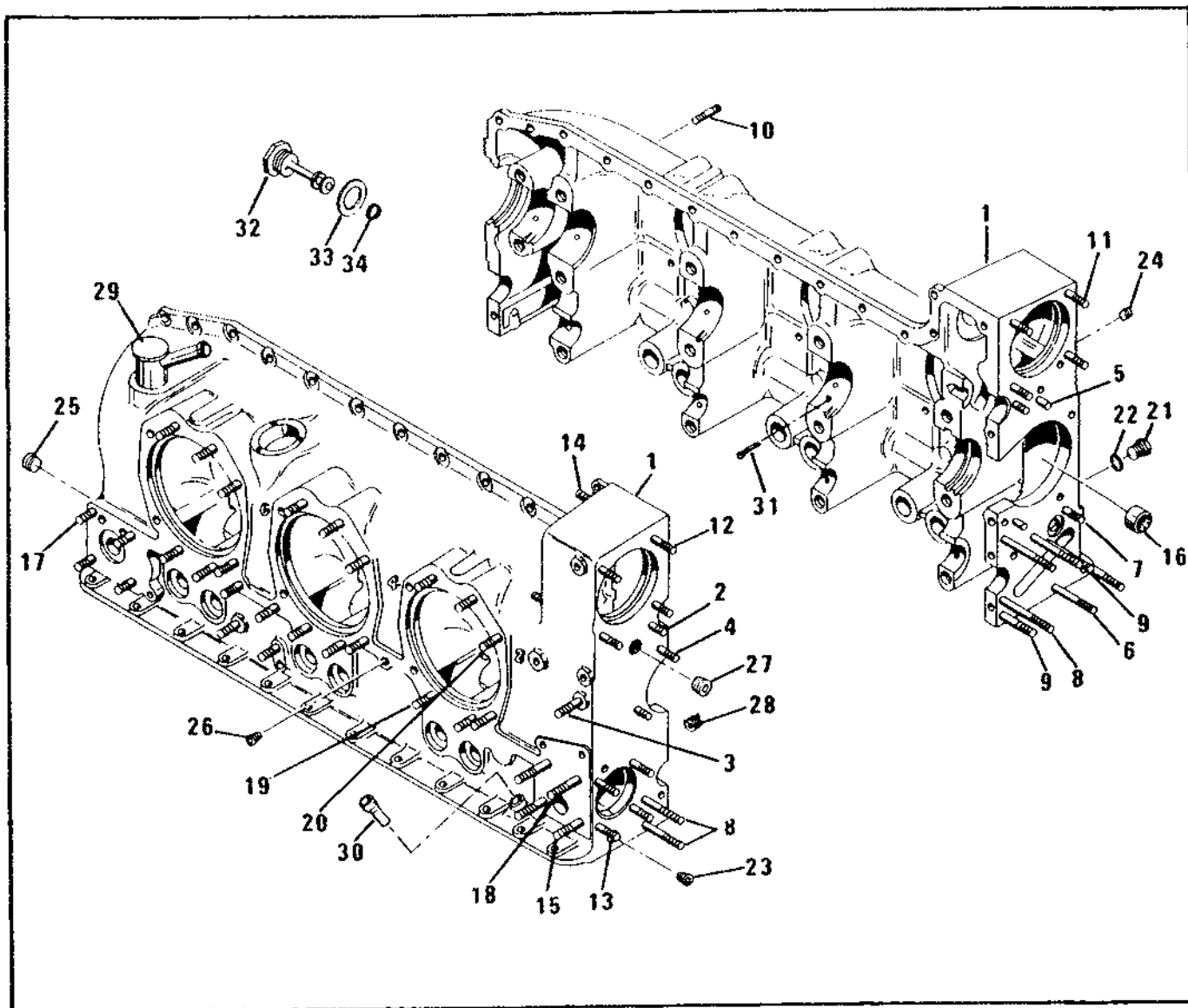


FIGURE 1 - CRANKCASE STUDDING ASSEMBLY
MODELS O-470-A,B,E,G,J,K,L,M,P,R,S,U

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY															
				A	B	E	G	J	K	L	M	P	R	S	U				
1-1	539501	①	Crankcase Studding Assembly		1														
-1	539734	①	Crankcase Studding Assembly			1													
-1	642178A1	②③	Crankcase Studding Assembly				1					1							
-1	642183A1	①②	Crankcase Studding Assembly	1				1	1										
-1	642182A1	②	Crankcase Studding Assembly							1									
-1	642193A1	②	Crankcase Studding Assembly								1								
-1	642159A1	②	Crankcase Studding Assembly										1						
-1	642194A1	②	Crankcase Studding Assembly												1	1			
-2	401963	†	Stud, 1/4 x 1 Inch Long	2		2	2	2	2	2		2	2	2	2				
-2	401870	†	Stud, 1/4 x 1-1/8 Inch Long		2						2								
-3	402042	†	Stud, 5/16 x 1 Inch Long		1		1					1							
-3	402048	†	Stud, 5/16 x 3-11/16 Inch Long								1								
-4	401885	†	Stud, 5/16 x 1-5/16 Inch Long	2	2	2	2	2	2	2	2	2	2	2	2	2			
-5	531548		Dowel	2	2	2	2	2	2	2	2	2	2	2	2	2			
-6	402129	†	Stud, 1/4 x 2-3/4 Inch Long	2	2	2	2	2	2	2	2	2	2	2	2	2			

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY															
				A	B	E	G	J	K	L	M	P	R	S	U				
1 -7	401852	†	Stud, 1/4 x 1-13/32 Inch Long	1	1	1	1	1	1	1	1	1	1	2	1				
-8	402056	†	Stud, 1/4 x 3-9/16 Inch Long	5	5	5	5	5	5	5	5	5	5	5	5				
-9	401886	†	Stud, 1/4 x 3-3/16 Inch Long	2	2	2	2	2	2	2	2	2	2	2	2				
-10	401841	†	Stud, 1/4 x 2-3/32 Inch Long	5		5	3	5	5	3		3	3	3	3				
-10	401806	†	Stud, 1/4 x 1-1/8 Inch Long				2					2							
-10	401808	†	Stud, 1/4 x 1-5/16 Inch Long		5					2	5		2	2	2				
-11	401885	†	Stud, 5/16 x 1-5/16 Inch Long	6	6	6	6	6	6	6	6	6	6	6	6				
-12	401965	†	Stud, 3/8 x 1-13/32 Inch Long	2	2			2	2	2	2		2	2	2				
-12	402153	†	Stud, 3/8 x 1-5/16 Inch Long			2	2					2							
-13	401814	†	Stud, 5/16 x 1-7/8 Inch Long		4	4													
-13	402151	†	Stud				4				4	4							
-13	401836	†	Stud, 5/16 x 1-3/8 Inch Long	4				4	4	4				4	4	4			
-14	401885	†	Stud, 5/16 x 1-5/16 Inch Long	4	4	4	4	4	4	4	4	4	4	4	4				
-15	401861	†	Stud, 3/8 x 1-25/32 Inch Long		15	15					8								
-15	402066	†	Stud, 3/8 x 1-7/8 Inch Long	15				15	15	15	7		15	15	15				
-16	537721		Bearing, Needle	1	1	1	1	1	1	1	1	1	1	1	1				
-17	401814	†	Stud, 5/16 x 1-7/8 Inch Long		4	4					4								
-17	401899	†	Stud, 5/16 x 2 Inch Long	4			4	4	4	4		4	4	4	4				
-18	401861	†	Stud, 3/8 x 1-25/32 Inch Long		1	1					1								
-18	402066	†	Stud, 3/8 x 1-7/8 Inch Long	1				1	1	1				1	1	1			
-19	639418-2	④	Stud, 7/16 x 1-19/32 Inch Long, Class 3	12	12	12	12	12	12	12	12	12	12	12	12				
-19	631867	④†	Stud, 7/16 x 1-19/32 Inch Long	12	12	12	12	12	12	12	12	12	12	12	12				
-20	639418-1	④	Stud, 7/16 x 2-1/16 Inch Long, Class 3	24	24	24	24	24	24	24	24	24	24	24	24				
-20	538404	④†	Stud, 7/16 x 2-1/16 Inch Long	24	24	24	24	24	24	24	34	24	24	24	24				
-21	532432		Plug, Drilled Hex Head, 5/8 - 18	1	1	1	1	1	1	1	1	1	1	1	1				
-22	AN900-10	&	Gasket, Annular	1	1	1	1	1	1	1	1	1	1	1	1				
-23	629518-1H		Plug, Pipe, 1/8 NPT	1	1	1	1	1	1	1	1	1	1	1	1				
-24	629518-1H		Plug, Pipe, 1/8 NPT	1	1	1	1	1	1	1	1	1	1	1	1				
-25	2025		Plug, Pipe, 3/8 NPT	7	4	6	4	4	4	4	4	4	4	4	4				
-26	629518-3H		Plug, Pipe, 3/8 NPT		1	1	1	1	1	1	1	1	1	1	1				
-27	629518-3H		Plug, Pipe, 3/8 NPT	1	1	1	1	1	1	1	1	1	1	1	1				
-28	MS122162		Insert	4	4	4	4	4	4	4	4	4	4	4	4				
-28	MS122122		Insert	1	1	1	1	1	1	1	1	1	1	1	1				
-29	537505		Breather Assembly, Crankcase	1	1	1	1	1	1	1	1	1	1	1	1				
-30	537297		Guide, Oil Gauge Rod	1	1	1		1	1	1	1								
-30	631927		Guide, Oil Gauge Rod												1	1	1		
-31	629847		Nozzle Squirt												6	6			
-32	626334		Plug, Special							1	1								
-33	625966	&	Gasket							1	1								
-34	AN123866	&	Seal, O-Ring							1	1								

NOTES:

- ① Crankcase for models O-470-A-B-E-J can be supplied with 1/2" thru bolts by ordering 625566A1 crankcase kit if engine model is specified on your order.
- ② These are Phase 3 style crankcases. For earlier style, Phase 1 & 2, see Service Bulletin M78-9.
- ③ For early model O-470-G engines not equipped with oil transfer collars, order 628783A1 crankcase and collar kit.
- ④ Service in accordance with Service Bulletin M72-24.

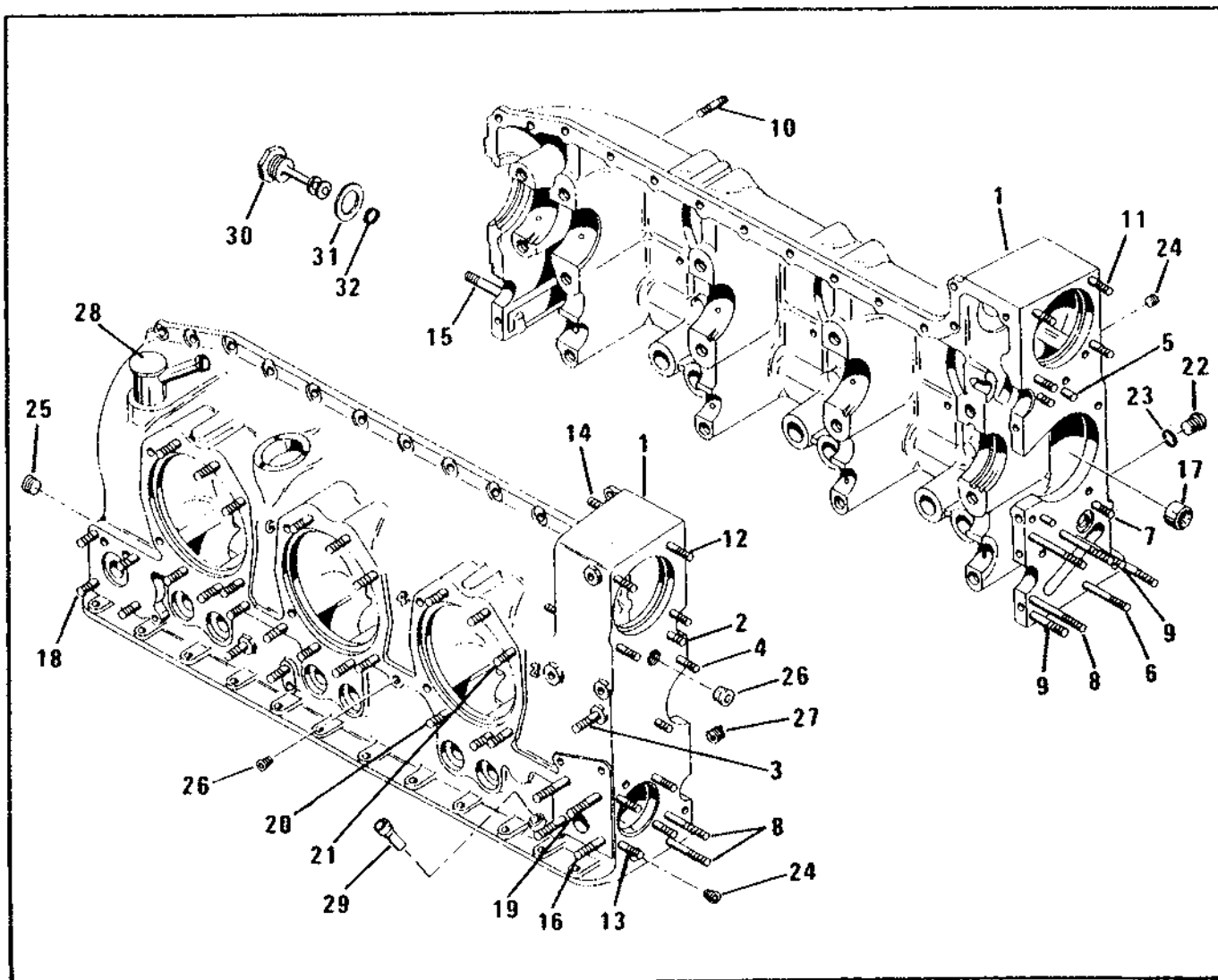


FIGURE 2 - CRANKCASE STUDDING ASSEMBLY
MODELS IO-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																						
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V							
2-1	642178A1	①	Crankcase Studding Assembly						1				1													
-1	642172A1	①	Crankcase Studding Assembly							1																
-1	642167A1	①	Crankcase Studding Assembly								1											1	1			
-1	642173A1	①	Crankcase Studding Assembly									1														
-1	642179A1	①	Crankcase Studding Assembly										1						1							
-1	642189A1	①	Crankcase Studding Assembly											1												
-1	642177A1	①	Crankcase Studding Assembly												1											
-1	642166A1	①	Crankcase Studding Assembly														1									
-1	629887		Crankcase Studding Assembly																	1						
-1	642169A1	①	Crankcase Studding Assembly																						1	
-1	642170A1	①	Crankcase Studding Assembly																							1
-2	401963	†	Stud, 1/4 x 1 Inch Long						2		2	2	2	2	2		2	2								
-2	401870	†	Stud, 1/4 x 1-1/8 Inch Long							2	2						2			2	2	2	2	2	2	
-3	402042	†	Stud, 5/16 x 1 Inch Long								1	1			1	1	1									
-3	401881	†	Stud, 5/16 x 1-1/8 Inch Long									1	1							1	1	1				
-3	402151	†	Stud, 5/16 x 1-1/4 Inch Long										1						1							
-4	401885	†	Stud, 5/16 x 1-5/16 Inch Long						2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY															
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V
2-5	531548	Dowel	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-6	402129	† Stud, 1/4 x 2-3/4 Inch Long	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-7	401852	† Stud, 1/4 x 1-13/32 Inch Long	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-7	401893	† Stud, 1/4 x 1-1/4 Inch Long												1				
-8	402056	† Stud, 1/4 x 3-9/16 Inch Long	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
-9	401886	† Stud, 1/4 x 3-3/16 Inch Long	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-10	401841	† Stud, 1/4 x 2-3/32 Inch Long	3		3	5	3	3	3	3				3	3	3	3	
-10	401806	† Stud, 1/4 x 1-1/4 Inch Long	2		2		2	2	2	2				2		2		
-10	401808	† Stud, 1/4 x 1-5/16 Inch Long		5							5	5					5	5
-11	401885	† Stud, 5/16 x 1-5/16 Inch Long	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
-11	401895	† Stud, 5/16 x 2-7/16 Inch Long										2						
-12	401965	† Stud, 3/8 x 1-13/32 Inch Long	2	2	2	2	2	2	2	2	4	2	2		2		2	2
-12	402153	† Stud, 3/8 x 1-5/16 Inch Long												2		2		
-13	402151	† Stud, 5/16 x 1-1/4 Inch Long	4	4	4	4	4	4	4	4	4	4	4		4	4	4	2
-13	401814	† Stud, 5/16 x 1-7/8 Inch Long												4				
-14	401885	† Stud, 5/16 x 1-5/16 Inch Long	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-15	402162	† Stud, 7/16 x 3-1/4 Inch Long												2				
-16	401861	† Stud, 3/8 x 1-25/32 Inch Long		8										7			7	8
-16	402066	† Stud, 3/8 x 1-7/8 Inch Long		7	16	16					14	16			16	16	8	8
-16	401798	† Stud, 3/8 x 2 Inch Long									1							
-17	537721	Bearing, Needle	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-18	401899	† Stud, 5/16 x 2 Inch Long	4	4	4	4	4	4		4	4	4	4		4	4	4	4
-18	401814	† Stud, 5/16 x 1-7/8 Inch Long												4				
-18	401809	† Stud, 5/16 x 1-3/8 Inch Long							4									
-19	401977	† Stud, 3/8 x 2-3/32 Inch Long									1							
-19	401861	† Stud, 3/8 x 1-25/32 Inch Long												1				
-20	639418-2	② Stud, 7/16 x 1-19/32 Inch Long, Class 3	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
-20	631867	② † Stud, 7/16 x 1-19/32 Inch Long	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
-21	639418-1	② Stud, 7/16 x 2-1/16 Inch Long, Class 3	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
-21	538404	② † Stud, 7/16 x 2-1/16 Inch Long	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
-22	532432	Plug, 5/8 - 18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-23	AN900-10	& Gasket, Annular	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-24	629518-1H	Plug, 1/8 NPT	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-25	2025	Plug, 3/8 NPT	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-26	629518-3H	Plug, 3/8 NPT	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-27	MS122162	Insert	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-27	MS122122	Insert	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-28	537505	Breather Assembly, Crankcase	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-29	537297	Guide, Oil Gauge Rod		1	1	1						1		1			1	1
-30	626334	Plug, Special		1							1						1	1
-31	625996	Gasket, Special		1							1						1	1
-32	AN123866	Seal, O-Ring		1							1						1	1

NOTES:

- ① These are Phase 3 style crankcases. For earlier style, Phase 1 & 2, see Service Bulletin M78-9.
- ② Service in accordance with Service Bulletin M72-24.

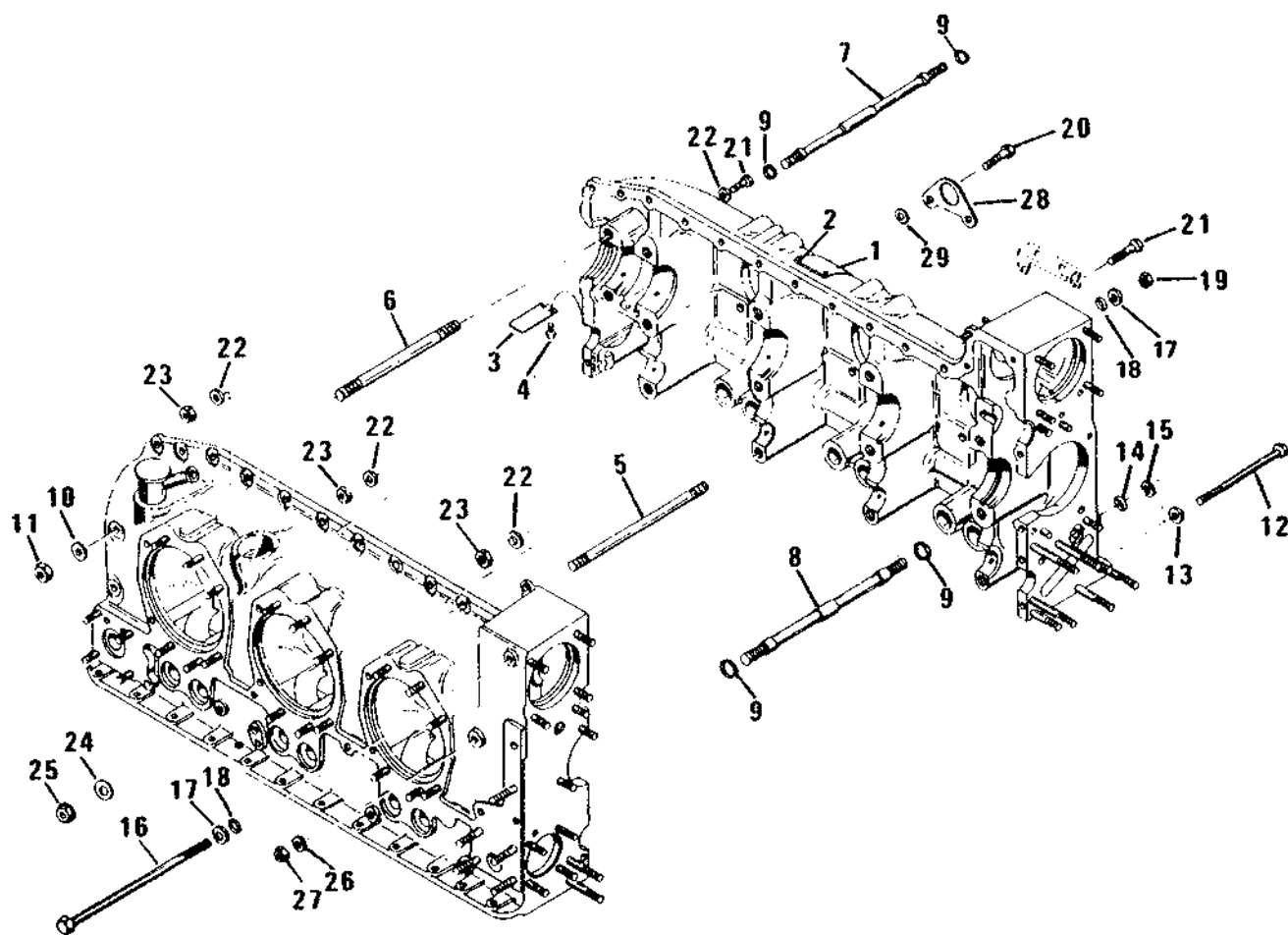


FIGURE 3 - CRANKCASE ATTACHING PARTS
MODELS O-470-A,B,E,G,J,K,L,M,P,R,S,U

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY														
			A	B	E	G	J	K	L	M	P	R	S	U			
3-1	* * *	Plate, Identification	1	1	1	1	1	1	1	1	1	1	1	1			
		ATTACHING PARTS															
-2	24764	Screw, Drive	6	6	6	6	6	6	6	6	6	6	6	6			
		* * * *															
-3	642250	① Clip, Spring				1						1					
		ATTACHING PARTS															
-4	AN500A10-4	Screw				2						2					
		* * * *															
-5	538944-10.50	Bolt, Crankcase Through	4	4	4	4	4	4	4	4	4	4	4	4			
-6	538944-8.88	Bolt, Crankcase Through	2	2	2	2	2	2	2	2	2	2	2	2			
-7	641930-9.81	Bolt, Crankcase Through	1	1	1	1	1	1	1	1	1	1	1	1			
-8	641931-10.75	Bolt, Crankcase Through	7	7	7	7	7	7	7	7	7	7	7	7			
-9	MS29513-010	O-Ring	16	16	16	16	16	16	16	16	16	16	16	16			
-10	25171	Spacer, Crankcase Through Bolt	4	4	4	4	4	4	4	4	4	4	4	4			
-11	531001	Nut, Flanged	4	4	4	4	4	4	4	4	4	4	4	4			
-12	627443	Bolt	4	4	4	4	4	4	4	4	4	4	4	5			
-13	2473	Washer, Plain, 5/16 Inch	3	3	3	3	3	3	3	3	3	3	3	4			
-14	25328	& O-Ring	1	1	1	1	1	1	1	1	1	1	1	1			
-15	539374	Washer	1	1	1	1	1	1	1	1	1	1	1	1			
-16	535810	Bolt	1	1	1	1	1	1	1	1	1	1	1				
-16	630693-10.44	Bolt												1			
-17	24239	Washer, Plain	2	2	2	2	2	2	2	2	2	2	2	2			
-18	AN123862	& O-Ring	2	2	2	2	2	2	2	2	2	2	2	2			
-19	2441	Nut, Plain Hex, 3/8	1	1	1	1	1	1	1	1	1	1	1	2			
-20	AN5-15A	② Bolt	2	2	2	2	2	2	2	2	2	2	2	2			
-20	AN5-13A	③ Bolt	2	1		1											
-21	AN5-13A	② Bolt	11	11	11	11	11	11	11	11	11	11	11	11			
-21	AN5-14A	③ Bolt	2	2	2	2	2	2	2	2	2	2	2	2			
-21	AN5-12A	③ Bolt	11	11	10	10	10	10	10	10	11	10	10	11			
-22	2473	Washer, Flat	24	24	24	24	24	24	24	24	24	24	24	24			
-23	2439	Nut, Plain Hex	13	13	13	13	13	13	13	13	13	13	13	13			
-24	25171	Spacer	8	8	8	8	8	8	8	8	8	8	8	8			
-25	531001	Nut, Flanged, 7/17	8	8	8	8	8	8	8	8	8	8	8	8			
-26	538989	Washer, Plain	4	4	4	4	4	3	4	4	4	4	4	4			
-27	634511	Nut, Plain	4	4	4	4	4	3	4	4	4	4	4	4			
-28	538650	Lifting Eye	1	1	1	1	1	1	1	1	1	1	1	1			
-29	538949	Spacer, Crankcase-to-Lifting Eye	2	2	2	2	2	2	2	2	2	2	2	2			

NOTES:

*** Order Identification Plate in accordance with Service Bulletin M75-5.

① Early crankcase design uses PN 626990. Spring Clip 642250 and 626990 are not interchangeable. See Service Bulletin M78-3.

② These bolts are used and supplied with Phase 3 crankcases. See Service Bulletin M78-9.

③ These bolts are used with Phase 1 & 2 crankcases. See Service Bulletin M78-9.

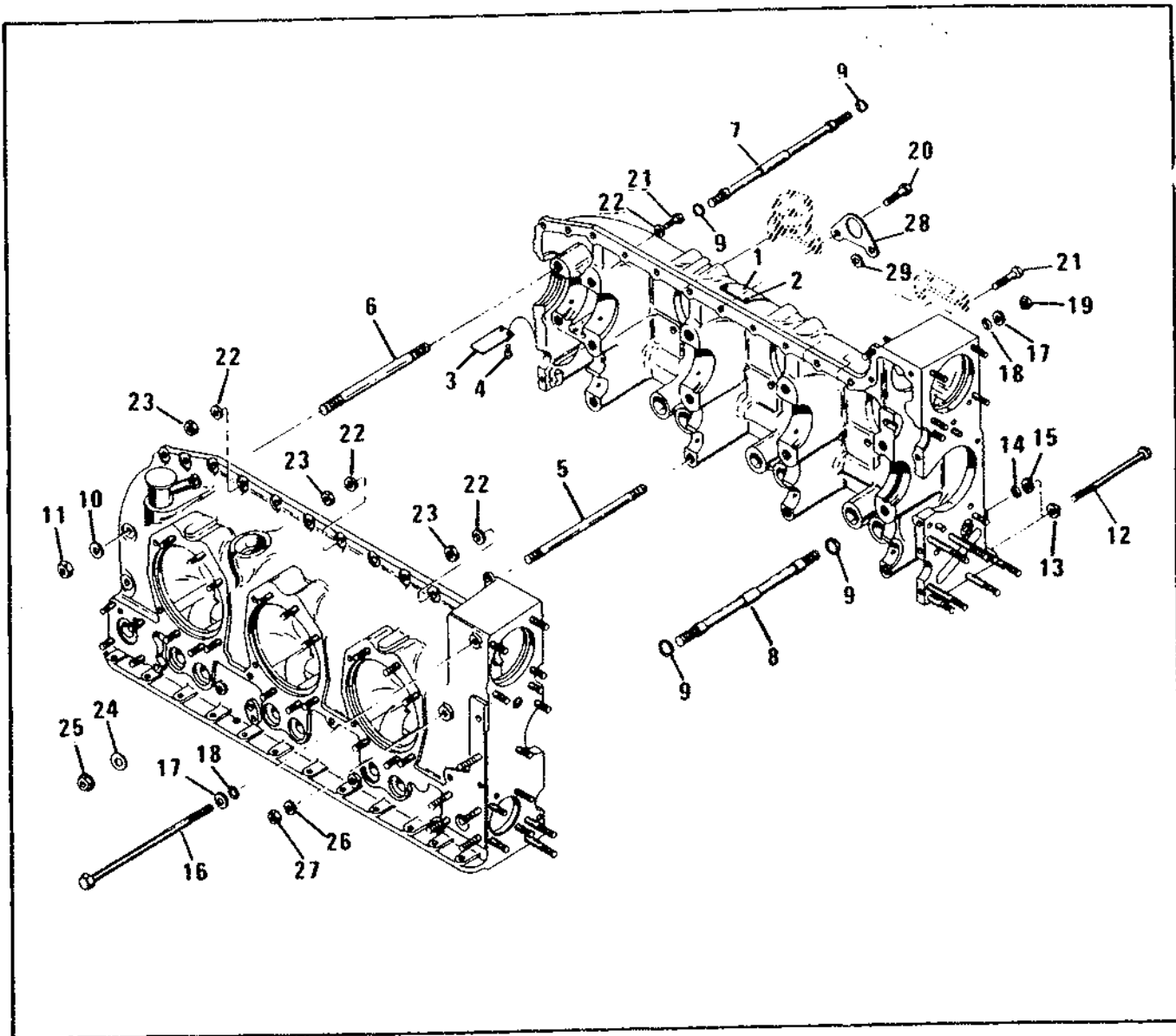


FIGURE 4 - CRANKCASE ATTACHING PARTS
MODELS 10-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V
4-1	* * *	Plate, Identification	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ATTACHING PARTS																		
-2	24764	Screw, Drive	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
* * * *																		
-3	642250	① Clip, Spring	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ATTACHING PARTS																		
-4	AN500A10-4	Screw	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
* * * *																		
-5	538944-10.50	Bolt, Crankcase Through	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-6	538944-8.88	Bolt, Crankcase Through	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-7	641930-9.81	Bolt, Crankcase Through	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-8	641931-10.75	Bolt, Crankcase Through	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
-9	MS29513-010	O-Ring	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
-10	25171	Spacer, Crankcase Through Bolt	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-11	531001	Nut, Flanged	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-12	627433	Bolt, Drilled Hex Head	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-13	2473	Washer, Plain	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4
-14	25328	& O-Ring	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-15	539374	Washer, Plain	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-15	401506	Washer	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-16	535810	Bolt	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-17	24239	Washer, Plain	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-18	AN123862	& O-Ring	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-19	2441	Nut, Plain Hex, 3/8 Inch	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-20	AN5-15A	② Bolt	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-20	AN5-13A	③ Bolt	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-21	AN5-14A	② Bolt	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-21	AN5-14A	③ Bolt	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	AN5-13A	② Bolt	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	AN5-12A	③ Bolt	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	AN5-12A	Bolt	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
-22	2473	Washer, Flat	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
-23	2439	Nut, Plain Hex	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
-24	25171	Spacer	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
-25	531001	Nut, Flanged	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4
-26	538989	Washer, Plain	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4
-27	634511	Nut, Plain	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-28	538650	Lifting, Eye	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-29	538949	Spacer, Crankcase-to-Lifting Eye	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

NOTES:

*** Order Identification Plate in accordance with Service Bulletin M75-5.

① Early crankcase design uses P/N 626990. Spring clip 626990 and 642250 are not interchangeable. See Service Bulletin M78-3.

② These bolts are used and supplied with Phase 3 style crankcases. See Service Bulletin M78-9.

③ These bolts are used with Phase 1 & 2 style crankcases. See Service Bulletin M78-9.

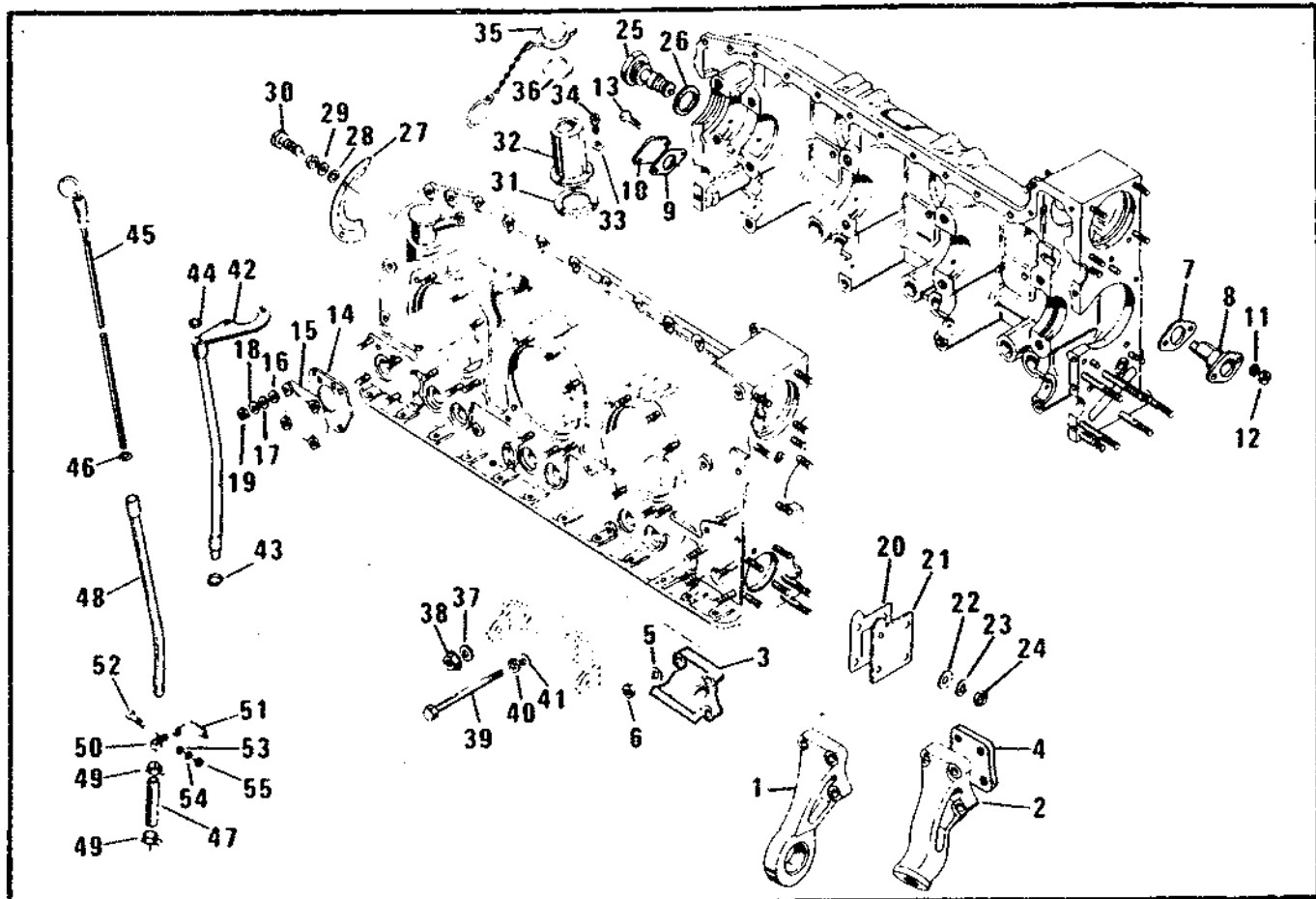


FIGURE 5 - CRANKCASE ASSOCIATED PARTS
MODELS O-470-A,B,E,G,J,K,L,M,P,R,S,U

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY													
				A	B	E	G	J	K	L	M	P	R	S	U		
5-1	534470	①	Bracket, Engine Mounting	4	4	4		4									
-2	539518	①	Bracket, Engine Mounting						4	4				4	3	3	
-2	628257	①	Bracket, Engine Mounting, Cylinder No. 2												1	1	
-3	539914	①	Bracket, Engine Mounting									4					
ATTACHING PARTS																	
-4	632357		Spacer												1	1	
-5	539058		Washer, Plain	16	16	16		16	16	16	16			16	16	16	
-6	2441		Nut, Plain Hex	16	16	16		16	16	16	16			16	16	16	
* * * *																	
-7	534740	&	Gasket	1	1	1	1	1	1	1	1	1	1	1	1	1	
-8	534728		Pin, Idler Gear Support	1	1	1	1	1	1	1	1	1	1	1	1	1	
-9	629202	②	Gasket, Cam Hole Cover	1	1	1	1	1	1	1	1			1	1	1	
-10	642914	②	Cover, Cam Hole	1	1	1	1	1	1	1	1			1	1	1	
ATTACHING PARTS																	
-11	MS35338-44		Washer, Lock	4	4	4	4	4	4	4	4	4	4	4	4	4	
-12	2437		Nut, Plain	2	2	2	2	2	2	2	2	2	2	2	2	2	
-13	626487	②	Screw	2	2	2	2	2	2	2	2			2	2	2	
* * * *																	
-14	641651	&	Gasket	1	1	1	1	1	1	1	1	1	1	1	1	1	
-15	639997		Cover, Governor Pad	1	1	1	1	1	1	1	1	1	1	1	1	1	
ATTACHING PARTS																	
-16	22535		Washer, 5/16 Inch	8	8	8	8	8	8	8	8	8	8	8	8	8	
-17	2473		Washer, Flat	4	4	4	4	4	4	4	4	4	4	4	4	4	

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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*** Order number stamped on rod. If none supply engine model, name of airplane and year manufactured.

① See Section VI for Specification Applications.

② These parts are found on Phase 3 crankcases. See Service Bulletin M78-9.

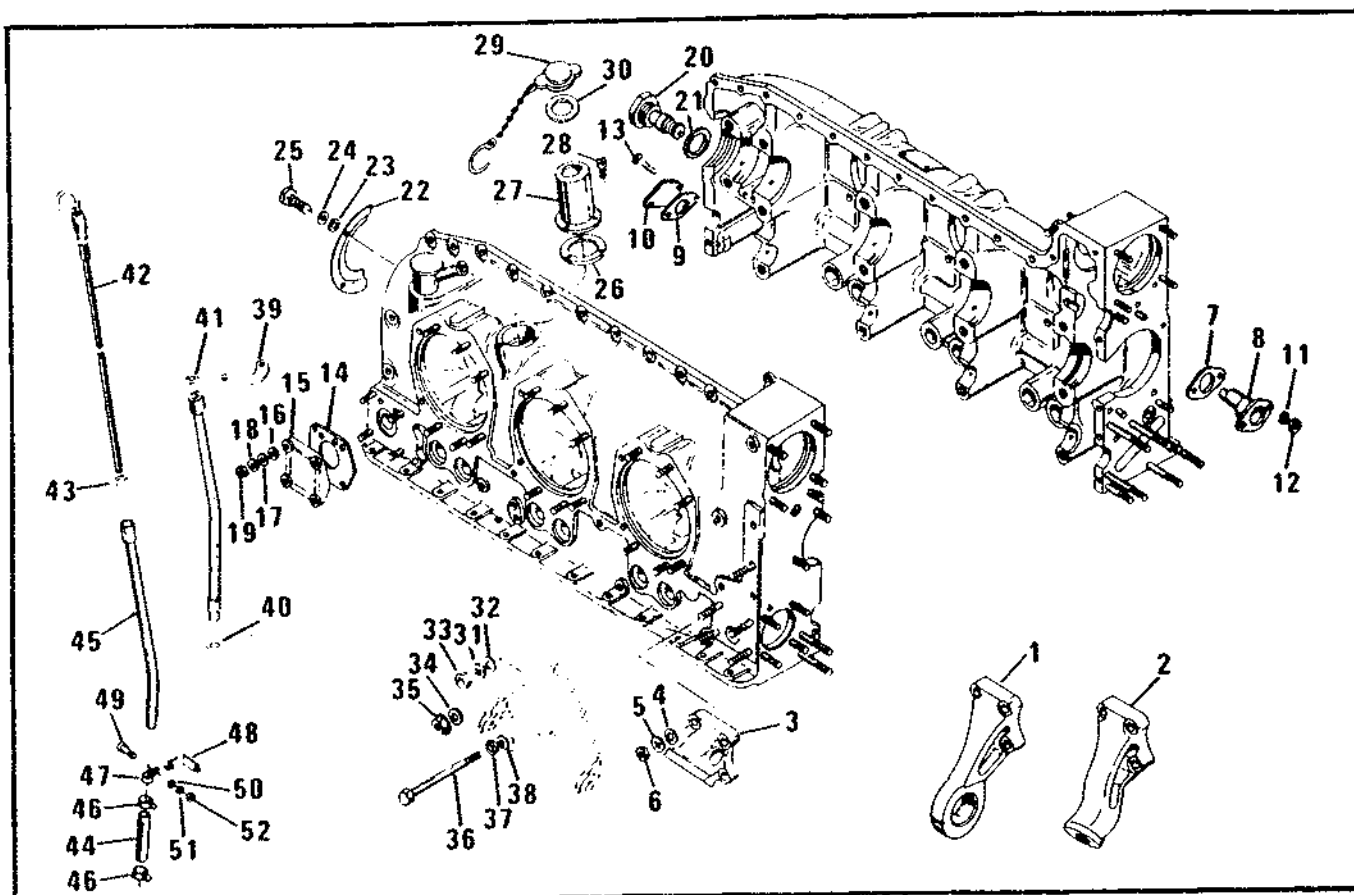


FIGURE 6 - CRANKCASE ASSOCIATED PARTS
MODELS 10-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																			
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V				
6-1	534470	①	Bracket, Engine Mounting				4										2						
-2	539518	①	Bracket, Engine Mounting				4		4					4	3			4	4				
-2	628257	①	Bracket, Engine Mounting												1								
-3	539914	①	Bracket, Engine Mounting				4														3	3	
-3	628008	①	Bracket, Engine Mounting																		1	1	
ATTACHING PARTS																							
-4	539058		Washer, Plain				16	16	16	16				16	16		8	16	16	16	16	16	16
-5	MS35338-46		Washer, Lock				16	16	16	16				16	16		8	16	16	16	16	16	16
-6	2441		Nut, Plain Hex				16	16	16	16				16	16		8	16	16	16	16	16	16
* * * * *																							
-7	534740	&	Gasket	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-8	534728		Pin, Idler Gear Support	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-9	629202	②	Gasket, Cam Hole Cover	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-10	642914	②	Cover, Cam Hole	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ATTACHING PARTS																							
-11	MS35338-44		Washer, Lock	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-12	2437		Nut	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-13	626487	②	Screw	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
* * * * *																							
-14	641651	&	Gasket	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-15	639997		Cover	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ATTACHING PARTS																							
-16	22535		Washer, 5/16	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY																							
			1	2	3	4	5	C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V			
6-17	2473	Washer, Flat																								
-18	MS35338-45	Washer, Lock																								
-19	2439	Nut																								
* * * * *																										
-20	534445	Temperature Control Valve																			1					
-20	639304	Temperature Control Valve																1	1	1						
-21	625966	Gasket																1	1	1						
	EQ6491	Kit, Oil Seal Retainer	op	op	op	op	op	op	op	op	op	op	op	op	op	op	op	op	op	op	op	op	op	op		
-22	641361	Retainer, Oil Seal	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
ATTACHING PARTS																										
-23	AN960-10L	Washer, Flat																								
-24	22910	Washer, Lock																								
-25	MS20074-03-03	Bolt																								
* * * * *																										
-26	538804	& Gasket	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-27	538773	Neck Assembly, Oil Filler					1																			
	538801	Neck Assembly, Oil Filler					1	1								1		1	1	1	1	1	1	1		
	627166	Neck Assembly, Oil Filler	1									1	1	1			1									
ATTACHING PARTS																										
-28	AN500-416-8	Screw	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
* * * * *																										
-29	640620-5	Cap Assembly, Oil Filler	1									1	1				1									
-29	640620-8	Cap Assembly, Oil Filler					1	1	1	1					1	1			1	1	1	1	1	1		
-30	635134	Gasket	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-31	MS35338-45	Washer, Lock	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-32	2473	Washer, 11/32	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-33	2439	Nut, 5/16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-34	2794	Washer, 17/32					1	1								1			1	1	1			1		
-35	538969	Nut, Flanged, 1/2					1								1	1			1	1	1			1		
-36	627433	Bolt	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-37	MS35338-45	Washer, Lock	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-38	2473	Washer, Plain	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-39	625213	Tube Assembly, Oil Gauge Rod Guide									1															
-39	627164	Tube Assembly, Oil Gauge Rod Guide	1									1	1				1									
-39	628543	Tube Assembly, Oil Gauge Rod Guide												1												
-40	AN123865	& O-Ring	1							1	1	1	1			1										
-41	537299	Ring, Oil Gauge Lock	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-42	***	Rod Assembly, Oil Gauge	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-43	AN123860	& O-Ring	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
	25328	& O-Ring																								
-44	631928	Hose																				1				
-45	631915	Housing, Extension																				1				
-46	36151R	Clamp																				2				
-47	631266-1	Clamp																				1				
-48	631275-1	Bracket																				1				
ATTACHING PARTS																										
-49	22904	Screw																				1				
-50	2471	Washer, Plain																				1				
-51	22910	Washer, Lock																				1				
-52	13XX1896	Nut, No. 10																				1				

NOTES:

*** Order number stamped on rod. If none, supply engine model, name of airplane and year manufactured.

① See Section VI for Specification Applications.

② These parts are found on Phase 3 crankcases. See Service Bulletin M78-9.

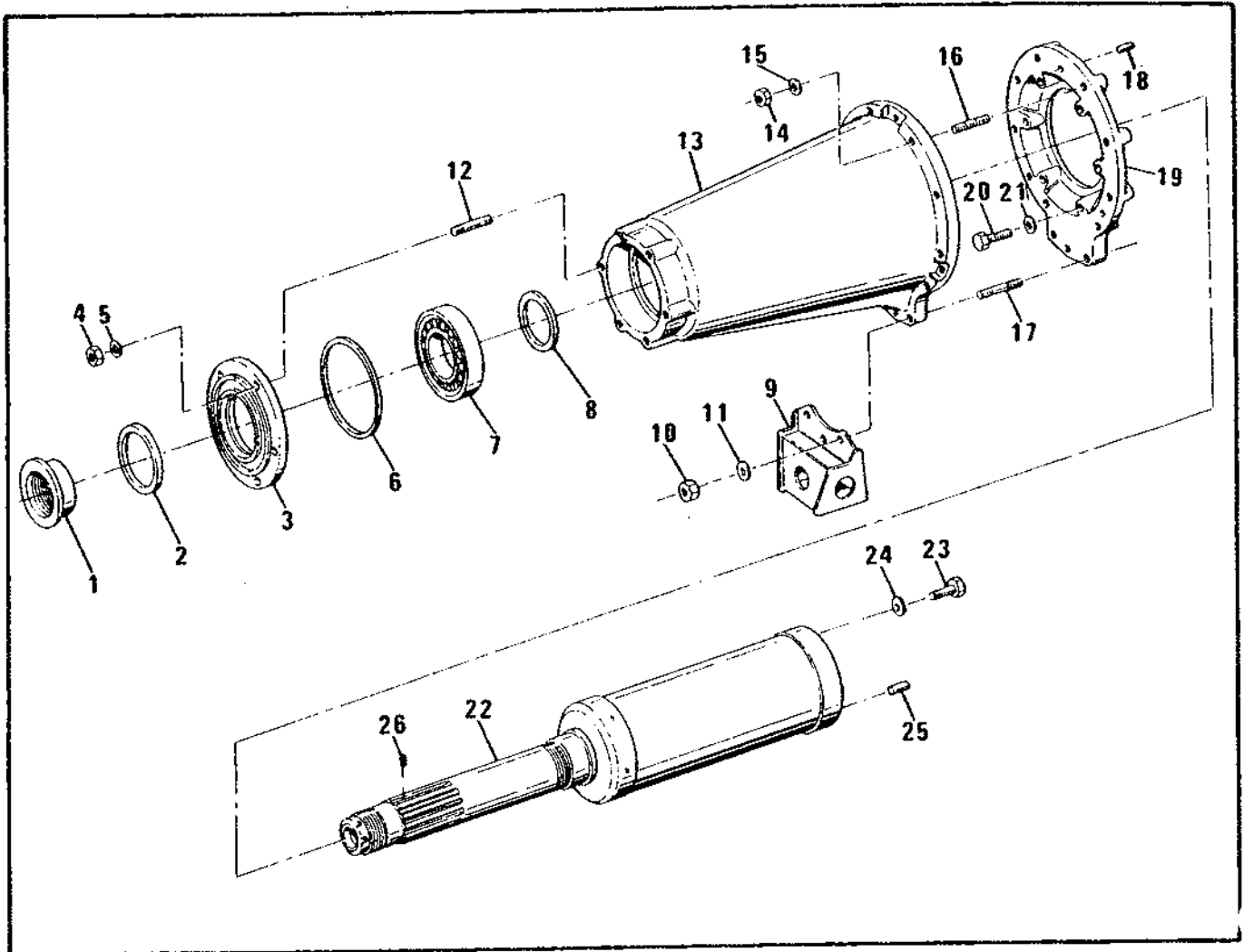


FIGURE 7 - CRANKCASE AND CRANKSHAFT EXTENSION ASSEMBLIES
MODEL IO-470-P

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																			
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V				
7-1	629885	① Nut, Bearing Retaining																		1		
-2	532873	① Seal, Cover-to-Retaining Nut																		1		
-3	531141	① Cover, Extension Housing																		1		
ATTACHING PARTS																						
-4	2441	Nut, Plain, Hex																		6		
-5	2274	Washer, Flat																		6		
* * * *																						
-6	AN6230-26	① & O-Ring																		1		
-7	538135	① Bearing, Roller																		1		
-8	538136	① Ring, Spacer																		1		
-9	629675	① Bracket Assembly, Engine Mounting																		1		
ATTACHING PARTS																						
-10	2443	Nut, Plain, Hex																		3		
-11	25171	Washer, Plain																		3		
* * * *																						
	628245	① Adapter and Housing Assembly, Prop. Ext.																		1		
-12	401861	† . Stud, 3/8 x 1-3/4 Inch Long																		6		
-13	No Number	. Housing, Crankshaft Extension																		ns		
ATTACHING PARTS																						
-14	2441	. Nut, Hex, 3/8																		8		
-15	401507	. Washer, Plain																		8		
* * * *																						
-16	402066	† . Stud, 3/8 x 1-7/8 Inch Long																		8		
-17	401830	† . Stud, 7/16 x 2-1/4 Inch Long																		1		
-18	532683	① . Dowel																		3		
-19	No Number	. Adapter, Housing-to-Crankcase																		ns		
ATTACHING PARTS																						
-20	539961	① Bolt, 3/8 x 1-3/4 Inch Long																		6		
-21	401507	Washer, Plain																		6		
* * * *																						
-22	538127	① Extension, Crankshaft Assembly																		1		
ATTACHING PARTS																						
-23	AN78-10	① Bolt, Drilled Hex Head																		6		
-24	AN960-816L	① Washer, Flat																		6		
* * * *																						
-25	531494	① . Dowel																		2		
-26	22366	① . Screw, Special No. 10 x 11/32 Inch Long																		1		

NOTE:

① No longer available.

NOTE:

- ① No longer available.

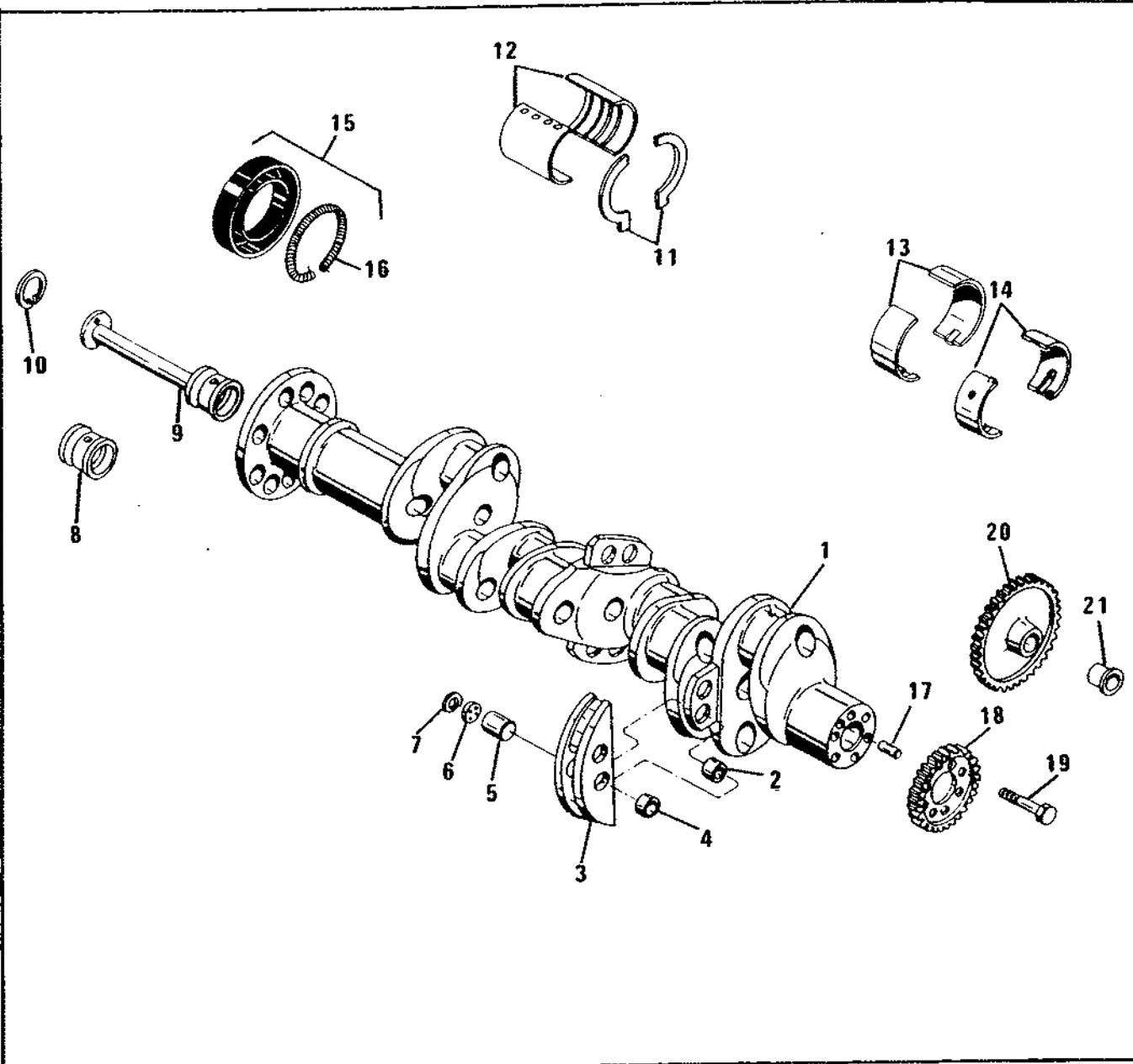


FIGURE 8 - CRANKSHAFT ASSEMBLY
MODELS O-470-A,B,E,G,J,K,L,M,P,R,S,U

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
8-1	633225	① Crankshaft and Damper Assembly	1		1		1					1	1					
-1	633227	① Crankshaft and Damper Assembly		1														
-1	633256	① Crankshaft and Damper Assembly				1												
-1	633219	① Crankshaft and Damper Assembly						1	1	1								
-1	633258	① Crankshaft and Damper Assembly									1							
-1	641905	Crankshaft and Damper Assembly															1	
-2	350998	† Bushing, Crankshaft Damper	4	4	4	4	4	8	8	8	8	4	4	8				
-3	639195	Counterweight Assembly	2	2	2		2	4	4	4	4	2	2	4				
-3	639197	Counterweight Assembly				2												
-4	639193	Bushing, Counterweight	4	4	4	4	4	4	4	4	4	4	4	4				
-5	630261-40	Pin		4		2												
-5	630261-37	Pin	2		2		2					2	2	2				
-5	630261-35	Pin	2		2		2	8	8	8	8	2	2	4				
-5	630261-36	Pin				2											2	
-5	630261-39	Pin																
-6	635623	Plate	8	8	8	8	8	16	16	16	16	8	8	16				
-7	629104	Snap Ring	8	8	8	8	8	16	16	16	16	8	8	16				
-8	633189	Plug, Oil Control	1	1	1		1	1	1	1		1	1	1				
-9	633254	Tube Assembly, Oil Transfer				1					1							
-10	522188	Retaining Ring				1					1							
-11	637579	Thrust Washer	4	4	4	4	4	4	4	4	4	4	4	4				
-12	633136	& † ① Bearing, Main, Front	2	2	2		2	2	2	2		2	2	2				
-13	642720	& † ① Bearing, Main	6		6	10	6	6	6		10	6	6	6				
-14	530383	† ② Bearing, Connecting Rod	12	12	12	12	12	12	12	12	12	12	12	12				
-14	630826	† Bearing, Connecting Rod	12	12	12	12	12	12	12	12	12	12	12	12				
-15	641250	Seal Assembly, Oil	1	1	1	1	1	1	1	1	1	1	1	1				
-16	641306	Spring, Oil Seal	1	1	1	1	1	1	1	1	1	1	1	1				
-17	536563	† Dowel	1	1	1	1	1	1	1	1	1	1	1	1				
-18	536421	Gear, Crankshaft	1	1	1	1	1	1	1	1	1	1	1	1				
ATTACHING PARTS																		
-19	536379	Screw, Drilled Hex Head	6	6	6	6	6	6	6	6	6	6	6	6				
* * * *																		
-20	534757	Gear Assembly, Idler	1	1	1	1	1	1	1	1	1	1	1	1				
-21	534741	Bushing, Idler	1	1	1	1	1	1	1	1	1	1	1	1				

NOTES:

① Service earlier crankshafts and bearings in accordance with Service Bulletins M78-9 and M74-12.

② Use bearing 530383 and rod assembly A36121. See Service Bulletin M74-12 Rev. 1.

O-470-G engines with modernized crankshafts require two (2) each 630464 front main and six (6) each 537848 rear and intermediate bearings.

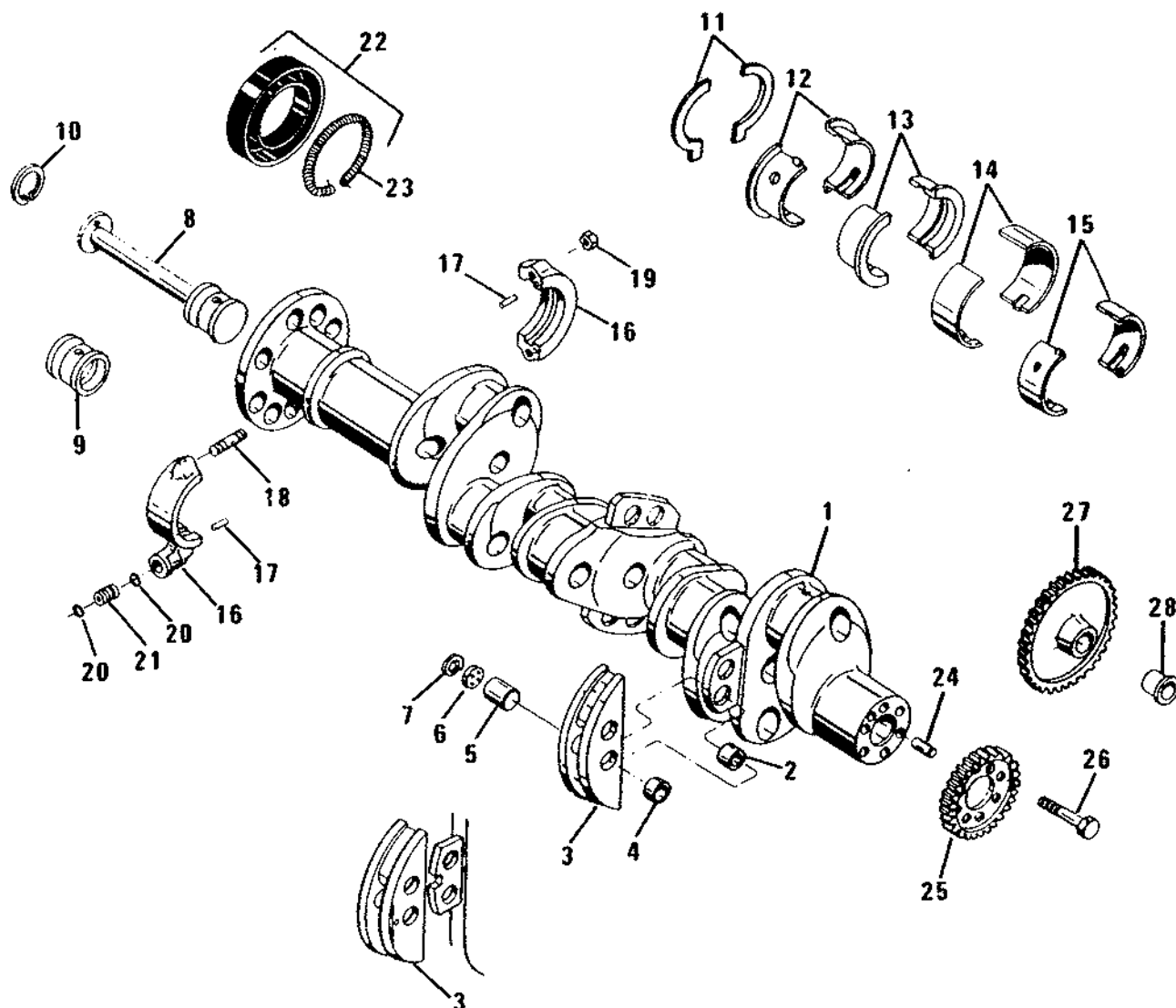


FIGURE 9 - CRANKSHAFT ASSEMBLY
MODELS 10-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U,V

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY																	
			1	2	3	4	5	C	D	E	F	G	H	J	K	L	M	N	P	R
9-1	633258	Crankshaft and Damper Assembly						1												
-1	630977	① Crankshaft and Damper Assembly											1						1	
-1	633246	Crankshaft and Damper Assembly												1	1					
-1	630886	① Crankshaft and Damper Assembly														1				
-1	630932	① Crankshaft and Damper Assembly															1			
-1	630927	① Crankshaft and Damper Assembly							1	1	1	1								1
-1	629882	Crankshaft and Damper Assembly																1		
-2	350998	† Bushing, Crankshaft Damper						8	8	8	8	8	8	8	8	8	8	8	8	8
-3	639195	Counterweight Assembly						4	4	4	4	4	4	2	2	4	4	4	2	4
-3	639196	Counterweight Assembly																		2
-4	639193	Bushing, Counterweight						4	4	4	4	4	4	4	4	4	4	4	4	4
-5	630261-40	Pin																4		
-5	630261-35	Pin						8	8	8	8	8	8	2	2	4	8	8	8	4
-5	630261-37	Pin												2	2	4				2
-5	630261-39	Pin																		2
-6	635623	Plate						16	16	16	16	16	16	8	8	16	16	16	8	16
-7	629104	Snap Ring						16	16	16	16	16	16	8	8	16	16	16	8	16
-8	633254	② Tube Assembly, Oil Transfer						1												
-9	633189	Plug, Oil Control							1	1	1	1	1	1	1	1	1	1	1	1
-10	522188	Retaining Ring						1												
-11	637579	Washer, Thrust						4	4	4	4	4	4	4	4	4	4	4	4	4
-12	632319	& † Bearing, Main Flanged																2		
-13	629848	& † Bearing, Main, Flanged																2		
-14	642720	& † ③ Bearing, Main						10	10	10	10	10	10	10	10	10	10	10	10	10
-15	530383	† ④ Bearing, Connecting Rod						12				12		12	12			12	12	
-15	630826	† Bearing, Connecting Rod						12	12	12	12	12	12	12	12	12	12		12	12
-16	626739	† Collar Assembly						1	1	1	1	1	1	1	1	1	1	1	1	1
-16	628198	† Collar Assembly																1		
-17	626889	Dowel						2	2	2	2	2	2	2	2	2	2	2	2	2
-18	401893	† Stud, 1/4 x 1-1/4 Inch Long						2	2	2	2	2	2	2	2	2	2	2	2	2
-18	401808	† Stud, 1/4 x 1-15/16 Inch Long																		
-19	632443-4	Nut, Marsden Lock						2	2	2	2	2	2	2	2	2	2	2	2	2
-20	MS9021-011	& O-Ring						2	2	2	2	2	2	2	2	2	2	2	2	2
-21	642249	Sleeve						1	1	1	1	1	1	1	1	1	1	1	1	1
-22	641250	Seal Assembly, Oil						1	1	1	1	1	1	1	1	1	1	1	1	1
-23	641306	Spring, Oil Seal						1	1	1	1	1	1	1	1	1	1	1	1	1
-24	536563	† Dowel						1	1	1	1	1	1	1	1	1	1	1	1	1
-25	536421	Gear, Crankshaft						1	1	1	1	1	1	1	1	1	1	1	1	1
ATTACHING PARTS																				
-26	536379	Screw, Drilled Hex Head						6	6	6	6	6	6	6	6	6	6	6	6	6
* * * *																				
-27	534757	Gear Assembly, Idler						1	1	1	1	1	1	1	1	1	1	1	1	1
-28	534741	Bushing, Idler Gear						1	1	1	1	1	1	1	1	1	1	1	1	1

NOTES:

- ① When engine serial number on these models is not prefixed by "CS", order the C/S assembly suffixed with "A1", (ie 630977A1), 6 each 628752 connecting rods and 12 each 630826 connecting rod bearings.
- ② 625475A1 tube assembly used on earlier IO-470-C crankshafts.
- ③ Service earlier bearings in accordance with Service Bulletin M78-9.
- ④ Use bearing 530383 with rod assembly A36121. See Service Bulletin M74-12 Rev. 1.

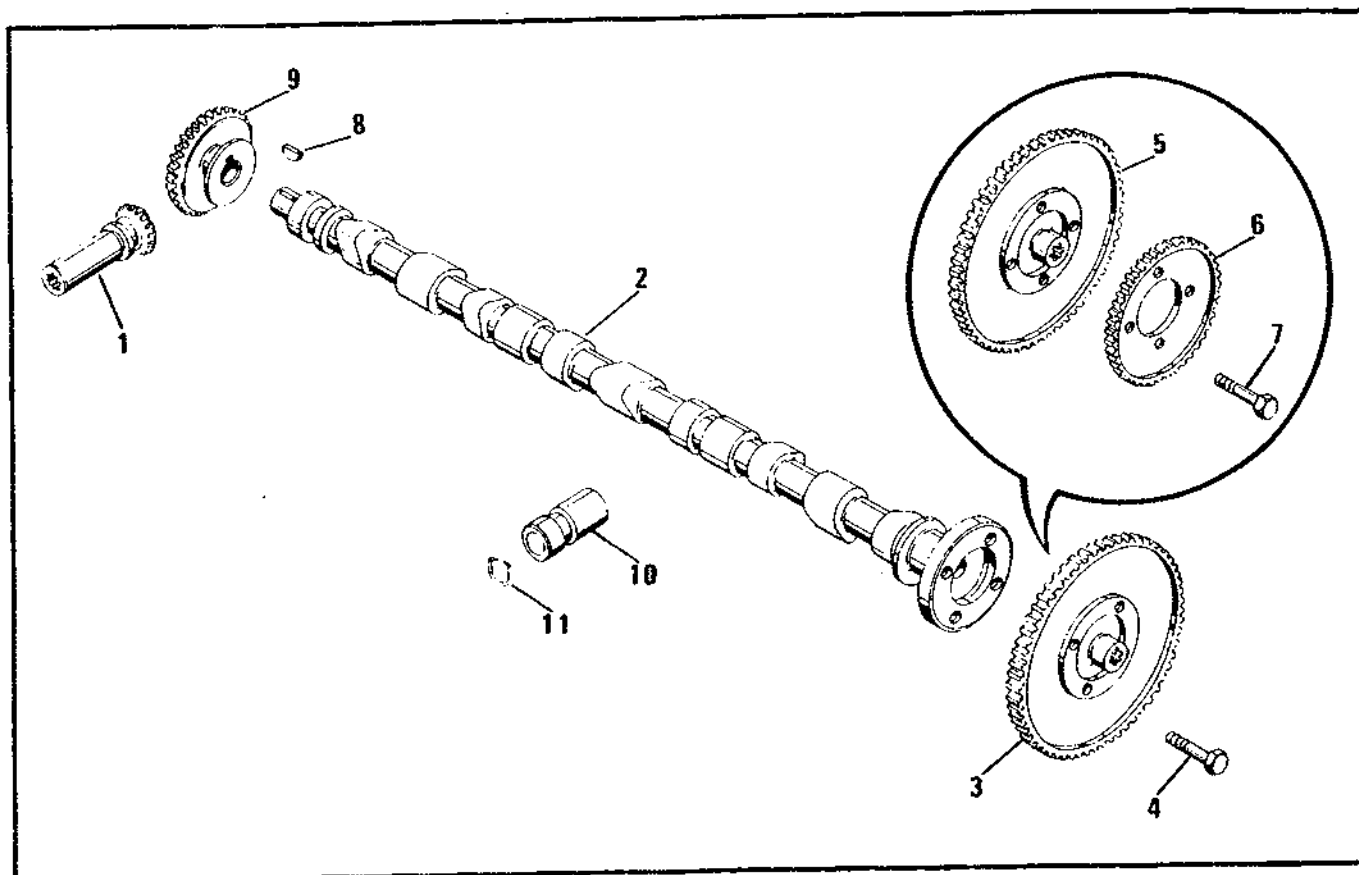


FIGURE 10 - CAMSHAFT ASSEMBLY
MODELS O-470-A,B,E,G,J,K,L,M,P,R,S,U

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY													
			1	2	3	4	5	A	B	E	G	J	K	L	M	P
10-1	538076	Gear, Governor Drive Bevel	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-2	535661	† Camshaft	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-3	535660	Gear, Camshaft	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-3	631845	Gear, Camshaft	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ATTACHING PARTS																
-4	535737	Screw, Drilled, Hex Head	4	4	4	4	4	4	4	4	4	4	4	4	4	4

-5	537432	Gear, Camshaft	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-6	535662	Gear, Cam Cluster	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ATTACHING PARTS																
-7	535666	Screw, Drilled, Hex Head	4	4	4	4	4	4	4	4	4	4	4	4	4	4

-8	MS35756-8	Key, Woodruff	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-9	534655	Gear, Governor Drive	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-10	628488	Lifter Assembly, Hydraulic	12	12	12	12	12	12	12	12	12	12	12	12	12	12
-11	641862	① Ring, Snap	1	1	1	1	1	1	1	1	1	1	1	1	1	1

NOTE:

- ① The new configuration of the 628488 hydraulic lifter incorporates this new snap ring P/N 641862 (red in color). However, snap ring P/N 628491 must be used with the older configuration of the lifter. The most discernible difference between the old and new lifter is in the ball socket. The old design socket tapered from the center nearly to the O.D. The newer design that must use the new snap ring (641862) shoulders roughly half-way between the center and O.D. The socket diameter differences are 1/16" for the old design and 1/8" for the new.

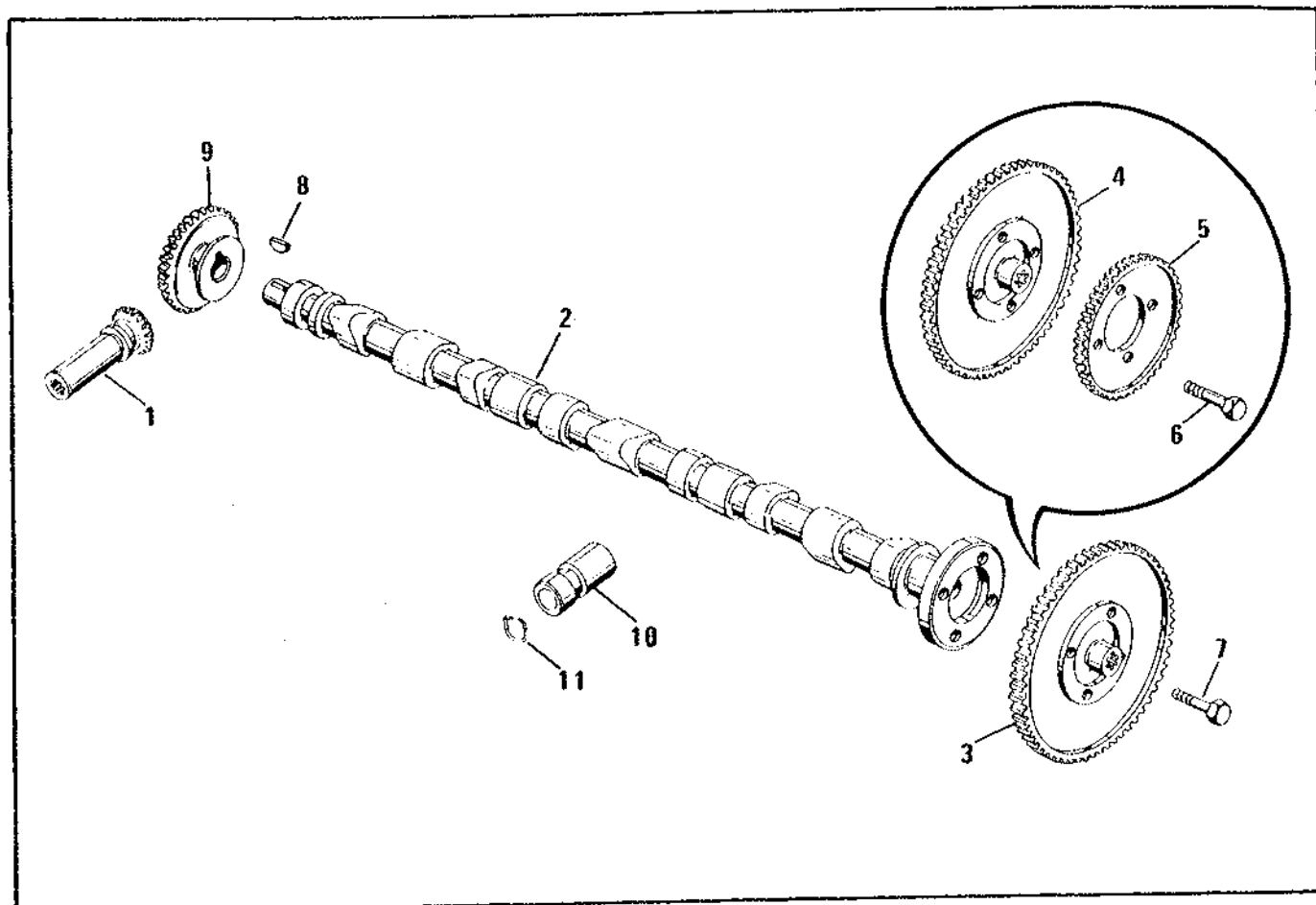


FIGURE 11 - CAMSHAFT ASSEMBLY
MODELS 10-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U,V

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
11-1	538076	Gear, Governor Drive Bevel	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-2	535661	† Camshaft	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-3	535660	Gear, Camshaft	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-4	537432	Gear, Camshaft	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-4	631845	Gear, Camshaft	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-5	535662	Gear, Cam Cluster	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ATTACHING PARTS																		
-6	535666	Screw Drilled Hex Head	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-7	535737	Screw Drilled Hex Head																
* * * *																		
-8	MS35756-8	Key, Woodruff	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-9	534665	Gear, Governor Drive	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-10	628488	Lifter Assembly, Hydraulic	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
-11	641862	① Ring, Snap	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

NOTE:

- ① The new configuration of the 628488 hydraulic lifter incorporates this new snap ring P/N 641862 (red in color). However, snap ring P/N 628491 must be used with the older configuration of the lifter. The most discernible difference between the old and new lifter is in the ball socket. The old design socket tapered from the center nearly to the O.D. The newer design that must use the new snap ring (641862) shoulders roughly half-way between the center and O.D. The socket oil hole diameter differences are 1/16" for the old design and 1/8" for the new.

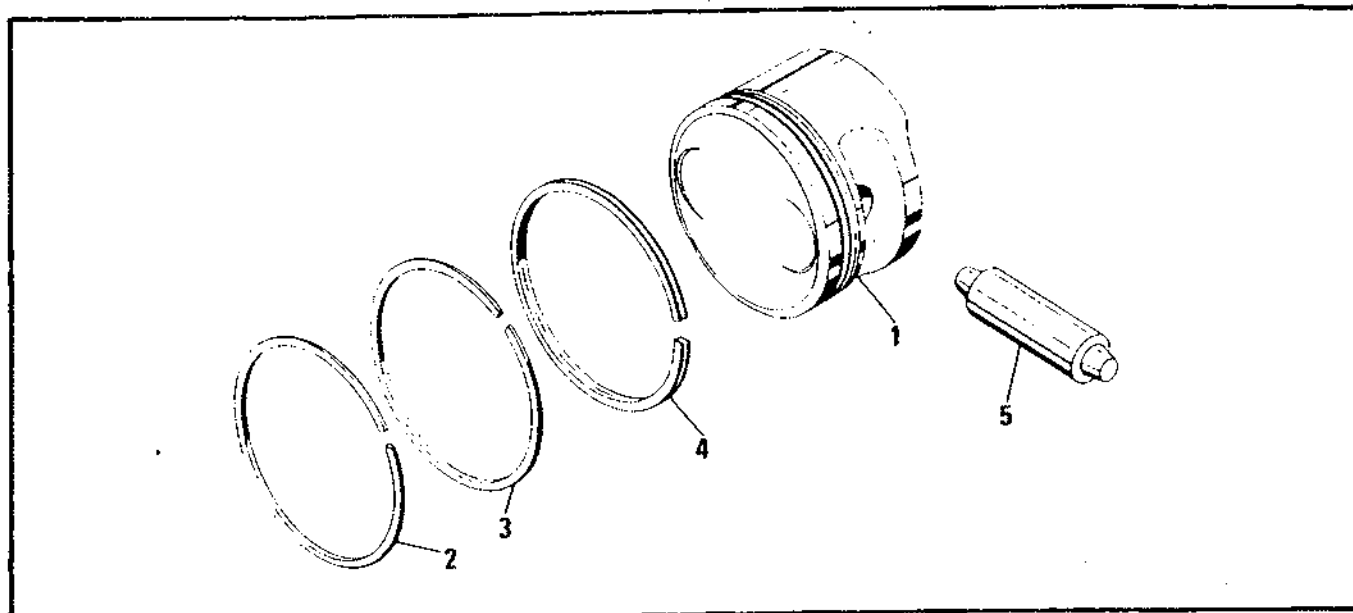


FIGURE 12 - PISTON AND RING ASSEMBLY
MODELS O-470-A,B,E,G,J,M,P

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY												
				A	B	E	G	J	K	L	M	P	R	S	U	
12-1	534895	†	Piston, 7:1 Compression Ratio	6		6		6								
-1	537883	†	Piston, 8:1 Compression Ratio		6						6	6				
-1	539814	†	Piston, 8:1 Compression Ratio				6									
-2	639567	†	Ring, Piston, Top Groove	6	6	6		6			6	6				
-2	639566	†	Ring, Piston, Top and Second Groove				12									
-2	640299	①	Ring, Piston, Top & Second Groove	12	12	12		12			12	12				
-2	640301	①	Ring, Piston, Top & Second Groove				12									
-3	639568	†	Ring, Piston, Second Groove	6	6	6		6			6	6				
-4	639768	②	Ring, Piston, Third Groove	6	6	6	6	6			6	6				
-4	640300	①	Ring, Piston, Third Groove	6	6	6	6	6			6	6				
-5	539467	†	Pin and Plug Assembly, Piston	6	6	6	6	6			6	6				

MODELS IO-470-C,G,J,K,P,R

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY												
				C	D	E	F	G	H	J	K	L	M	N	P	R
12-1	539814	†	Piston, 8:1 Compression Ratio	6				6							6	6
-1	534895	†	Piston, 7:1 Compression Ratio							6	6					
-2	639566	†	Ring, Piston, Top & Second Groove	12				12							12	12
-2	639567	†	Ring, Piston, Top Groove							6	6					
-2	640301	①	Ring, Piston, Top & Second Groove	12				12							12	12
-2	640299	①	Ring, Piston, Top & Second Groove							12	12					
-3	639568	†	Ring, Piston, Second Groove							6	6					
-4	639768	②	Ring, Piston, Third Groove	6				6		6	6				6	6
-4	640300	①	Ring, Piston, Third Groove	6				6		6	6				6	6
-5	539467	†	Pin and Plug Assembly Piston	6				6		6	6				6	6

NOTES:

① For use with chrome cylinders.

② This ring and expander assembly includes 629828 ring, which is not serviced separately.

See Section IV for complete ring assemblies.

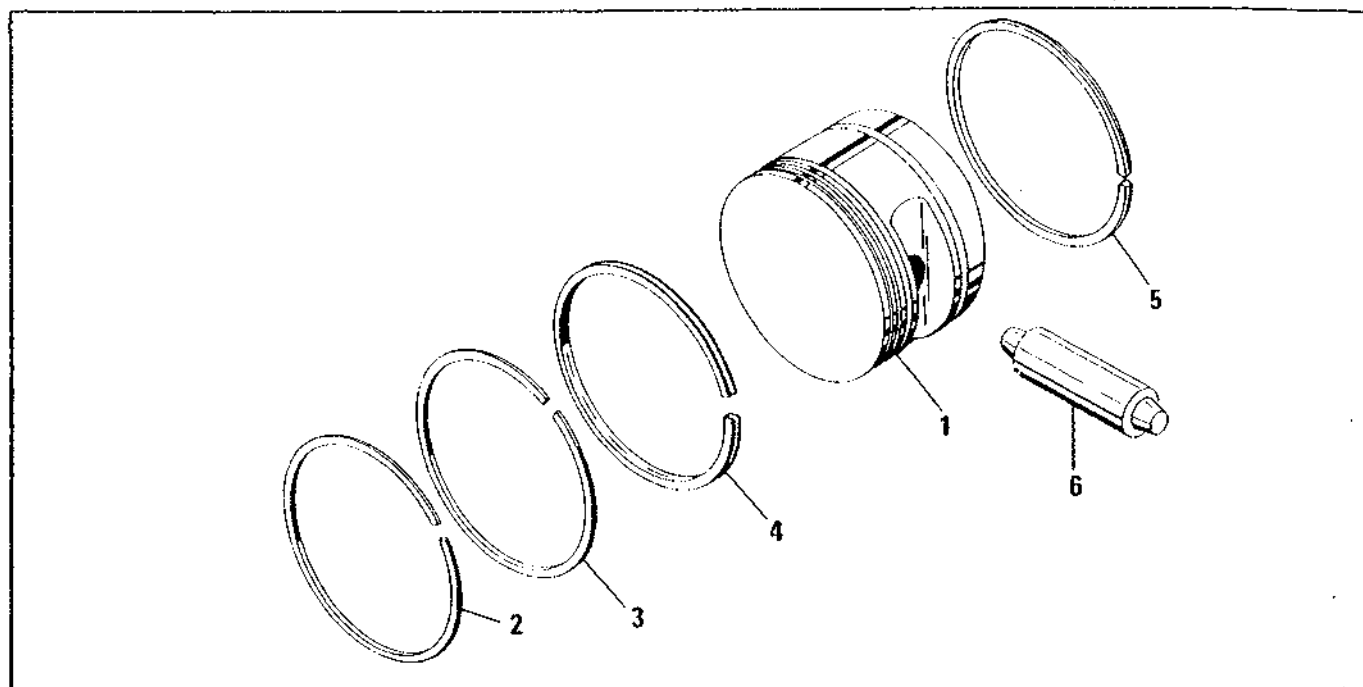


FIGURE 13 - PISTON AND RING ASSEMBLY
MODELS O-470-K,L,R,S,U

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY												
			A	B	E	G	J	K	L	M	P	R	S	U	
13-1	640518	† Piston, 7:1 Compression Ratio										6	6		
-1	632932	① † Piston, 7:1 Compression Ratio						6	6			op			
-1	631481	† Piston, 8:1 Compression Ratio												6	
-2	639565	† Ring, Piston, Top Groove										6	6	6	
-2	639567	† Ring, Piston, Top Groove						6	6			op			
-2	640301	② Ring, Piston, Top & Second Groove										12	12	12	
-2	640299	② Ring, Piston, Top & Second Groove						12	12			op			
-3	639566	† Ring, Piston, Second Groove										6	6	6	
-3	639568	† Ring, Piston, Second Groove						6	6						
-4	642086	③ † Ring, Piston, Third Groove										6	6	6	
-4	639768	③ † Ring, Piston, Third Groove						6	6			op			
-4	639663	③ ② Ring, Piston, Third Groove						6	6			6	6	6	
-5	627480	† Ring, Piston, Fourth Groove						6	6			6	6	6	
-5	640302	② Ring, Piston, Fourth Groove						6	6			6	6	6	
-6	539467	† Pin and Plug Assembly, Piston						6	6			6	6	6	

NOTES:

- ① Parts superseded and not interchangeable with later pistons or rings except in complete sets. (626992 piston is still available if required.) See Figure 14.
- ② For use with chrome cylinders.
- ③ This ring and expander assembly includes 639664 and 629828 rings respectively, which are not serviced separately. See Section IV for complete ring assemblies.

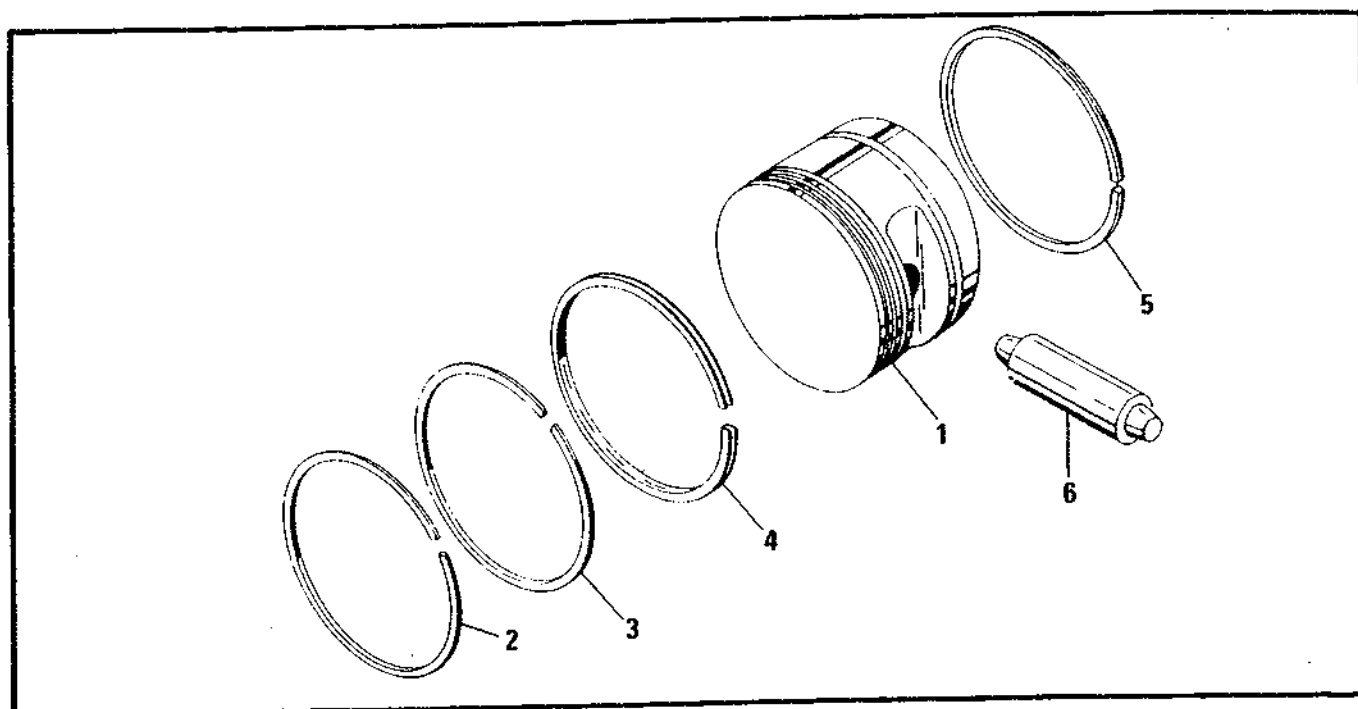


FIGURE 14 - PISTON AND RING ASSEMBLY
MODELS O-470-K,L,R

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY												
				A	B	E	G	J	K	L	M	P	R	S	U	
14-1	626992	① †	Piston, 7:1 Compression Ratio						6	6			6			
-2	639567	†	Ring, Piston, Top Groove						6	6			6			
-2	640299	②	Ring, Piston, Top & Second Groove						12	12			12			
-3	639568	†	Ring, Piston, Second Groove						6	6			6			
-4	639768	† ③	Ring, Piston, Third Groove						6	6			6			
-4	640300	②	Ring, Piston, Third Groove						6	6			6			
-5	627480	†	Ring, Piston, Fourth Groove						6	6			6			
-5	640302	②	Ring, Piston, Fourth Groove						6	6			6			
-6	539467	†	Pin & Plug Assembly, Piston						6	6			6			

NOTES:

- ① Parts superseded and not interchangeable with later pistons or rings except in complete sets. (626992 piston is still available if required.)
- ② For use with chrome cylinders.
- ③ This ring and expander assembly includes 639664 and 629828 rings respectively, which are not serviced separately. See Section IV for complete ring assemblies.

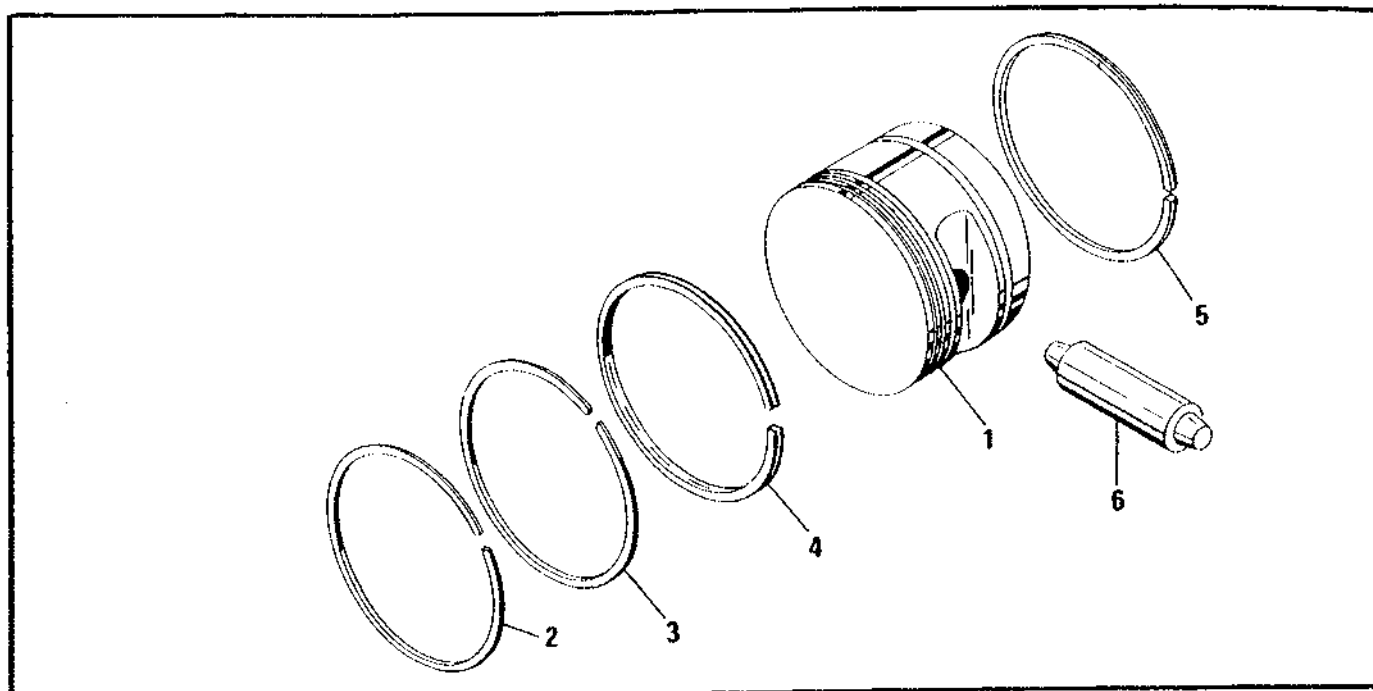


FIGURE 15-PISTON AND RING ASSEMBLY
MODELS 10-470-D,E,F,H,L,M,N,S,U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																	
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
15-1	627738	†	Piston, 8.6:1 Compression Ratio		6	6	6		6				6	6	6			6	6	6	
-2	639565	†	Ring, Piston, Top Groove		6	6	6		6				6	6	6			6	6	6	
-2	640301	①	Ring, Piston, Top & Second Groove		12	12	12		12				12	12	12			12	12	12	
-3	639566	†	Ring, Piston, Second Groove		6	6	6		6				6	6	6			6	6	6	
-4	639768	②	† Ring, Piston, Third Groove		6	6	6		6				6	6	6			6	6	6	
-4	640300	①	Ring, Piston, Third Groove		6	6	6		6				6	6	6			6	6	6	
-5	627480	†	Ring, Piston, Fourth Groove		6	6	6		6				6	6	6			6	6	6	
-5	640302	③	Ring, Piston, Fourth Groove		6	6	6		6				6	6	6			6	6	6	
-6	539467	†	Pin and Plug Assembly, Piston		6	6	6		6				6	6	6			6	6	6	

NOTES:

① For use with chrome cylinders.

NOTES:

- ① For use with chrome cylinders.
- ② This ring and expander assembly includes 629828 ring, which is not serviced separately.
- ③ See Section IV for complete ring assemblies.

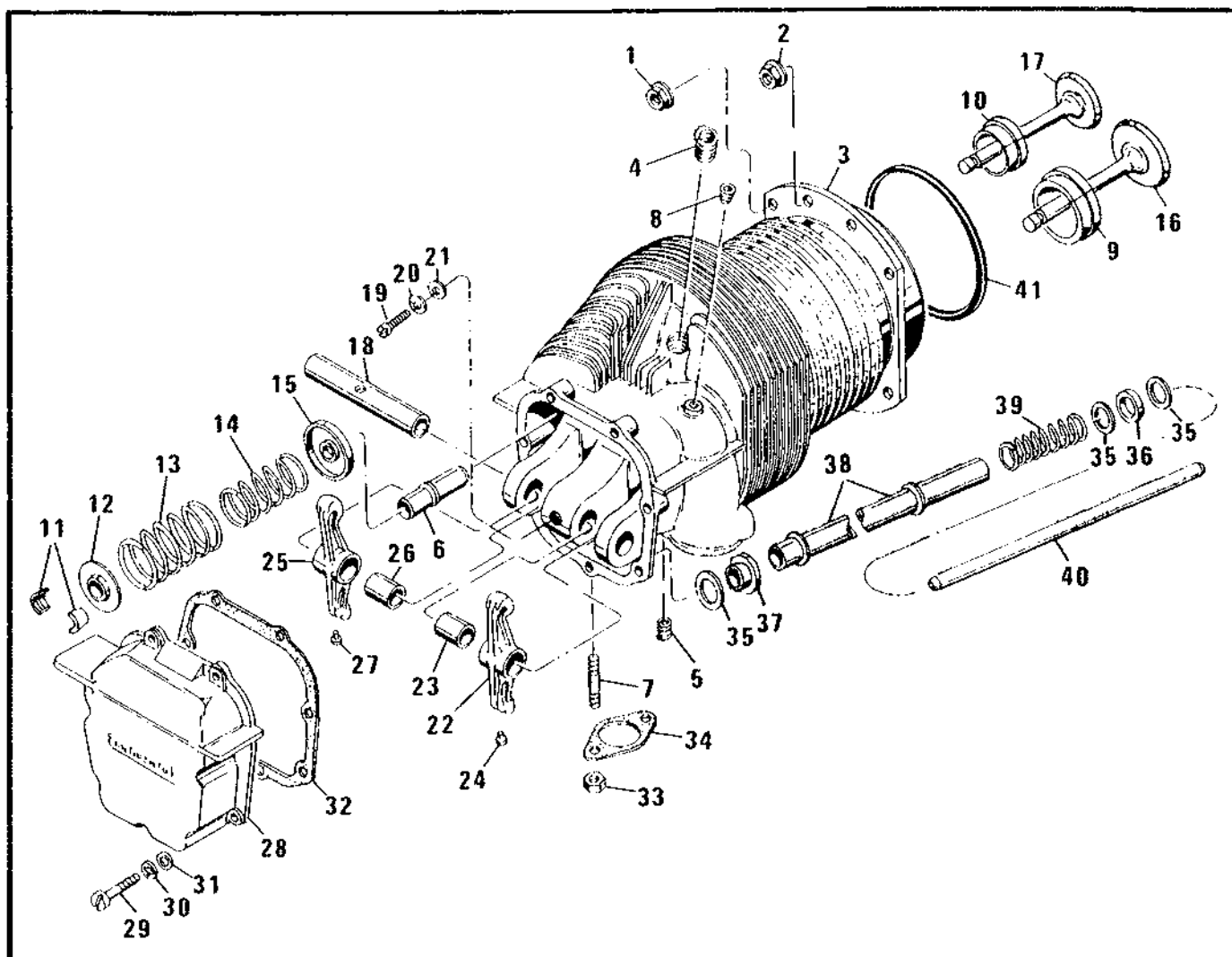


FIGURE 16 - CYLINDER ASSEMBLY
MODELS O-470-A,E,J

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY															
				A	B	E	G	J	K	L	M	P	R	S	U				
16-	539491A3		Cylinder and Valve Assembly				6	6											
	539491CP-A1 ①		Cylinder and Valve Assembly				op	op											
	628051A1		Cylinder and Valve Assembly	6															
	628051CP-A1 ①		Cylinder and Valve Assembly	op															
ATTACHING PARTS																			
-1	634505		Nut, Flanged	12			12	12											
-2	531001		Nut, Flanged	36			36	36											
* * * *																			
-3	539491		. Cylinder Assembly					1	1										
-3	539491CP ①		. Cylinder Assembly				op	op											
-3	628051		. Cylinder Assembly	1															
-3	628051CP ①		. Cylinder Assembly	op															
-4	520112		. . Insert, Spark Plug, 18mm	2			2	2											
-5	MS122121		. . Insert, Intake Flange, 1/4 - 20	2			2	2											
-6	631496	†	. . Guide, Valve	2			2	2											
-7	401885	†	. . Stud, 5/16 x 1-9/32 Inch Long	2			2	2											
-8	629518-1H		. . Plug, 1/8 Inch NPTF	1			1	1											

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
16 -9	35966	† . . Insert, Intake Valve Seat	1				1											
-10	35967	† . . Insert, Exhaust Valve Seat	1				1											
-11	24802	. Key, Valve Spring Retainer	4				4											
-12	35971	. Retainer, Valve Spring Outer	2				2											
-13	520105	. Spring, Valve, Outer	2				2											
-14	637836	. Spring, Valve, Inner	2				2											
-15	625393	. Retainer, Valve Spring, Inner	2				2											
-16	532129	. Valve, Intake	1				1											
-17	626540	. Valve, Exhaust	1				1											
-18	625142	Shaft, Valve Rocker	6				6											
-19	535666	Screw, 5/16 x 25/32 Inch Long	6				6											
-20	MS35338-45	Washer, Lock	6				6											
-21	2473	Washer, Plain	6				6											
-22	A24814	Rocker Assembly, Intake Valve	6				6											
-23	530367	. Bushing, Valve Rocker	1				1											
-24	21007	. Screw, Round Head Drive	1				1											
-25	A24815	Rocker Assembly, Exhaust Valve	6				6											
-26	530367	. Bushing, Valve Rocker	1				1											
-27	21007	. Screw, Round Head Drive	1				1											
-28	532450	Cover, Valve Rocker	6				6											
ATTACHING PARTS																		
-29	535118	Screw, Fillister Head	42				42											
-30	MS35338-44	Washer, Lock	42				42											
-31	20522	Washer, Plain	42				42											
		* * * *																
-32	532451	& Gasket, Valve Rocker, Cover	6				6											
-33	22022	Nut, Hex	12				12											
-34	21493	& Gasket, Exhaust Flange	6				6											
-34	627429	Gasket, Spirotalic	pp				pp											
-35	534609	Washer, Pushrod Housing	36				36											
-36	534610	& Packing, Pushrod Housing	12				12											
-37	536410	& Packing, Pushrod Housing	12				12											
-38	537296	Housing, Pushrod	12				12											
-39	626147	Spring, Pushrod Housing	12				12											
-40	538305	Pushrod	12				12											
-41	532200	& Packing Ring, Cylinder to Crankcase	6				6											

NOTE:

- ① Optional chrome cylinders.

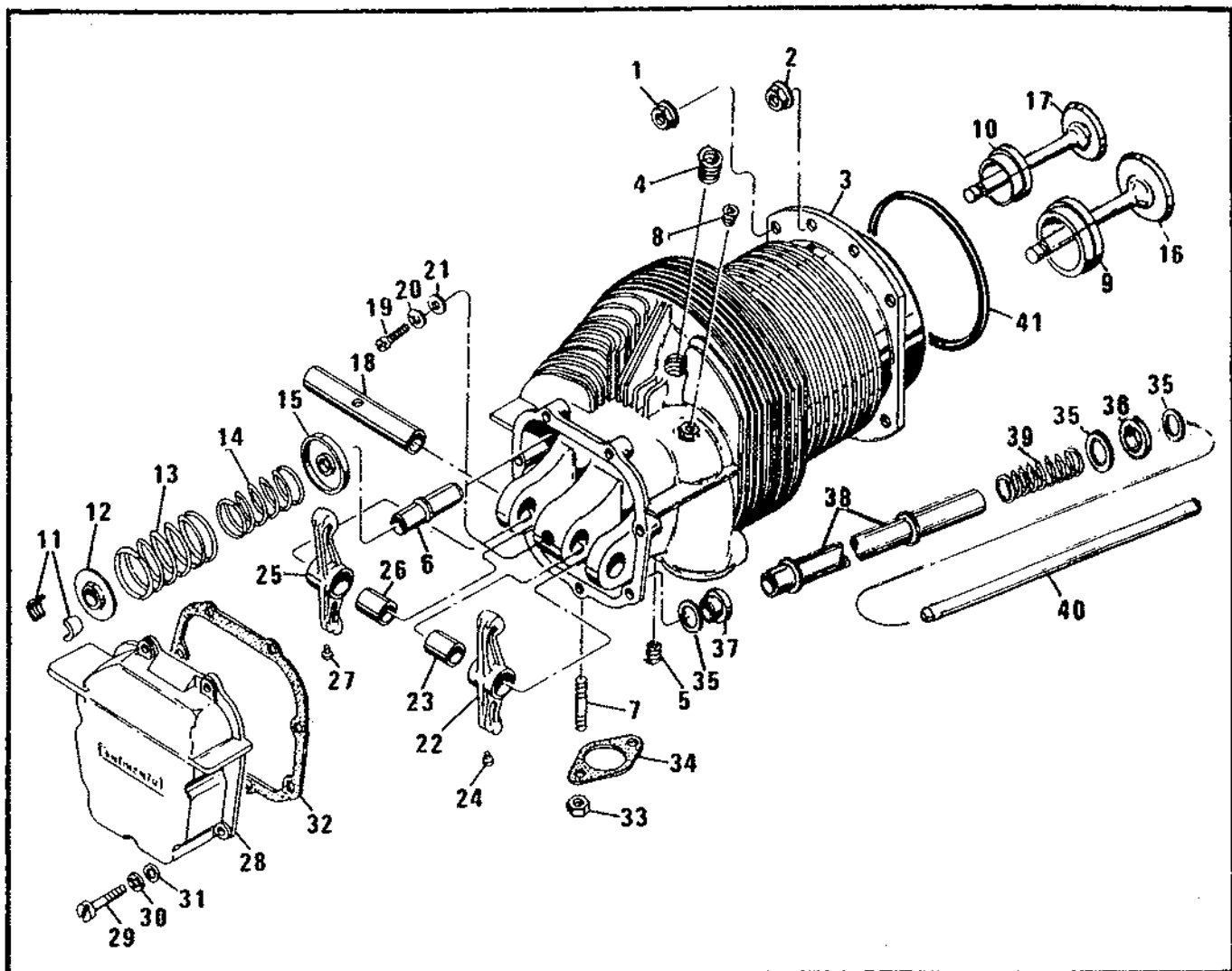


FIGURE 17 - CYLINDER ASSEMBLY
MODELS 10-470-J,K

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY															
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V
17-	539491A3	Cylinder and Valve Assembly							6	6								
	539491CP-A3	① Cylinder and Valve Assembly							pp	pp								
ATTACHING PARTS																		
-1	634505	Nut, Flanged							12	12								
-2	531001	Nut, Flanged							36	36								

-3	539491	Cylinder Assembly							1	1								
-3	539491CP	① Cylinder Assembly							pp	pp								
-4	520112	Insert Spark Plug, 18mm							2	2								
-5	MS122121	Insert, Intake Flange, 1/4 - 20							2	2								
-6	631496	† Guide, Valve							2	2								
-7	401885	† Stud, 5/16 x 1-9/32 Inch Long							2	2								
-8	629518-1H	Plug, Hollow Square Head Pipe, 1/8 Inch NPTF							1	1								
-9	35966	† Insert, Intake Valve Seat							1	1								
-10	35967	† Insert, Exhaust Valve Seat							1	1								
-11	24802	Key, Valve Spring Retainer							4	4								
-12	35971	Retainer, Valve Spring, Outer							2	2								

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
17-13	520105	. Spring, Valve, Outer							2	2								
-14	637836	. Spring, Valve, Inner							2	2								
-15	625393	. Retainer, Valve Spring, Inner							2	2								
-16	532129	. Valve, Intake							1	1								
-17	626540	. Valve, Exhaust							1	1								
-18	625142	Shaft, Valve Rocker							6	6								
-19	535666	Screw, 5/16 x 25/32 Inch Long							6	6								
-20	MS35338-45	Washer, Lock							6	6								
-21	2473	Washer, Plain							6	6								
-22	A24814	Rocker Assembly, Intake Valve							6	6								
-23	530367	. Bushing, Valve Rocker							1	1								
-24	21007	. Screw, Round Head Drive							2	2								
-25	A24815	Rocker Assembly, Exhaust Valve							6	6								
-26	530367	. Bushing, Valve Rocker							1	1								
-27	21007	. Screw, Round Head Drive							1	1								
-28	532450	Cover, Valve Rocker							6	6								
ATTACHING PARTS																		
-29	535118	Screw, Fillister Head							42	42								
-30	MS35338-44	Washer, Lock							42	42								
-31	20522	Washer, Plain							42	42								
* * * *																		
-32	532451	& Gasket, Valve Rocker Cover							6	6								
-33	22022	Nut, Hex							12	12								
-34	21493	& Gasket, Exhaust Flange							6									
-34	632837	& Gasket, Exhaust Flange								6								
-34	627429	& Gasket, Exhaust Flange							op	op								
-35	534609	Washer, Pushrod Housing							36	36								
-36	534610	Packing, Pushrod Housing							12	12								
-37	536410	Packing, Pushrod Housing							12	12								
-38	537296	Housing, Pushrod							12	12								
-39	626147	Spring, Pushrod Housing							12	12								
-40	538305	Pushrod							12	12								
-41	532200	& Packing Ring, Cylinder-to-Crankcase							6	6								

NOTE:

- ① Optional chrome cylinders.

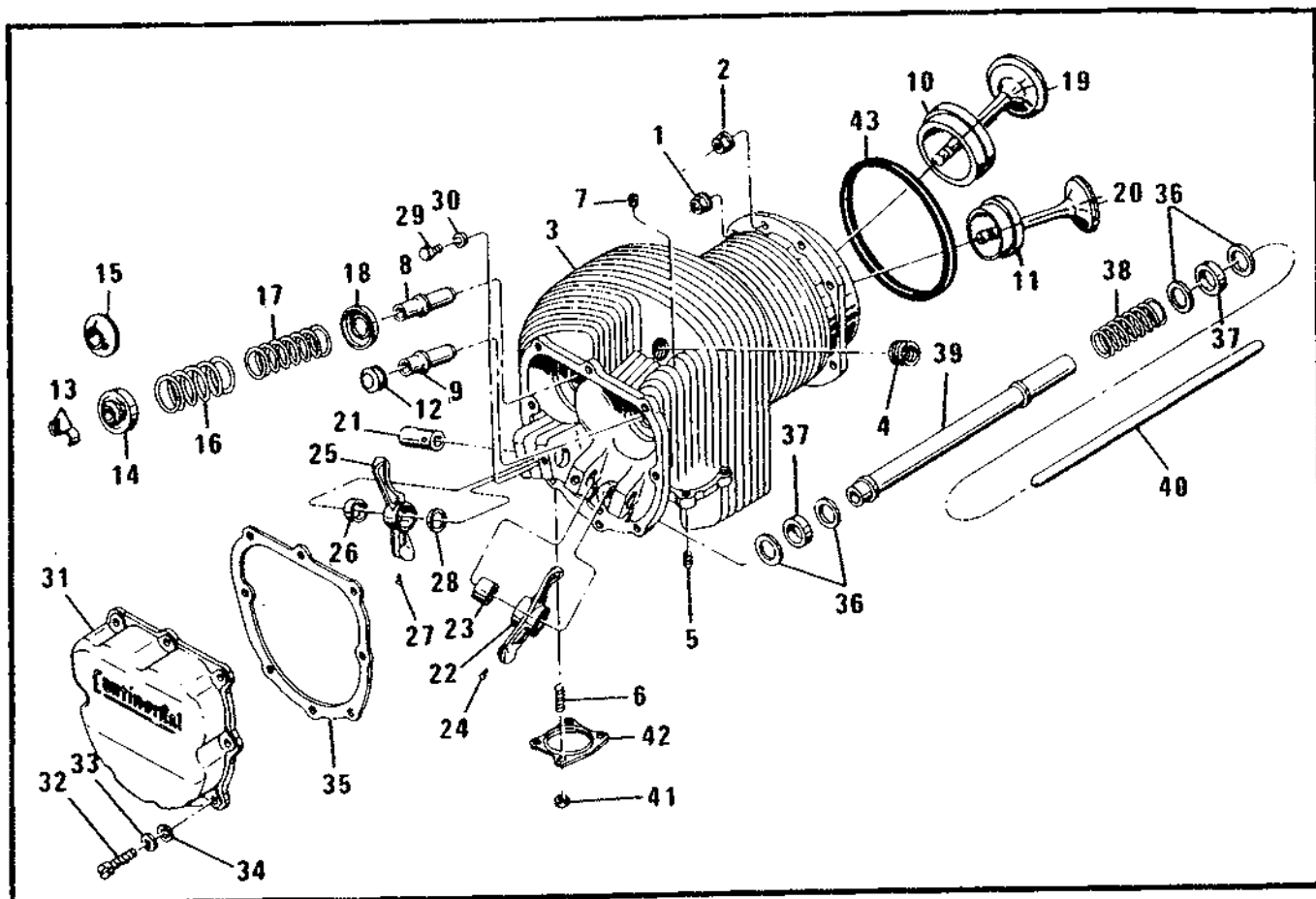


FIGURE 18 - CYLINDER ASSEMBLY
MODELS O-470-B,G,K,L,M,P,R,S,U

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
18-	539492A1	Cylinder and Valve Assembly		6														
	642068A3	Cylinder and Valve Assembly				6		6	6	6	6							
	642068A1	Cylinder and Valve Assembly											6	6				
	642068CP-A1 ①	Cylinder and Valve Assembly				op		op	op	op	op	op	op	op				
	641962A1	Cylinder and Valve Assembly													6			
ATTACHING PARTS																		
-1	634505	Nut, Flanged		12		12		12	12	12	12	12	12	12	12			
-2	531001	Nut, Flanged		36		36		36	36	36	36	36	36	36	36			
* * * *																		
-3	539492	. Cylinder Assembly		1														
-3	642068	. Cylinder Assembly				1		1	1	1	1	1	1	1				
-3	642068CP ①	. Cylinder Assembly				op		op	op	op	op	op	op	op				
-3	641962	. Cylinder Assembly													1			
-4	520112	. . Insert, Spark Plug, 18mm		2		2		2	2	2	2	2	2	2				
-4	520112-1	. . Insert, Spark Plug, 18mm													2			
-5	MS122121	. . Insert, 1/4 - 20		4		4		4	4	4	4	4	4	4	4			
-6	401804	† . . Stud, 1/4 x 1-1/16 Inch Long		4														
-6	401893	† . . Stud, 1/4 x 1-1/4 Inch Long				4		4	4	4	4	4	4	4	4			
-7	629518-1H	. . Plug, 1/8 Inch NPTF		1		1		1	1	1	1	1	1	1	1			
-8	631496	† . . Guide, Valve		2		1		1	1	1	1	1	1	1	1			
-9	641960	† . . Guide, Valve, Intake				1		1	1	1	1	1	1	1	1			
-10	35966	† . . Insert, Intake Valve Seat, 45 Degrees		1														
-10	630591	† . . Insert, Intake Valve Seat, 30 Degrees				1		1	1	1	1	1	1	1	1			

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																	
			A	B	E	G	J	K	L	M	P	R	S	U						
18-11	35967	† . Insert, Exhaust Valve Seat	1			1		1	1	1	1	1	1	1						
-12	641952A1	② . Seal Assembly, Valve Guide Intake				1		1	1	1	1	1	1	1						
-13	24802	. Key, Valve Spring Retainer	4			4		4	4	4	4	4	4	4						
-14	629117	. Rotocap, Exhaust Valve Spring Outer	1			1		1	1	1	1	1	1	1						
-15	35971	. Retainer, Intake Valve Spring Outer	1			1		1	1	1	1	1	1	1						
-16	520105	. Spring, Valve Outer	2			2		2	2	2	2	2	2	2						
-17	637836	. Spring, Valve Inner	2			2		2	2	2	2	2	2	2						
-18	625393	. Retainer, Valve Spring, Inner	2			2		2	2	2	2	2	2	2						
-19	625821	. Valve, Intake, 45 Degrees	1																	
-19	539988	. Valve, Intake, 30 Degrees				1		1	1	1	1			1						
-19	625782	. Valve, Intake, 30 Degrees										1	1							
-20	626540	. Valve, Exhaust	1			1		1	1	1	1	1	1							
-20	637781	. Valve, Exhaust												1						
-21	539740	. Shaft, Valve Rocker	12			12		12	12	12	12	12	12	12						
-22	539742	. Rocker Assembly, Intake Valve	6			6		6	6	6	6	6	6	6						
-23	639629	. Bushing, Valve Rocker	1			1		1	1	1	1	1	1	1						
-24	21007	. Screw, Round Head Drive	1			1		1	1	1	1	1	1	1						
-25	641682	. Rocker Assembly, Exhaust Valve	6			6		6	6	6	6	6	6	6						
-26	639629	. Bushing, Valve Rocker	1			1		1	1	1	1	1	1	1						
-27	21007	. Screw, Round Head Drive	1			1		1	1	1	1	1	1	1						
-28	639573	† . Washer, Thrust	24			24		24	24	24	24	24	24	24						
-29	537019	. Screw, Hex Head, 5/16 x 17/32 Inch Long	12			12		12	12	12	12	12	12	12						
-30	2473	. Washer, Plain	12			12		12	12	12	12	12	12	12						
-31	625615	. Cover, Rocker Valve	6			6		6	6	6	6	6	6	6						
ATTACHING PARTS																				
-32	535118	. Screw, Fillister Head, 5/16 x 17/32 Inch Long	48			48		48	48	48	48	48	48	48						
-33	MS35338-44	. Washer, Lock	48			48		48	48	48	48	48	48	48						
-34	20522	. Washer, Plain	48			48		48	48	48	48	48	48	48						
* * * *																				
-35	534857	& . Gasket, Rocker Valve Cover	6			6		6	6	6	6	6	6	6						
-36	534609	. Washer, Pushrod Housing	48			48		48	48	48	48	48	48	48						
-37	534610	& . Packing, Pushrod Housing	24			24		24	24	24	24	24	24	24						
-38	626147	. Spring, Pushrod Housing	12			12		12	12	12	12	12	12	12						
-39	537296	. Housing, Pushrod	12			12		12	12	12	12	12	12	12						
-40	538304	. Pushrod	12			12		12	12	12	12	12	12	12						
-41	21247	. Nut, Hex	24			24		24	24	24	24	24	24	24						
-41	536038	. Nut, Hex	op			op		op	op	op	op	op	op	op	24					
-42	631544	& . Gasket, Exhaust Flange	6			6		6	6	6	6	6	6	6						
-42	628260	. Gasket, Exhaust Flange, Spirotallic	op			op		op	op	op	op	op	op	op						
-43	532200	& . Packing Ring Cylinder-to-Crankcase	6			6		6	6	6	6	6	6	6						

NOTES:

① Optional chrome cylinders.

② This assembly contains six seals and one installation tool.

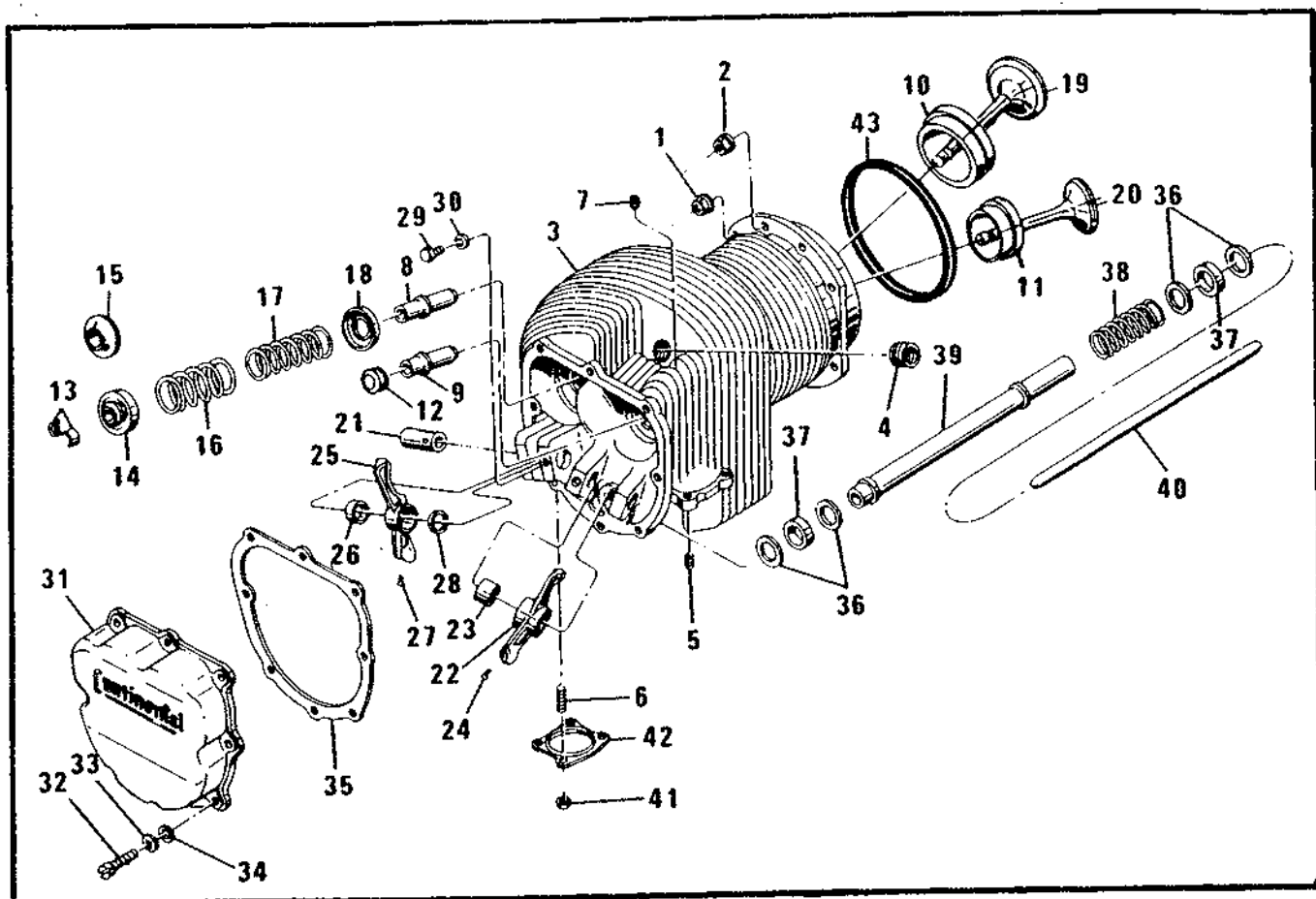


FIGURE 19 - CYLINDER ASSEMBLY
MODELS 10-470-C,D,E,F,G,H,L,M,N,P,R,S,U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																			
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V				
19-	642068A3		Cylinder and Valve Assembly					6									6	6					
	642068CP-A1	①	Cylinder and Valve Assembly					op									op	op					
	626820A8		Cylinder and Valve Assembly						6	6	6		6			6	6	6			6	6	
	626820CP-A2	①	Cylinder and Valve Assembly						op	op	op		op			op	op	op			op	op	
ATTACHING PARTS																							
-1	634505		Nut, Flanged					12	12	12	12	12	12			12	12	12	12	12	12	12	
-2	531001		Nut, Flanged					36	36	36	36	36	36			36	36	36	36	36	36	36	
* * * * *																							
-3	642068		Cylinder Assembly					6				6						6	6				
-3	642068CP	①	Cylinder Assembly					op				op						op	op				
-3	626820		Cylinder Assembly						6	6	6		6			6	6	6			6	6	
-3	626820CP	①	Cylinder Assembly						op	op	op		op			op	op	op			op	op	
-4	520112		Insert, Spark Plug, 18mm					2					2					2	2				
-4	520112-1		Insert, Spark Plug, 18mm						2	2	2	2				2	2	2	2	2	2	2	
-5	MS122121		Insert, 1/4 - 20					4	4	4	4	4	4			4	4	4	4	4	4	4	
-6	401893	†	Stud, 1/4 x 1-1/4 Inch Long					4	4	4	4	4	4			4	4	4	4	4	4	4	
-7	629518-1H		Plug, 1/8 Inch NPTF					1	1	1	1	1	1			1	1	1	1	1	1	1	
-8	631496	†	Guide, Valve					1	2	2	2	1	2			2	2	2	1	1	2	2	
-9	641960	†	Guide, Valve, Intake					1				1						1	1				
-10	630591	†	Insert, Intake Valve Seat					1	1	1	1	1	1			1	1	1	1	1	1	1	
-11	35967	†	Insert, Exhaust Valve Seat					1	1	1	1	1	1			1	1	1	1	1	1	1	
-12	641952A1	②	Seal Assembly, Valve Guide, Intake					1				1						1	1			1	

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY															
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V
19-13	24802	. Key, Valve Spring Retainer	4	4	4	4	4	4			4	4	4	4	4	4	4	4
-14	629117	. Rotocap, Exhaust Valve Spring Outer	1	1	1	1	1	1			1	1	1	1	1	1	1	1
-15	35971	. Retainer, Intake Valve Spring Outer	1	1	1	1	1	1			1	1	1	1	1	1	1	1
-16	520105	. Spring, Valve Outer	2	2	2	2	2	2			2	2	2	2	2	2	2	2
-17	637836	. Spring, Valve, Inner	2	2	2	2	2	2			2	2	2	2	2	2	2	2
-18	625393	. Retainer, Valve Spring, Inner	2	2	2	2	2	2			2	2	2	2	2	2	2	2
-19	539988	. Valve, Intake	1	1	1	1	1	1			1	1	1	1	1	1	1	1
-20	626540	. Valve, Exhaust	1															
-20	637781	. Valve, Exhaust		1	1	1	1	1			1	1	1	1	1	1	1	1
-21	539740	Shaft, Valve Rocker	12	12	12	12	12	12			12	12	12	12	12	12	12	12
-22	539742	Rocker Assembly, Intake Valve	6	6	6	6	6	6			6	6	6	6	6	6	6	6
-23	639629	. Bushing, Valve Rocker	1	1	1	1	1	1			1	1	1	1	1	1	1	1
-24	21007	. Screw, Round Head Drive	1	1	1	1	1	1			1	1	1	1	1	1	1	1
-25	641682	Rocker Assembly, Exhaust Valve	6	6	6	6	6	6			6	6	6	6	6	6	6	6
-26	639629	. Bushing, Valve Rocker	1	1	1	1	1	1			1	1	1	1	1	1	1	1
-27	21007	. Screw, Round Head Drive	1	1	1	1	1	1			1	1	1	1	1	1	1	1
-28	639573	† Washer, Thrust	24	24	24	24	24	24			24	24	24	24	24	24	24	24
-29	537019	Screw, Hex Head, 5/16 x 17/32 Inch Long	12	12	12	12	12	12			12	12	12	12	12	12	12	12
-30	2473	Washer, Plain	12	12	12	12	12	12			12	12	12	12	12	12	12	12
-31	625615	Cover, Rocker Valve	6	6	6	6	6	6			6	6	6	6	6	6	6	6
ATTACHING PARTS																		
-32	535118	Screw, Fillister, 5/16 x 17/32 Inch Long	48	48	48	48	48	48			48	48	48	48	48	48	48	48
-33	MS35338-44	Washer, Lock	48	48	48	48	48	48			48	48	48	48	48	48	48	48
-34	20522	Washer, Plain	48	48	48	48	48	48			48	48	48	48	48	48	48	48
* * * *																		
-35	534857	& Gasket, Rocker Valve Cover	6	6	6	6	6	6			6	6	6	6	6	6	6	6
-36	534609	Washer, Pushrod Housing	48	48	48	48	48	48			48	48	48	48	48	48	48	48
-37	534610	& Packing, Pushrod Housing	24	24	24	24	24	24			24	24	24	24	24	24	24	24
-38	626147	Spring, Pushrod Housing	12	12	12	12	12	12			12	12	12	12	12	12	12	12
-39	537296	Housing, Pushrod	12	12	12	12	12	12			12	12	12	12	12	12	12	12
-40	538304	Pushrod	12	12	12	12	12	12			12	12	12	12	12	12	12	12
-41	21247	Nut, Hex	24	24	24	24	24	24			24	24	24	24	24	24	24	24
-41	536038	Nut, Hex	op	op	op	op	op	op			24	op	op	op	op	op	op	op
-42	631544	& Gasket, Exhaust Flange	6	6	6	6	6	6			6	6	6	6	6	6	6	6
-42	628260	Gasket, Exhaust Flange, Spirotallic	op	op	op	op	op	op			op	op	op	op	op	op	op	op
-43	532200	& Packing Ring, Cylinder-to-Crankcase	6	6	6	6	6	6			6	6	6	6	6	6	6	6

NOTE:

- ① Optional chrome cylinders.
- ② This assembly contains six (6) seals and one installation tool.

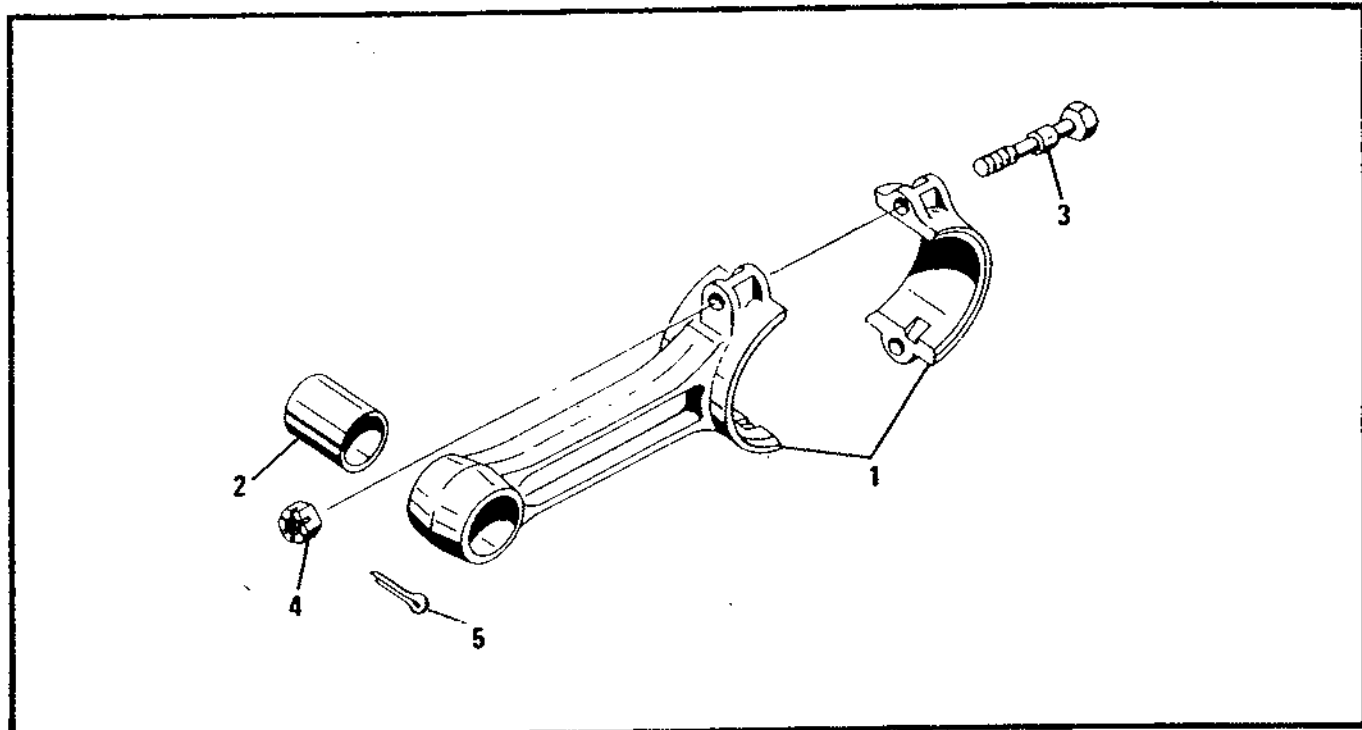


FIGURE 20 - CONNECTING ROD ASSEMBLY
ALL MODELS

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
20-1	A36121	① Rod Assembly, Connecting	6	6	6	6	6	6	6	6	6	6						
-1	628752	Rod Assembly, Connecting	6	6	6	6	6	6	6	6	6	6	6	6				
-2	530658	. Bushing, Piston Pin	1	1	1	1	1	1	1	1	1	1	1	1				
-3	35972	. Bolt	2	2	2	2	2	2	2	2	2	2	2	2				
-4	626140	. Nut, Slotted, Hex, 3/8	2	2	2	2	2	2	2	2	2	2	2	2				
-5	639292	Pin, Cotter	2	2	2	2	2	2	2	2	2	2	2	2				

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																	
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
20-1	A36121	① Rod Assembly, Connecting	6				6		6	6					6	6				
-1	628752	Rod Assembly, Connecting	6	6	6	6		6	6	6	6	6	6			6	6	6		
-2	530658	. Bushing, Piston Pin	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-3	35972	. Bolt	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-4	626140	. Nut, Slotted, Hex, 3/8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-5	639292	Pin, Cotter	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

NOTE:

① Engines not having the serial number prefixed by "CS" will use A36121 rods.

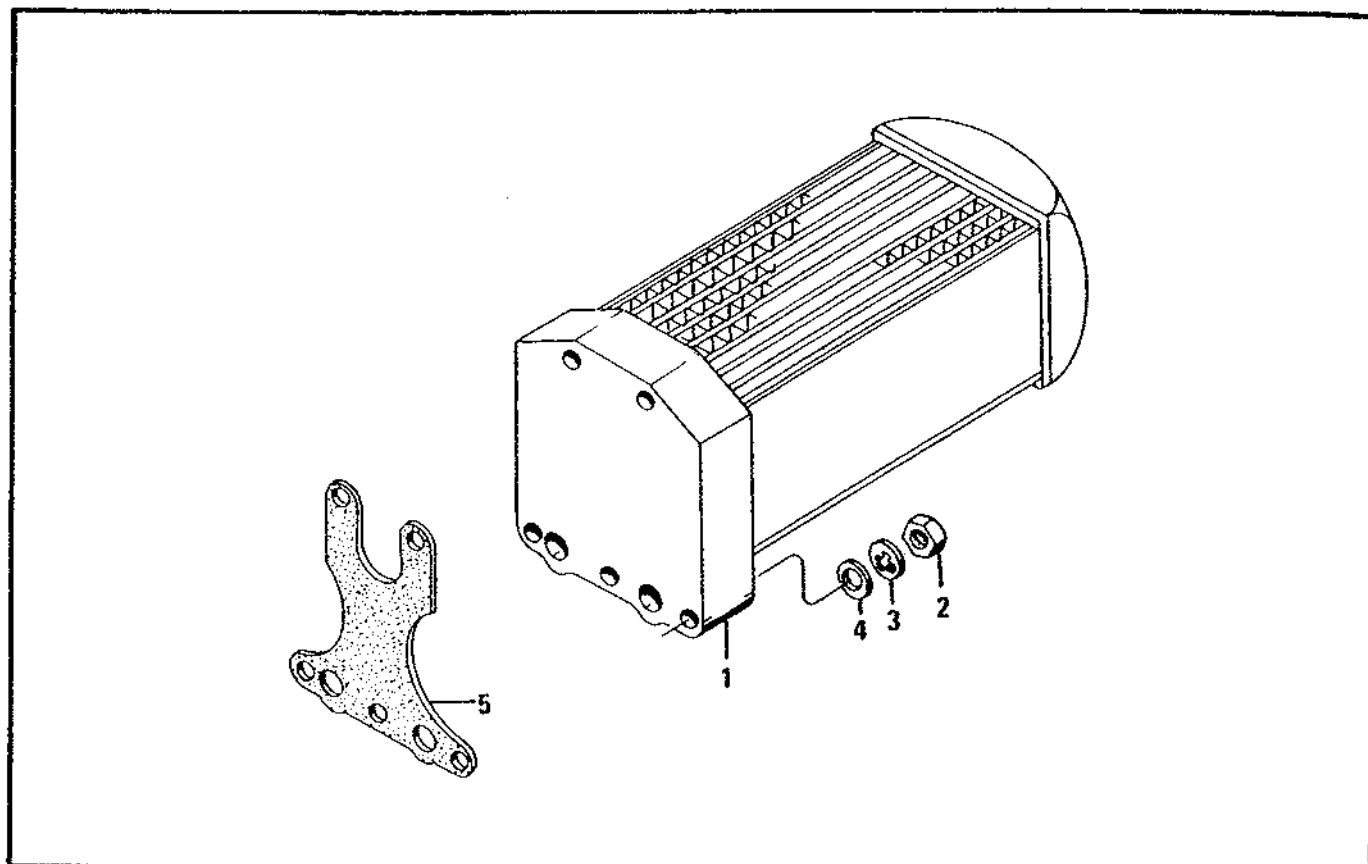


FIGURE 21 - OIL COOLER

MODELS O-470-A,E,J,K

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY															
				A	B	E	G	J	K	L	M	P	R	S	U				
21-1	534503	①	Cooler, Engine Oil	1		1		1	1										
ATTACHING PARTS																			
-2	2437		Nut, Plain Hex	5		5		5	5										
-3	MS35338-44		Washer, Lock	5		5		5	5										
-4	20522		Washer, Plain	5		5		5	5										
* * * *																			
-5	625303	&	Gasket, Oil Cooler-to-Crankcase	1		1		1	1										

MODEL IO-470-F

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																	
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
21-1	534503	①	Cooler, Engine Oil				1														
ATTACHING PARTS																					
-2	2437		Nut, Plain Hex				5														
-3	MS35338-44		Washer, Lock				5														
-4	20522		Washer, Plain				5														
* * * *																					
-5	625303	&	Gasket, Oil Cooler-to-Crankcase				1														

NOTE:

① See Section VI for Specification Applications.

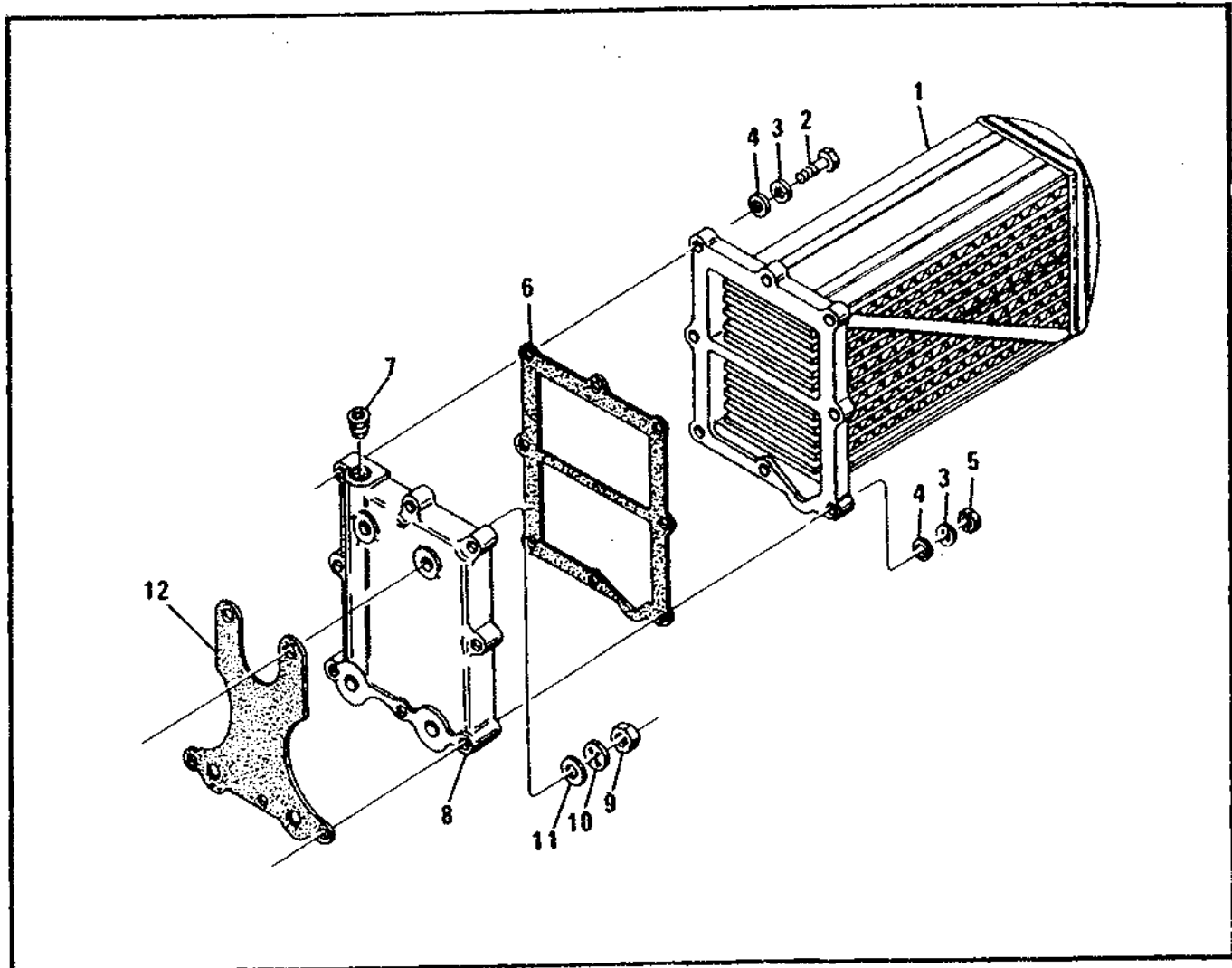


FIGURE 22 - OIL COOLER
MODELS O-470-G,L,P,R,S,U

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY												
			A	B	E	G	J	K	L	M	P	R	S	U	
22-1	627392	① Cooler, Engine Oil				1			1		1	1	1	1	
		ATTACHING PARTS													
-2	535631	Screw, 1/4 x 1 Inch Long				5			5		5	5	5	5	
-3	MS35338-44	Washer, Lock				8			8		8	8	8	8	
-4	20522	Washer, Plain				8			8		8	8	8	8	
-5	2437	Nut, Plain Hex				3			3		3	3	3	3	
		* * * *													
-6	632372	& Gasket, Oil Cooler-to-Plate				1			1		1	1	1	1	
-7	2026	Plug, Pipe, 1/4 Inch				1			1		1	1	1	1	
-8	625016	Plate, Oil Cooler Adapter				1			1		1	1	1	1	
		ATTACHING PARTS													
-9	2437	Nut, Plain Hex				2			2		2	2	2	2	
-10	MS35338-44	Washer, Lock				2			2		2	2	2	2	
-11	20522	Washer, Plain				2			2		2	2	2	2	
		* * * *													
-12	625303	& Gasket, Plate-to-Crankcase				1			1		1	1	1	1	
NOTE:															

NOTE:

① See Section VI for Specification Applications.

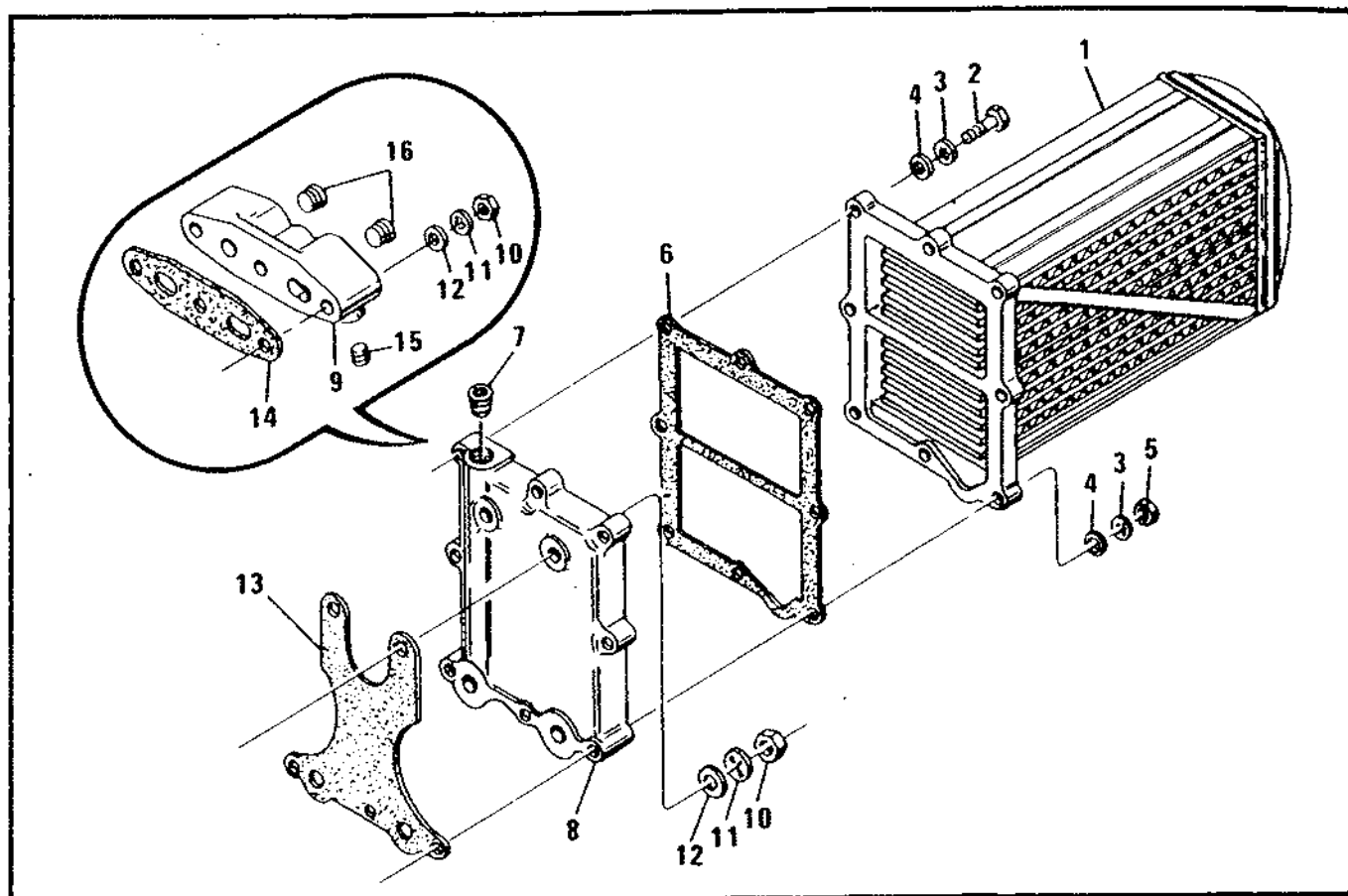


FIGURE 23 - OIL COOLER
MODELS 10-470-C,E,G,H,J,K,N,R,S

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY																	
			1	2	3	4	5	C	D	E	F	G	H	J	K	L	M	N	P	R
23-1	627392	① Cooler, Engine Oil	1					1				1	1	1	1			1		1
ATTACHING PARTS																				
-2	535631	Screw, 1/4 x 1 Inch Long	5					5				5	5	5	5			5		5
-3	MS35338-44	Washer, Lock	8					8				8	8	8	8			8		8
-4	20522	Washer, Plain	8					8				8	8	8	8			8		8
-5	2437	Nut, Plain Hex	3					3				3	3	3	3			3		3
* * * *																				
-6	625017	& Gasket, Oil Cooler-to-Plate	1					1				1	1	1	1			1		1
-7	2026	Plug, Pipe, 1/4 Inch	1					1				1	1	1	1			1		1
-8	625016	Plate, Oil Cooler Adapter	1					1				1	1	1	1			1		1
-9	535958	Adapter, Oil Cooler Pad																	1	
ATTACHING PARTS																				
-10	2437	Nut, Plain, Hex	2					2				2	2	2	2			2	3	2
-11	MS35338-44	Washer, Lock	2					2				2	2	2	2			2	3	2
-12	20522	Washer, Plain	2					2				2	2	2	2			2	3	2
* * * *																				
-13	625303	& Gasket, Plate-to-Crankcase	1					1				1	1	1	1			1		1
-14	535756	& Gasket, Adapter-to-Crankcase																	1	
-15	401763	Plug, Pipe, 1/4 Inch NPT																	1	
-16	629518-4H	Plug, Pipe, 1/2 Inch NPT																	2	

NOTE:

① See Section VI for Specification Applications.

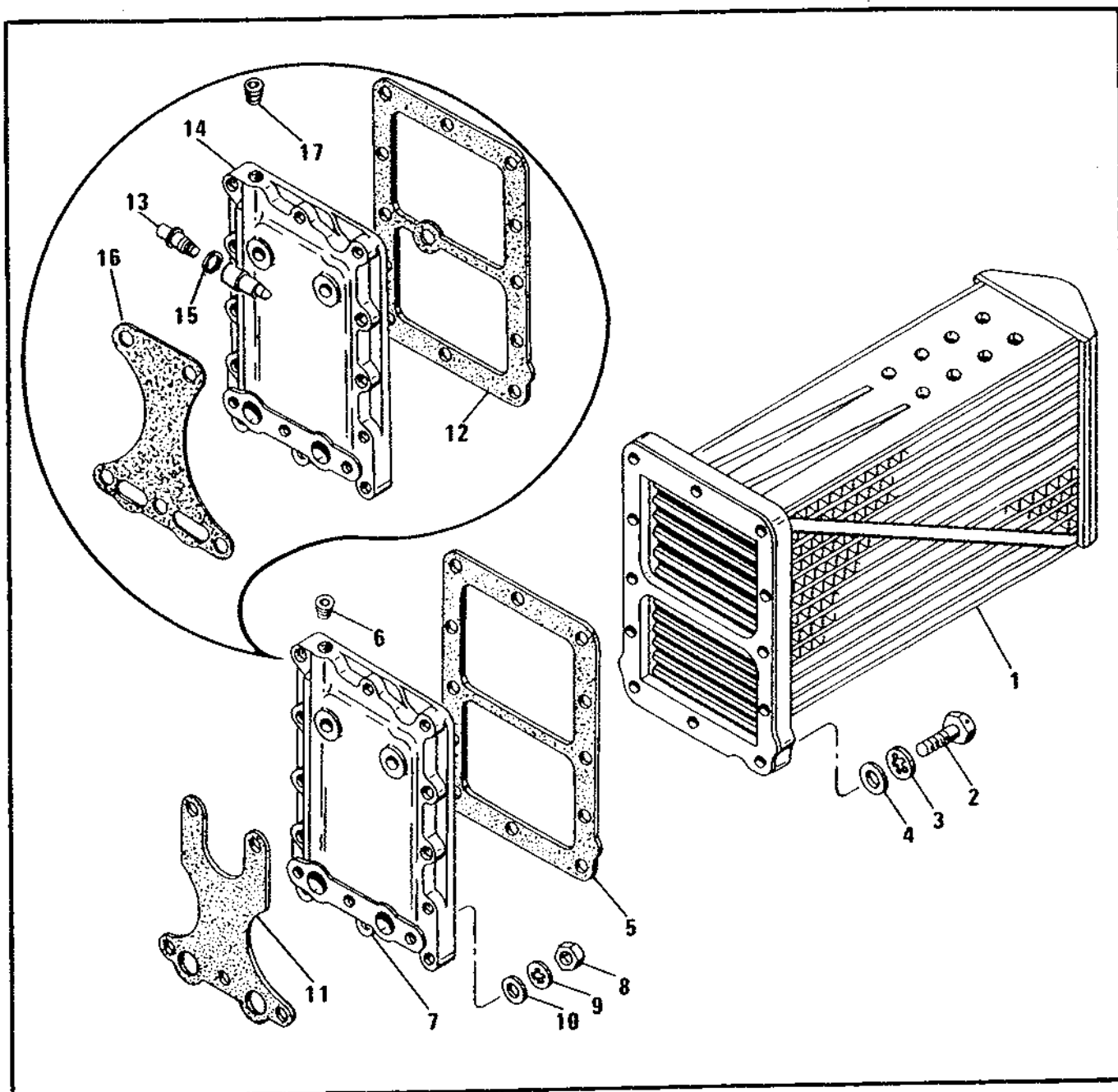


FIGURE 24 - OIL COOLER

MODELS O-470-B,M

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY															
				A	B	E	G	J	K	L	M	P	R	S	U				
24-1	626189	①	Cooler, Engine Oil		1						1								
-1	639152	② ①	Cooler, Engine Oil								1								
ATTACHING PARTS																			
-2	535631		Screw, 1/4 x 1 Inch Long	12							12								
-2	535668	②	Screw, 1/4 x 1-3/8 Inch Long								12								
-3	MS35338-44		Washer, Lock	12							12								
-4	20522		Washer, Plain	12							12								
* * * *																			
-5	537282		& Gasket, Oil Cooler-to-Plate	1							1								

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
24-6	2026	Plug, Pipe, 1/4 Inch	1							1								
-7	537312	Plate, Oil Cooler Adapter	1							1								
ATTACHING PARTS																		
-8	2437	Nut, Plain, Hex	5							5								
-9	MS35338-44	Washer, Lock	5							5								
-10	20522	Washer, Plain	5							5								
* * * *																		
-11	625303	& Gasket, Plate-to-Crankcase	1							1								
-12	626342	② Gasket, Oil Cooler-to-Plate								1								
-13	626332	② Plate, Oil Cooler Adapter								1								
-14	639305	② Oil Temperature Control Valve								1								
-15	627496	② Gasket								1								
-16	626341	② Gasket, Plate-to-Crankcase								1								
-17	2026	② Plug, Pipe, 1/4 Inch								1								

MODELS IO-470-D,L,M,U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V
24-1	626189	① Cooler, Engine Oil	1								1	1						
-1	639152	②① Cooler, Engine Oil	1														1	1
-1	635993	②① Cooler, Engine Oil									1							
ATTACHING PARTS																		
-2	535631	Screw, 1/4 x 1 Inch Long	12								12	12						
-2	535668	② Screw, 1/4 x 1-3/8 Inch Long	12								12						12	12
-3	MS35338-44	Washer, Lock	12								12	12					12	12
-4	20522	Washer, Plain	12								12	12					12	12
* * * *																		
-5	537282	& Gasket, Oil Cooler-to-Plate	1								1	1						
-6	2026	Plug, Pipe, 1/4 Inch	1								1	1						
-7	537312	Plate, Oil Cooler Adapter	1								1	1						
ATTACHING PARTS																		
-8	2437	Nut, Plain, Hex	5								5	5					5	5
-9	MS35338-44	Washer, Lock	5								5	5					5	5
-10	20522	Washer, Plain	5								5	5					5	5
* * * *																		
-11	625303	& Gasket, Plate-to-Crankcase	1								1	1						
-12	626342	② Gasket, Oil Cooler-to-Plate	1								1						1	1
-13	626332	② Plate, Oil Cooler Adapter	1								1						1	1
-14	639305	② Temperature Control Assembly	1								1						1	1
-15	627496	② Gasket	1								1						1	1
-16	626341	② Gasket, Plate-to-Crankcase	1								1						1	1
-17	2026	② Plug, Pipe, 1/4 Inch	1								1							1

NOTES:

See Section VI for Specification Applications.

Denotes optional non-congealing oil cooler and associated parts. Standard on IO-470-U & V.

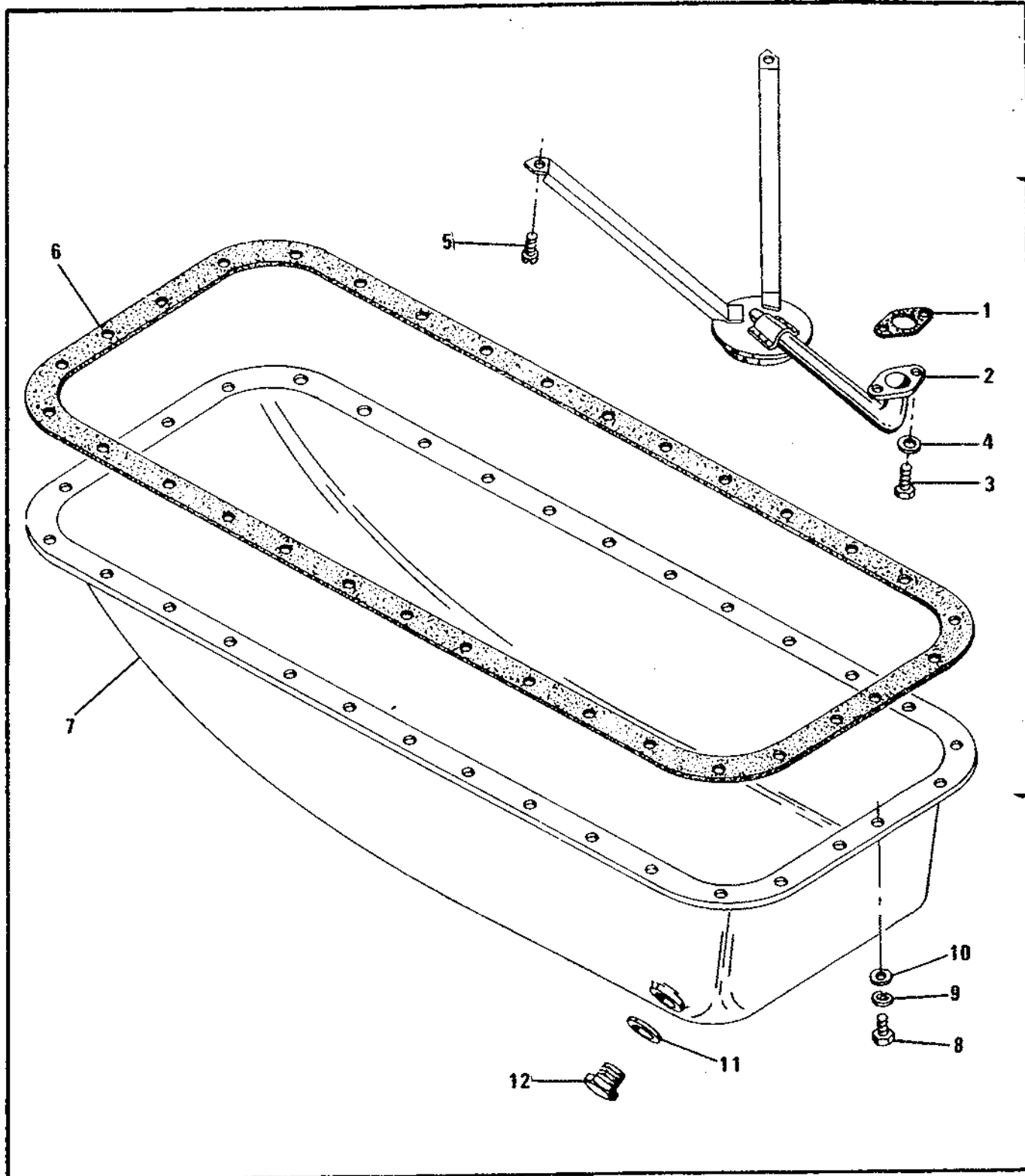


FIGURE 25 - OIL SUMP

MODELS 0-470-A,B,E,J,K,L,M,R,S,U

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
25-1	534940	& Gasket, Suction Tube	1	1	1		1	1	1	1		1	1	1				
-2	625207	Tube Assembly, Oil Pump Suction	1	1	1		1	1	1	1		1	1	1				
ATTACHING PARTS																		
-3	MS20074-04-04	Bolt, Drilled Head	2	2	2		2	2	2	2		2	2	2				
-4	20522	Washer, Plain	2	2	2		2	2	2	2		2	4	4				
-5	MS20074-04-03	Bolt, Drilled Head	2	2	2		2	2	2	2		2	2	2				
* * * *																		
-6	534743	& Gasket, Oil Sump	1	1	1		1	1	1	1		1	1	1				
-7	537650	Sump Assembly, Oil	1	1	1		1	1		1								
-7	539937	Sump Assembly, Oil							1			1	1	1				
ATTACHING PARTS																		
-8	530346	Screw, Hex Head, 5/16 x 7/8 Inch Long	28	26	28		28	28	28	26		28	28	28				
-9	13XX202B	Washer, Lock, 5/16 Inch	24	24	28		28	28	28	26		28	28	28				
-10	2473	Washer, Plain	24	26	28		28	28	28	26		28	28	28				
* * * *																		
-11	AN900-10	& Gasket, Annular	2	2	2		2	2	2	2		2	2	2				
-12	532432	① Plug, Oil Drain, 5/8	2	2	2		2	2	2	2		2	2	2				

MODELS 10-470-D,E,F,G,L,M,P,R,S,U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V
25-1	534940	& Gasket, Suction Tube	1	1	1	1					1	1		1	1	1	1	1
-2	625207	Tube Assembly, Oil Pump Suction	1	1	1	1					1	1		1	1	1	1	1
ATTACHING PARTS																		
-3	MS20074-04-04	Bolt, Drilled Head	2	2	2	2					2	2		2	2	2	2	2
-4	20522	Washer, Plain	2	2	2	2					2	2		2	2	2	2	2
-5	MS20074-04-03	Bolt, Drilled Head	2	2	2	2					2	2		2	2	2	2	2
* * * *																		
-6	534743	& Gasket, Oil Sump	1	1	1	1					1	1		1	1	1	1	1
-7	537650	Sump Assembly, Oil	1	1	1	1					1			1	1		1	1
-7	628698	Sump Assembly, Oil										1						
-7	633412	Sump Assembly, Oil														1		
ATTACHING PARTS																		
-8	530346	Screw, Hex Head, 5/16 x 7/8 Inch Long	26	26	28	26					28	28		28	26	26	30	30
-9	13XX202B	Washer, Lock, 5/16 Inch	26	26	28	26					28	28		28	26	26	30	30
-10	2473	Washer, Plain	26	26	28	26					28	28		28	26	26	30	30
* * * *																		
-11	AN900-10	& Gasket, Annular	2	2	2	2					2			2	2	2	2	2
-11	AN900-12	& Gasket, Annular										2						
-12	20274	Plug, Oil Drain, 3/4																
-12	532432	① Plug, Oil Drain, 5/8	2	2	2	2					2			2	2	1	2	2

ne 636376 magnetic drain plug may be used as an option to 532432 drain plug.

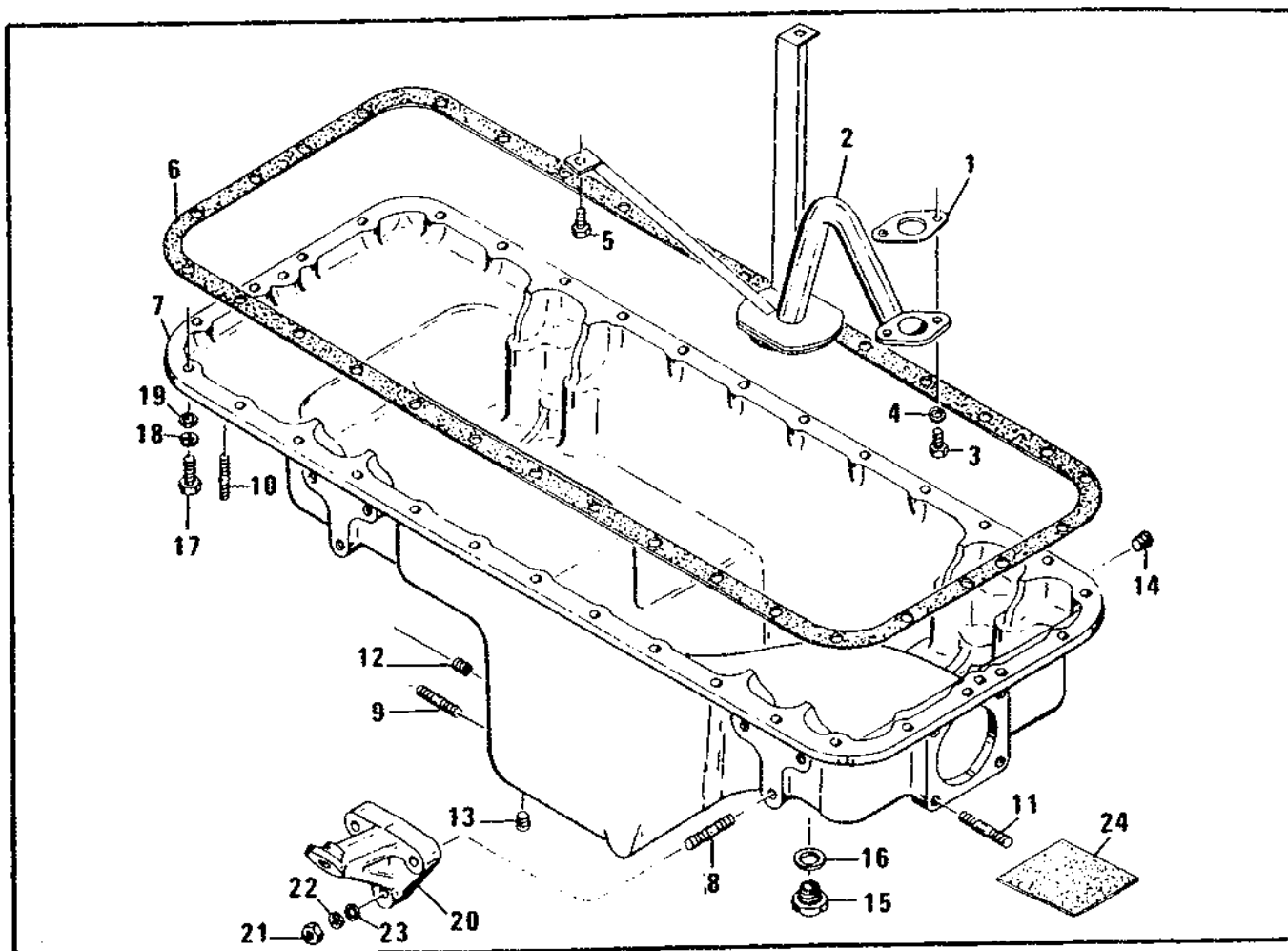


FIGURE 26 - OIL SUMP

MODELS O-470-G,P

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY												
				A	B	E	G	J	K	L	M	P	R	S	U	
26-1	534940	&	Gasket, Suction Tube				1					1				
-2	538937		Tube Assembly, Oil Pump Suction				1					1				
ATTACHING PARTS																
-3	MS20074-04-04	Bolt					2					2				
-4	20522	Washer, Plain					2					2				
-5	MS20074-04-03	Bolt					2					2				
* * * * *																
-6	534743	&	Gasket, Oil Sump				1					1				
-7	538814A1		Sump Studding Assembly				1					1				
-8	401860	†	Stud, 3/8 x 1-9/16 Inch Long				12					12				
-9	401885	†	Stud, 5/16 x 1-5/16 Inch Long				2					2				
-10	401804	†	Stud, 1/4 x 1-1/16 Inch Long				4					4				
-11	401885	†	Stud, 5/16 x 1-5/16 Inch Long				4					4				
-12	MS122122		Insert, 5/16				2					2				
-13	2024		Plug, Pipe, 1/8				1					1				
-14	401753		Plug, Pipe, 1/4				1					1				
-15	2265		Plug, Oil Drain, 5/8				1					1				
-16	AN900-10	&	Gasket, Annular				1					1				
ATTACHING PARTS																
-17	537750		Bolt, 5/16 x 1-1/8 Inch Long				32					32				

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
26-18	13XX202B	Washer, Lock				32					32							
-19	2473	Washer, Plain				32												
-19	22533	Washer, Plain									32							
		* * * *																
-20	625383	Bracket, Engine Mount									4							
-20	626089	Bracket, Engine Mount				4												
		ATTACHING PARTS																
-21	2441	Nut, Hex				12					12							
-22	MS35338-46	Washer, Lock				12					12							
-23	2474	Washer, Plain				12					12							

MODELS 10-470-C,H,J,N

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																	
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
26-1	534940	& Gasket, Suction Tube	1						1	1	1				1					
-2	538937	Tube Assembly, Oil Pump Suction	1						1	1										
-2	628409	Tube Assembly, Oil Pump Suction									1				1					
ATTACHING PARTS																				
-3	MS20074-04-04	Bolt	2						2	2	2				2					
-4	20522	Washer, Plain	2						2	2	2				2					
-5	MS20074-04-03	Bolt	2						2	2	2				2					
* * * *																				
-6	534743	& Gasket, Oil Sump	1						1	1	1				1					
-7	538814A1	Sump Studding Assembly	1						1	1										
-7	628372A2	Sump Studding Assembly									1				1					
-8	401860	† Stud, 3/8 x 1-9/16 Inch Long	12						12	12	12				12					
-9	401885	† Stud, 5/16 x 1-5/16 Inch Long	2						2	2					2					
-10	401804	† Stud, 1/4 x 1-1/16 Inch Long	4						4	4										
-10	401806	† Stud, 1/4 x 1-1/4 Inch Long									4				4					
-11	401885	† Stud, 5/16 x 1-5/16 Inch Long	4						4	4										
-12	MS122122	Insert, 5/16	2						2	2										
-13	2024	Plug, Pipe, 1/8	1						1	1										
-14	401753	Plug, Pipe, 1/4	1						1	1	1									
-15	2265	Plug, Oil Drain, 5/8	1						1	1	1				1					
-16	AN900-10	& Gasket, Annular	1						1	1	1				1					
ATTACHING PARTS																				
-17	537750	Bolt, 5/16 x 1-1/8 Inch Long	32						32	32	30				32					
-18	13XX202B	Washer, Lock	32						32	32	30				32					
-19	AN960-516L	Washer, Plain	32						32	32	30				32					
* * * *																				
-20	625383	Bracket, Engine Mount							4											
-20	626089	Bracket, Engine Mount	4							4	4				4					
ATTACHING PARTS																				
-21	2441	Nut, Hex	12						12	12	12				12					
-22	MS35338-46	Washer, Lock	12						12	12	12				12					
-23	2474	Washer, Plain	12						12	12	12				12					
* * * *																				
-24	534625	Felt, 3-1/16 x 4-1/16 Inch													4					

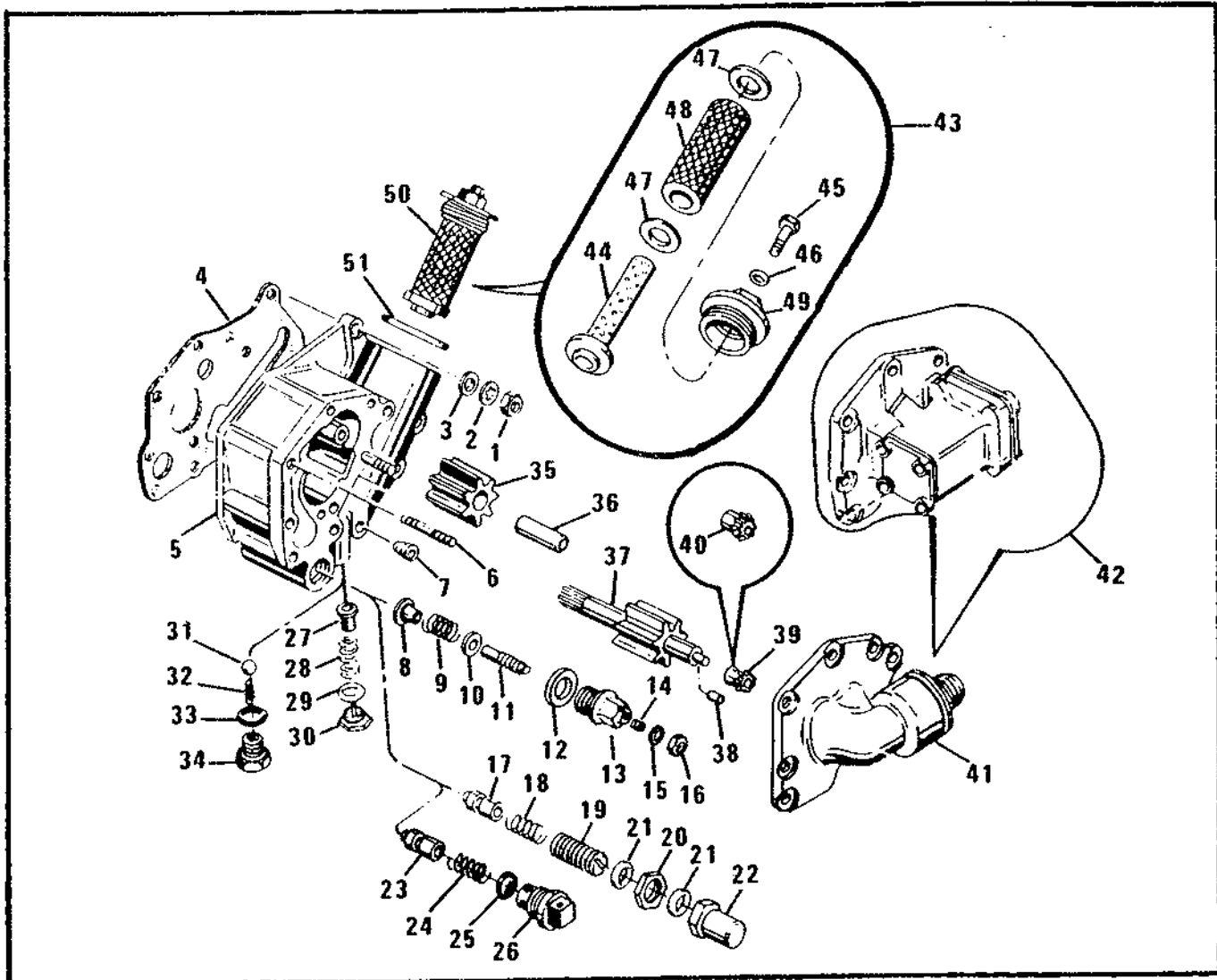


FIGURE 27 - OIL PUMP ASSEMBLY
MODELS O-470-A,B,E,G,J,K,L,M,P,R,S,U

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY															
				A	B	E	G	J	K	L	M	P	R	S	U				
27-	632563A31		Housing Assembly, Oil Pump Complete	1															
	632563A2		Housing Assembly, Oil Pump, Complete		1	1							1						
	632563A4		Housing Assembly, Oil Pump, Complete						1	1	1								
	632563A7		Housing Assembly, Oil Pump, Complete													1	1	1	
	632563A16		Housing Assembly, Oil Pump, Complete					1						1					
ATTACHING PARTS																			
-1	2437		Nut, Plain Hex	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
-2	MS35338-44		Washer, Lock	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
-3	20522		Washer, Plain	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
* * * *																			
-4	538185	&	Gasket, Pump Housing	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-5	632563	①	Housing and Shaft Assembly, Oil Pump	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-6	401963	†	Stud, 1/4 x 1 Inch Long	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-7	AN932-2		Plug, Pipe, 1/8 Inch NPT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-8	642336	②	Plunger, Oil Pressure Relief Valve	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-9	634150		Spring, Oil Pressure Relief Valve		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-9	632478		Spring, Oil Pressure Relief Valve	1															
-10	631653		Washer, Special, Oil Pressure Relief Valve	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
27-11	642335	② Screw, Adjusting, Oil Pressure Relief Valve	1	1	1	1	1	1	1	1	1	1	1	1				
-12	AN900-18	Gasket, Annular	1	1	1	1	1	1	1	1	1	1	1	1				
-13	642224	Housing, Oil Pressure Relief Valve	1	1	1	1	1	1	1	1	1	1	1	1				
-14	MS124657	Insert, Helical Coil	1	1	1	1	1	1	1	1	1	1	1	1				
-15	X1473	Gasket, Copper	1	1	1	1	1	1	1	1	1	1	1	1				
-16	632762	Nut, Lock	1	1	1	1	1	1	1	1	1	1	1	1				
-17	627494	③ Plunger, Oil Pressure Relief Valve										1						
-18	627495	③ Spring, Oil Pressure Relief Valve										1						
-19	627651	③ Screw, Adjusting										1						
-20	627652	③ Nut, Adjusting Screw										1						
-21	AN900-14	③ & Gasket, Annular				2						2						
-22	627650	③ Cap, Oil Pressure Relief Valve				1						1						
-23	537229	③ Plunger, Oil Pressure Relief Valve	1															
-23	538580	③ Plunger, Oil Pressure Relief Valve		1	1		1	1	1	1			1					
-24	537589	③ Spring, Oil Pressure Relief Valve	1															
-24	538735	③ Spring, Oil Pressure Relief Valve		1	1		1	1	1	1			1					
-25	AN900-10	③ & Gasket, Annular	1															
-25	AN900-14	Gasket, Annular		1	1		1	1	1	1			1					
-26	537235	③ Cap, Oil Pressure Relief Valve	1															
-26	538736	③ Cap, Oil Pressure Relief Valve		1	1		1	1	1	1			1					
-27	631638	Valve, By-Pass	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-28	631478	Spring, By-Pass Valve	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-29	AN900-14	& Gasket, Annular	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-30	631995	Pin and Plug Assembly	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-31	2849	③ Ball, Filter By-Pass		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-32	2848	③ Spring, Filter By-Pass		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-33	AN900-10	③ & Gasket, Annular		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-34	532432	③ Plug, Filter By-Pass		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-35	539525	Gear and Bushing Assembly, Oil Pump	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-36	539523	Bushing, Oil Pump Gear	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-37	538516	Gear Assembly, Oil Pump and Tachometer Drive		1	1						1							
-37	538609	Gear Assembly, Oil Pump and Tachometer Drive	1			1	1	1	1		1	1	1	1	1	1	1	1
-38	535634	Dowel	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-39	535008	Gear, Bevel, Tachometer Drive	1			1	2	2	2		1	1	1	1	1	1	1	1
-40	535900	Gear, Bevel, Tachometer Drive		1	1					1								
-41	***	Cover, Oil Pump, Mechanical Tach		1	1					1		1	1	1	1	1	1	1
-42	***	Cover, Oil Pump, Electric Tach	1			1	1	1	1		1		1	1	1	1	1	1
-43	538727	Filter, Oil	1	1	1		1	1	1	1		1	1	1	1	1	1	1
-44	Q9T116-218	Tube Assembly, Perforated	1	1	1		1	1	1	1		1	1	1	1	1	1	1
-45	MS20073-04-10	Bolt, Drilled, Hex Head	1	1	1		1	1	1	1		1	1	1	1	1	1	1
-46	Q9S552-06	Washer, Annular, 1/4 Inch	1	1	1		1	1	1	1		1	1	1	1	1	1	1
-47	535933	Gasket, Felt, 5/8 Inch ID	2	2	2		2	2	2	2		2	2	2	2	2	2	2
-48	Q9T116-07	Element, Filter	1	1	1		1	1	1	1		1	1	1	1	1	1	1
-49	628129	Body Casting, Filter	1	1	1		1	1	1	1		1	1	1	1	1	1	1
-50	534862	Screen Assembly, Oil				1					1							
-51	AN900-28	& Gasket, Annular	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

NOTES:

*** See Figure 28 for detail parts.

① If replacing old style pump body, service with 632563A11.

② If replacing 631618 plunger or 632761 screw, it will be necessary to order both 642761 and 642335 or 642335A1 service kit. (See Service Bulletin M79-2 Rev. 1.)

③ Existence of these parts indicates early style pump. If pump is serviceable, these parts must be used to replace worn parts.

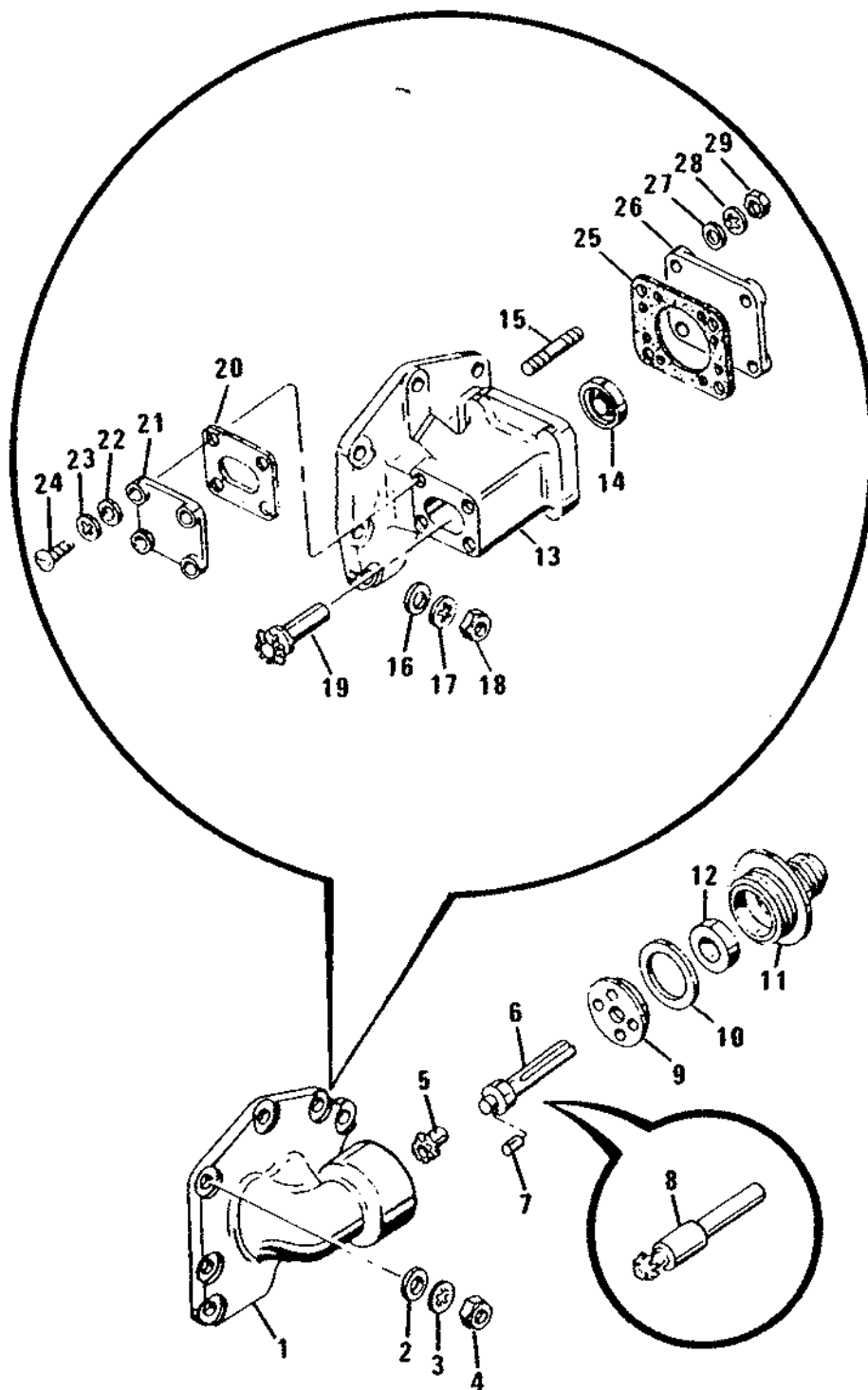


FIGURE 28 - OIL PUMP COVER AND TACHOMETER DRIVE
MODELS O-470-A,B,E,G,J,K,L,M,P,R,S,U

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY														
			A	B	E	G	J	K	L	M	P	R	S	U			
28-1	625886	Cover, Oil Pump	1			1	1	1	1		1	1	1	1			
		ATTACHING PARTS															
-2	20522	Washer, Plain	2			2	2	2	2		2	2	2	2			
-3	MS35338-44	Washer, Lock	2			2	2	2	2		2	2	2	2			
-4	2437	Nut, Plain Hex	2			2	2	2	2		2	2	2	2			
		* * * *															
-5	535008	Gear, Bevel, Tach Drive	1				1	1	1		1	1	1	1			
-6	535010	Shaft Assembly, Tach Drive	1				1	1	1								
-7	535634	. Dowel	1				1	1	1								
-8	631650	Shaft and Gear Assembly	1			1					1	1	1	1			
-9	534873	Washer, Thrust	1				1	1	1			1					
-10	AN900-15	& Gasket, Annular	1			1		1	1			1	1				
-10	632085	& Gasket, Annular	1			1		1	1			1	1	1	1		
-11	21208A2	Housing Assembly, Tach Drive	1			1	1	1	1		1	1	1	1			
-12	642714	& . Seal, Oil	1			1	1	1	1		1	1	1	1			
-13	538789A1	Cover Assembly, Oil Pump		1	1					1		1	1	1			
-14	531378	& . Seal Oil		1	1					1		1	1	1			
-15	401963	† . Stud, 1/4 x 1-1/4 Inch Long		1	1					1		1	1	1			
		ATTACHING PARTS															
-16	20522	Washer, Plain		1	1					1		1	1	1			
-16	25164	Washer, Special		2	2					2		2	2	2			
-17	MS35338-44	Washer, Lock		2	2					2		2	2	2			
-18	2437	Nut, Plain, Hex		2	2					2		2	2	2			
		* * * *															
-19	535908	Gear, Bevel, Tach Drive		1	1					1		1	1	1			
-20	535885	& Gasket		1	1					1		1	1	1			
-21	535887	Cover, Tach Gear Box		1	1					1		1	1	1			
		ATTACHING PARTS															
-22	2471	Washer, Plain		4	4					4		4	4	4			
-23	22910	Washer, Lock		4	4					4		4	4	4			
-24	20655	Screw		4	4					4		4	4	4			
		* * * *															
-25	MS9134-01	& Gasket		1	1					1		1	1	1			
-26	640380	Cover, Tach Drive Pad		1	1					1		1	1	1			
		ATTACHING PARTS															
-27	2472	Washer, Plain		4	4					4		4	4	4			
-28	MS35338-44	Washer, Lock		4	4					4		4	4	4			
-29	2437	Nut, Plain, Hex		4	4					4		4	4	4			

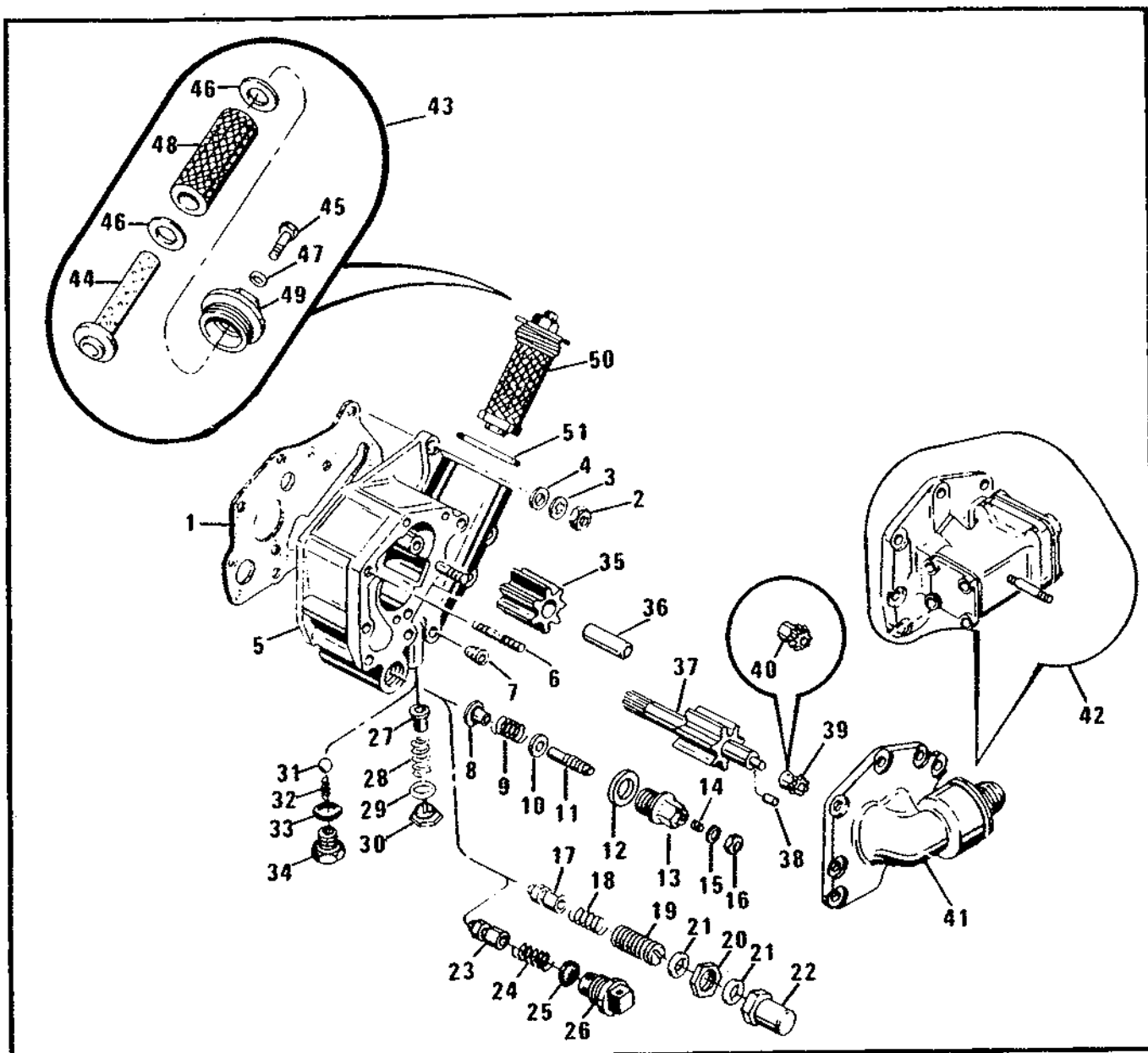


FIGURE 29 - OIL PUMP ASSEMBLY
MODELS 10-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																			
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V				
29-1	538185	&	Gasket, Oil Pump Housing	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	632563A4		Housing Assembly, Oil Pump, Complete			1																	
	632563A7		Housing Assembly, Oil Pump Complete				1													1			
	632563A16		Housing Assembly, Oil Pump Complete	1				1	1	1	1				1			1					
	632563A17		Housing Assembly, Oil Pump Complete		1																1	1	
	632563A29		Housing Assembly, Oil Pump Complete												1								
	632563A20		Housing Assembly, Oil Pump Complete											1									
ATTACHING PARTS																							
-2	2437		Nut, Plain, Hex	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-3	MS35338-44		Washer, Lock	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-4	20522		Washer, Plain	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
* * * *																							
-5	632563	①	Housing and Shaft Assembly, Oil Pump	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-6	401963	†	Stud, 1/4 x 1 Inch Long	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																	
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
-7	2024	Plug, Pipe, 1/8 Inch NPT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-8	642336	② Plunger, Oil Pressure Relief Valve	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-9	634150	Spring, Oil Pressure Relief Valve	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-10	631653	Washer, Special, Oil Pressure Relief Valve	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-11	642335	② Screw, Adjusting, Oil Pressure Relief Valve	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-12	AN900-18	& Gasket, Annular	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-13	642224	Housing, Oil Pressure Relief Valve	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-14	MS214657	Insert Helical Coil	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-15	X1473	& Gasket, Copper	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-16	632762	Nut, Lock	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-17	627494	③ Plunger, Oil Pressure Relief Valve	1				1	1	1	1	1	1	1	1	1	1	1	1	1	
-18	627495	③ Spring, Oil Pressure Relief Valve	1				1	1	1	1	1	1	1	1	1	1	1	1	1	
-19	627651	③ Screw, Adjusting	1				1	1	1	1	1	1	1	1	1	1	1	1	1	
-20	627652	Nut, Adjusting Screw	1				1	1	1	1	1	1	1	1	1	1	1	1	1	
-21	AN900-14	③ & Gasket, Annular	2				2	2	2	2	2	2	2	2	2	2	2	2	2	
-22	627650	③ Cap, Oil Pressure Relief Valve	1				1	1	1	1	1	1	1	1	1	1	1	1	1	
-23	537229	③ Plunger, Oil Pressure Relief Valve	1				1	1	1	1	1	1	1	1	1	1	1	1	1	
-23	538580	③ Plunger, Oil Pressure Relief Valve		1	1	1									1		1	1	1	
-24	627458	③ Spring, Oil Pressure Relief Valve		1	1	1									1		1	1	1	
-25	AN900-14	③ & Gasket, Annular		1	1	1									1		1	1	1	
-26	538736	③ Cap, Oil Pressure Relief Valve		1	1	1									1		1	1	1	
-27	631638	Valve, By-Pass	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-28	631478	Spring, By-Pass Valve	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-29	AN900-14	& Gasket, Annular	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-30	631995	Pin and Plug Assembly	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-31	2849	③ Ball, Filter By-Pass	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-32	2848	③ Spring, Filter By-Pass	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-33	AN900-10	③ & Gasket, Annular	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-34	532432	Plug, Filter By-Pass	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-35	539525	Gear and Bushing Assembly, Oil Pump	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-36	539523	Bushing, Oil Pump Gear	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
-37	538516	Gear Assembly, Oil Pump and Tach Drive		1								1	1		1		1	1	1	
-37	538609	Gear Assembly, Oil Pump and Tach Drive	1		1	1	1	1	1	1	1			1		1	1			
-38	535634	Dowel	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-39	535008	Gear, Bevel, Tachometer Drive	1		1	1	1	1	1	1	1			1		1	1			
-40	535900	Gear, Bevel, Tachometer Drive		1								1	1		1		1	1	1	
-41	***	Cover, Oil Pump, Mechanical Tach	1		1	1	1	1	1	1	1			1		1	1			
-42	***	Cover, Oil Pump, Electric Tach		1								1	1		1		1	1	1	
-43	538727	Filter, Oil		1	1	1							1		1		1	1	1	
-44	Q9T116-218	Tube Assembly, Perforated		1	1	1								1		1	1	1	1	
-45	MS20073-04-10	Bolt, Drilled, Hex Head		1	1	1								1		1	1	1	1	
-46	Q9S552-06	Washer, Annular, 1/4 Inch		1	1	1								1		1	1	1	1	
-47	535933	Gasket, Felt, 5/8 Inch ID		2	2	2								2		2	2	2	2	
-48	Q9T116-07	Element Filter		1	1	1								1		1	1	1	1	
-49	628129	Body Casting, Filter		1	1	1								1		1	1	1	1	
-50	534862	Screen Assembly, Oil	1					1	1	1	1	1		1		1	1	1	1	
-51	AN900-28	\$ Gasket, Annular	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

NOTES:

*** See Figure 30 for detail parts.

① If replacing old style pump body, service with 632563A11.

② If replacing 631618 plunger or 632761 screw, it will be necessary to order both 642336 and 642335 or 642335A1 service kit. (See Service Bulletin M78-2 Rev. 1.)

③ Existence of these parts indicates early style pump. If pump is serviceable, these parts must be used to replace worn parts.



FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY															
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V
30-1	625886		Cover, Oil Pump	1		1	1	1	1	1	1				1		1	1	
			ATTACHING PARTS																
-2	20522		Washer, Plain	2		2	2	2	2	2	2			2		2	2		
-3	MS35338-44		Washer, Lock	2		2	2	2	2	2	2			2		2	2		
-4	2437		Nut, Plain Hex	2		2	2	2	2	2	2			2		2	2		
			* * * *																
-5	631650		Shaft and Gear Assembly	1		1	1	1	1	1	1			1		1	1		
-6	632085	&	Gasket, Annular	1		1	1	1	1	1	1			1		1	1		
-7	21208A2		Housing Assembly, Tach Drive	1		1	1	1	1	1	1			1		1	1		
-8	642714	&	Seal, Oil	1		1	1	1	1	1	1			1		1	1		
-9	538789A1		Cover Assembly, Oil Pump	1								1			1			1	1
-9	628859		Cover Assembly, Oil Pump									1	1						
-10	531378	&	Seal, Oil	1								1	1		1			1	1
-11	401963	†	Stud, 1/4 x 1-1/4 Inch Long	4								4	4		4			4	4
-12	401816	†	Stud, 1/4 x 1-11/16 Inch Long										1						
			ATTACHING PARTS																
-13	20522		Washer, Plain	2								2	2		2			2	2
-14	MS35338-44		Washer, Lock	2								2	2		2			2	2
-15	2437		Nut, Plain Hex	2								2	2		2			2	2
			* * * *																
-16	535908		Gear, Bevel, Tach Drive	1								1	1		1			1	1
-17	535885	&	Gasket	1								1	1		1			1	1
-18	535887		Cover, Tach Gear Box	1								1	1		1			1	1
			ATTACHING PARTS																
-19	2471		Washer, Plain	4								4	4		4			4	4
-20	22910		Washer, Lock	4								4	4		4			4	4
-21	20655		Screw	4								4	4		4			4	4
			* * * *																
-22	MS9134-01	&	Gasket	1								1	1		1			1	1
-23	640380		Cover, Tach Drive Pad	1								1	1		1			1	1
			ATTACHING PARTS																
-24	531547		Washer, Plain	4								4	4		4			4	4
-25	MS35338-44		Washer, Lock	4								4	4		4			4	4
-26	2437		Nut, Plain Hex	4								4	4		4			4	4

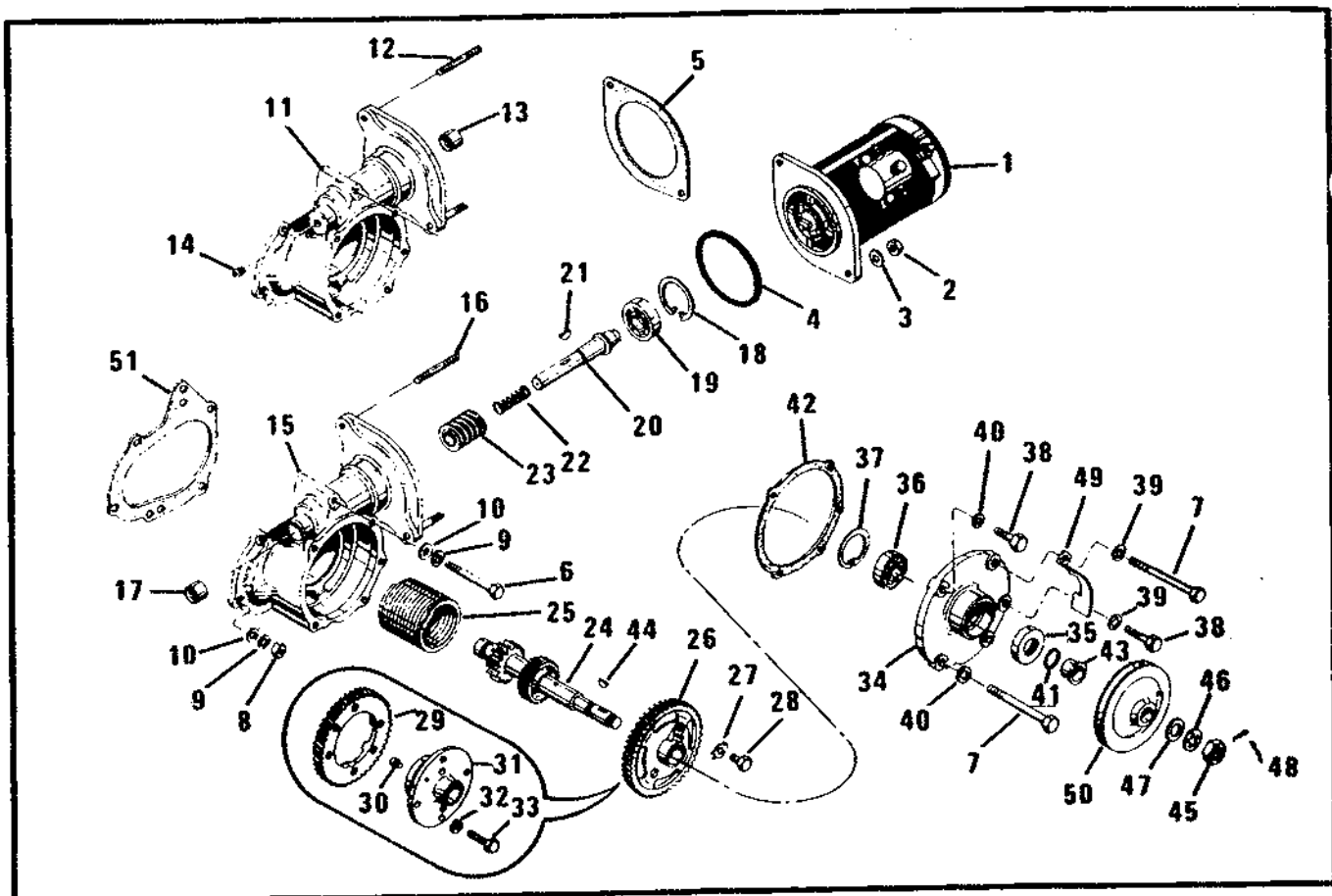


FIGURE 31 - STARTER AND STARTER ADAPTER
MODELS O-470-A,B,E,G,J,K,L,M,P,R,S,U

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUALITY PER ASSEMBLY															
				A	B	E	G	J	K	L	M	P	R	S	U				
31-1	626960	①	Starter, 12 Volt	1										1					
-1	627841	①	Starter, 12 Volt		1									1					
-1	631261	①	Starter, 12 Volt			1													
-1	628482	①	Starter, 12 Volt				1	1	1	1					1				
-1	634592	①	Starter, 12 Volt														1	1	
ATTACHING PARTS																			
-2	2441		Nut, Hex	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
-3	539058		Washer, Plain	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
* * * *																			
-4	MS9021-038	&	O-Ring			1	1	1	1	1	1	1			1	1	1		
-5	534316	&	Gasket, Starter	1										1					
-6	537742		Bolt, 5/16 - 18 x 2-13/16 Inch Long	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-7	538999		Bolt, 5/16 - 18 x 3-5/8 Inch Long	3	3	3	3	3	3	3	3	3	3	3	3	3	2		
-7	537750		Bolt															1	
-8	2439		Nut, Hex	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
-9	MS35338-45		Washer, Lock	4	4	4	4	4	4	4	4	4	4	4	4	5	5		
-10	2473		Washer, Plain	4	4	4	4	4	4	4	4	4	4	4	4	5	5		
	537743A2		Adapter Assembly, Starter, Complete	1															
	635050A4		Adapter Assembly, Starter, Complete		1	1	1	1	1	1	1	1	1	1	1	1	1		
-11	537743		Adapter Assembly, Starter	1															
-12	401965	†	Stud, 3/8 x 1-13/32 Inch Long	2															
-13	534969		Bearing, Needle	1															
-14	AN932-2		Plug, Pipe, 1/8 NPT	1															

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																
			A	B	E	G	J	K	L	M	P	R	S	U					
31-15	635050A1	. Adapter Assembly, Starter	1	1	1	1	1	1	1	1	1	1	1	1					
-16	402127	† . Stud, 3/8 x 1-17/32 Inch Long	2	2	2	2	2	2	2	2	2	2	2	2					
-17	641368	. Bearing, Needle	1	1	1	1	1	1	1	1	1	1	1	1					
-18	502287	. Ring, Internal Retaining	1	1	1	1	1	1	1	1	1	1	1	1					
-19	X13041	. Bearing, Ball	1	1	1	1	1	1	1	1	1	1	1	1					
-20	631252	. Shaft, Worm Drive	1	1	1	1	1	1	1	1	1	1	1	1					
-20	534982	. Shaft, Worm Drive	1	1	1	1	1	1	1	1	1	1	1	1					
-21	MS35756-8	. Key, Woodruff	1	1	1	1	1	1	1	1	1	1	1	1					
-22	536552	. Spring, Starter	1	1	1	1	1	1	1	1	1	1	1	1					
-23	539805	. Gear, Starter Worm	1	1	1	1	1	1	1	1	1	1	1	1					
-23	534916	. Gear, Starter Worm	1	1	1	1	1	1	1	1	1	1	1	1					
-24	539568	. Shaftgear, Starter	1	1	1	1	1	1	1	1	1	1	1	1					
-24	534976A1	. Shaftgear, Starter	1	1	1	1	1	1	1	1	1	1	1	1					
-25	539800	† . Spring, Clutch	1	1	1	1	1	1	1	1	1	1	1	1					
-25	537341	† . Spring, Clutch	1	1	1	1	1	1	1	1	1	1	1	1					
-26	539785	. Gear, Starter Worm Wheel	1	1	1	1	1	1	1	1	1	1	1	1					
-27	501867	. Washer, Tab	1	1	1	1	1	1	1	1	1	1	1	1					
-28	536566	. Screw, 1/4 - 20 x 11/32 Inch Long	1	1	1	1	1	1	1	1	1	1	1	1					
-28	633845	. Screw, 1/4 - 20 x 13/32 Inch Long	1	1	1	1	1	1	1	1	1	1	1	1					
-29	534934	. Gear, Starter Worm Wheel	1	1	1	1	1	1	1	1	1	1	1	1					
-30	534900	. Dowel, Stepped	2	2	2	2	2	2	2	2	2	2	2	2					
-31	535425	. Drum, Starter Clutch	1	1	1	1	1	1	1	1	1	1	1	1					
-32	20522	. Washer, Plain	4	4	4	4	4	4	4	4	4	4	4	4					
-33	22537	. Screw, Hex Head, 1/4 - 20 x 5/8 Inch Long	4	4	4	4	4	4	4	4	4	4	4	4					
-34	537738A1	. Cover Assembly, Starter Adapter	1	1	1	1	1	1	1	1	1	1	1	1					
-35	534938	& . Seal, Oil	1	1	1	1	1	1	1	1	1	1	1	1					
-36	534685	. Bearing, Ball	1	1	1	1	1	1	1	1	1	1	1	1					
-37	534715	. Ring, Internal Retaining	1	1	1	1	1	1	1	1	1	1	1	1					
ATTACHING PARTS																			
-38	537750	. Bolt, 5/16 - 18 x 1-1/8 Inch Long	2	2	2	2	2	2	2	2	2	2	2	2					
-38	535651	. Bolt, 1/4 - 20 x 1 Inch Long	2	2	2	2	2	2	2	2	2	2	2	2					
-39	MS35338-45	. Washer, Lock	2	2	2	2	2	2	2	2	2	2	2	2					
-39	MS35338-44	. Washer, Lock	2	2	2	2	2	2	2	2	2	2	2	2					
-40	2473	. Washer, Lock	2	2	2	2	2	2	2	2	2	2	2	2					
* * * *																			
-41	AN123862	& . Seal, O-Ring	1	1	1	1	1	1	1	1	1	1	1	1					
-42	537749	& . Gasket, Cover	1	1	1	1	1	1	1	1	1	1	1	1					
-43	534980	. Sleeve, Bearing Retaining	1	1	1	1	1	1	1	1	1	1	1	1					
-44	MS35756-8	. Key, Woodruff	1	1	1	1	1	1	1	1	1	1	1	1					
-45	AN316-9R	. Nut, Check	1	1	1	1	1	1	1	1	1	1	1	1					
-45	AN320-9	. Nut, Check	1	1	1	1	1	1	1	1	1	1	1	1					
-46	13XX299	. Washer, Lock	1	1	1	1	1	1	1	1	1	1	1	1					
-47	AN960C916	. Washer, Plain	1	1	1	1	1	1	1	1	1	1	1	1					
-48	AN381-3-18	. Pin, Cotter	1	1	1	1	1	1	1	1	1	1	1	1					
-49	628760	. Indicator, Engine Timing	1	1	1	1	1	1	1	1	1	1	1	1					
-50	534775	① Sheave, Generator Drive	1	1	1	1	1	1	1	1	1	1	1	1					
-51	537745	& Gasket, Adapter	1	1	1	1	1	1	1	1	1	1	1	1					

NOTE:

① See Section VI for Specification Applications.

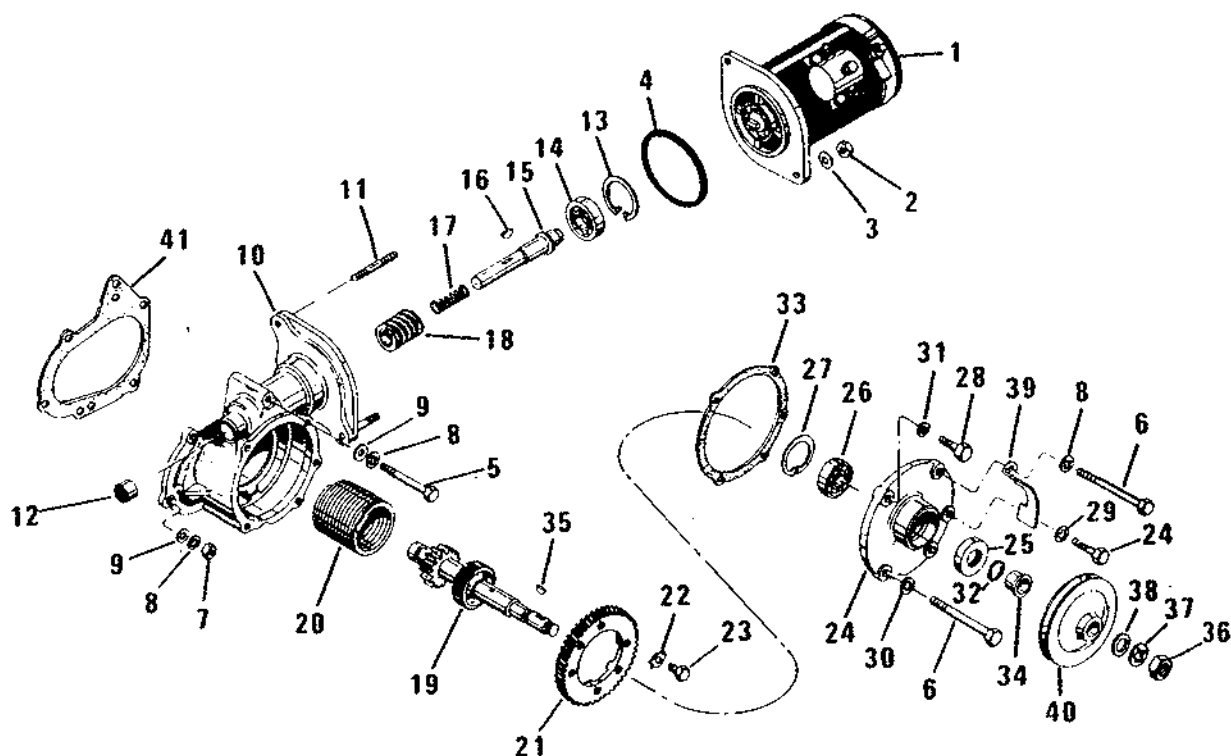


FIGURE 32 - STARTER AND STARTER ADAPTER
MODELS 10-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U,V

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
32-1	637847	① Starter, 24 Volt		1								1	1		1			1
-1	631261	① Starter, 12 Volt						1								1		
-1	634592	① Starter, 12 Volt	1		1	1					1				1		1	
-1	628482	① Starter, 12 Volt							1	1								
ATTACHING PARTS																		
-2	2441	Nut, Hex	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-3	539058	Washer, Plain	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

-4	MS9021-038	& O-Ring	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-5	537742	Bolt, 5/16 - 18 x 2-13/16 Inch Long	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-6	538999	Bolt, 5/16 - 18 x 3-5/8 Inch Long	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
-7	2439	Nut, Hex	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-8	MS35338-45	Washer, Lock	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-9	2473	Washer, Plain	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-9	2473	Washer, Plain										1						
-10	635050A4	Adapter Assembly, Starter, Complete	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-10	635050A1	Adapter Assembly, Starter	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-11	402127	† Stud, 3/8 x 1-17/32 Inch Long	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-12	641368	Bearing, Needle	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-13	502287	Ring, Internal Retaining	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																		
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V			
32-14	X13041	. Bearing, Ball	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-15	631252	. Shaft, Worm Drive	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-16	MS35756-8	. Key, Woodruff	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-17	536552	. Spring, Starter	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-18	539805	. Gear, Starter Worm	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-19	539568	. Shaftgear, Starter	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-20	539800	† . Spring, Clutch	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-21	539785	. Gear, Starter Worm Wheel	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-22	501867	. Washer, Tab	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-23	633845	. Screw, 1/4 - 20 x 13/32 Inch Long	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-24	537738A1	. Cover Assembly, Starter Adapter	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-25	534938	& . Seal, Oil	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-26	534685	. Bearing, Ball	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-27	534715	. Ring, Internal Retaining	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
ATTACHING PARTS																					
-28	537750	. Bolt, 5/16 - 18 x 1-1/8 Inch Long	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
-29	MS35338-45	. Washer, Lock	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
-30	2473	. Washer, Plain	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
-31	501868	. Washer, Tab	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
* * * *																					
-32	AN123862	& . Seal-O-Ring	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-33	537749	& . Gasket, Cover	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-34	534980	. Sleeve, Bearing Retaining	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-35	MS35756-8	. Key, Woodruff	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-36	AN316-9R	. Nut, Check	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-37	13XX299	. Washer, Lock	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-38	AN960C916	. Washer, Plain	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-39	628760	Indicator, Engine Timing	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-40	534775	① Sheave, Generator Drive	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-40	628319	① Sheave, Generator Drive	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-41	537745	& Gasket, Adapter	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		

NOTE:
① See Section VI for Specification Applications.

NOTE:

① See Section VI for Specification Applications.

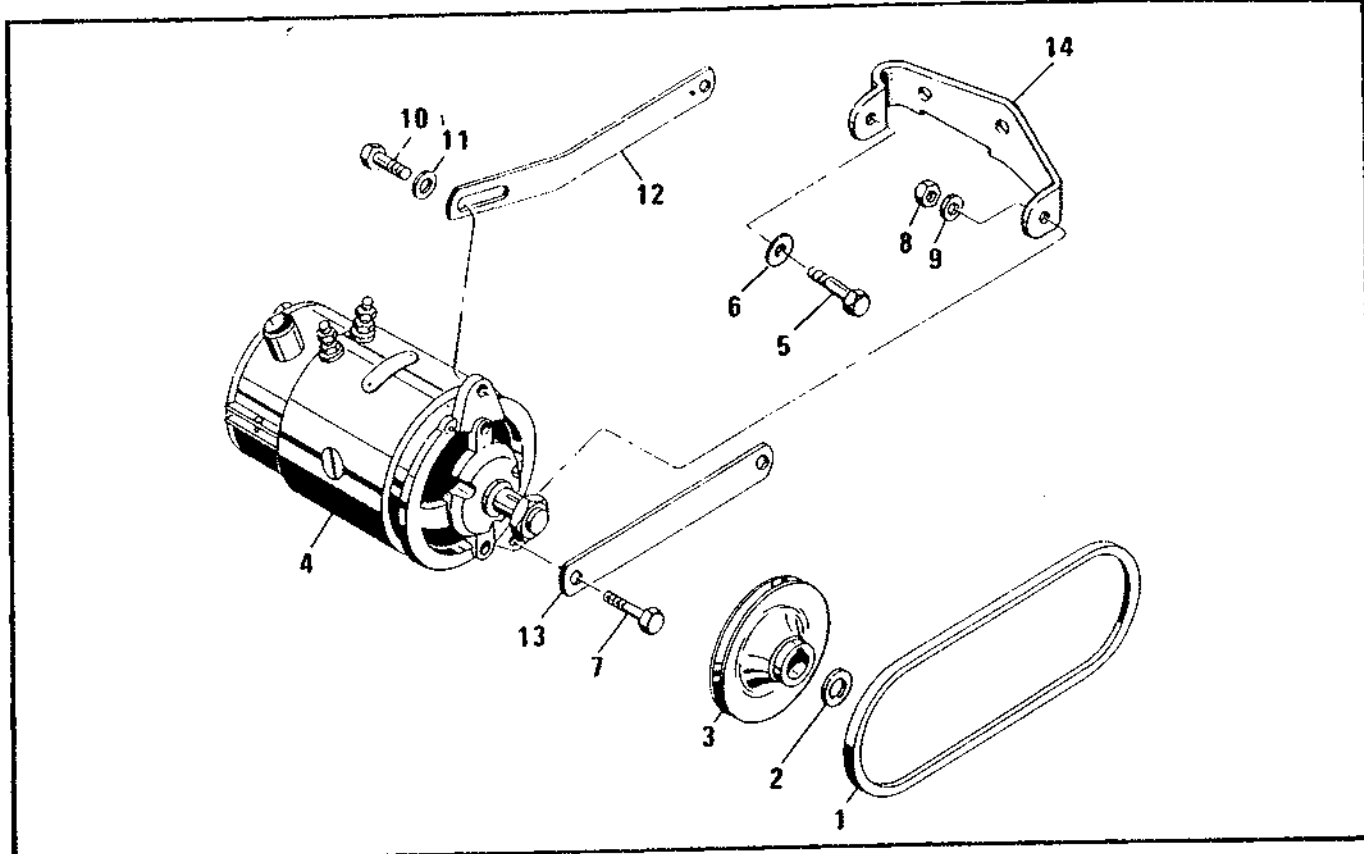


FIGURE 33 - GENERATOR AND MOUNTING BRACKETS
MODELS O-470-A,B,E,G,J,K,M,P,R

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
33-1	539547-31.19	Belt, Generator Drive	1	1	1	1	1	1	1	1	1	1	1	1				
-2	535541	Spacer, Sheave			1	1	1	1	1	1	1	1	1	1				
-2	536213	Spacer, Sheave		1							1							
-3	534787	① Sheave, Generator Drive	1	1	1	1	1	1	1	1	1	1	1	1				
-4	535928	① Generator, 24 Volt									1							
-4	627272	① Generator, 12 Volt, 50 Amp				1						1						
-4	627274	③ Generator, 24 Volt, 25 Amp		1														
-4	627273	① Generator, 12 Volt, 35 Amp	1		1		1	1	1				1					
ATTACHING PARTS																		
-5	AN5-10A	Bolt	1	1	1	1	1	1	1	1	1	1	1	1				
-6	2473	Washer, Plain, 5/16 Inch	1	1	1	1	1	1	1	1	1	1	1	1				
-7	AN101218	Bolt		1	1	1	1	1	1	1	1	1	1	1				
-7	AN101217	Bolt	1															
-8	2439	Nut, Plain, Hex	2	2	2	2	2	2	2	2	2	2	2	2				
-9	401506	Washer, Plain, 21/64 Inch	2	2	2	2	2	2	2	2	2	2	2	2				
-10	AN75A6	Bolt	1	1	1	1	1	1	1	1	1	1	1	1				
-11	537539	Washer, Plain	1	2	2	2	2	2	2	2	2	2	2	2				

-12	538346	① Arm, Generator Belt Adjusting				1						1						
-13	538070	① Arm, Generator Belt Adjusting	1	1	1		1	1	1	1	1	1	1	1				
-13	538069	① Bracket, Generator Support	1	1	1	1	1	1	1	1	1	1	1	1				
-14	539579	① Bracket, Generator Mounting	1	1	1	1	1	1	1	1	1	1	1	1				

NOTE:
① See Section VI for Specification Applications.

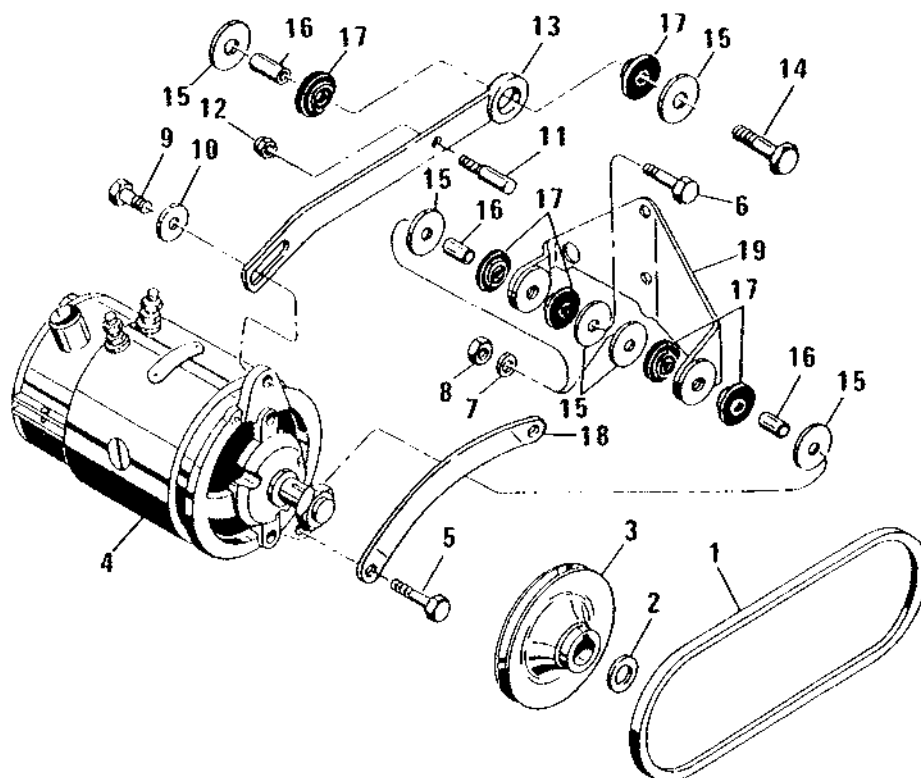


FIGURE 34 - GENERATOR AND MOUNTING BRACKETS
MODELS IO-470-C,D,E,F,G,H,J,K,L,N,P,R,S

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																	
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
34-1	539547-31.19	Belt, Generator Drive	1	1	1	1	1	1	1	1	1		1	1	1	1				
-2	536213	Washer	1	1	1	1	1	1	1	1	1		1	1	1	1				
-3	627377	① Sheave, Generator Drive	1	1	1	1	1	1	1	1	1		1	1	1	1				
-4	627272	① Generator, 12 Volt, 50 Amp	1			1		1					1			1				
-4	627273	① Generator, 12 Volt, 35 Amp			1		1		1	1					1					
-4	627274	① Generator, 24 Volt, 25 Amp		1																
-4	630686	① Generator, 24 Volt, 25 Amp									1									
ATTACHING PARTS																				
-5	AN5-16A	Bolt	1	1	1	1	1	1	1	1	1		1	1	1	1				
-6	AN5-15A	Bolt	1	1	1	1	1	1	1	1	1		1	1	1	1				
-7	2473	Washer, Plain	1	1	1	1	1	1	1	1	1		1	1	1	1				
-8	2439	Nut, Plain, Hex	2	2	2	2	2	2	2	2	2		2	2	2	2				
-9	AN75A6	Bolt	1	1	1	1	1	1	1	1	1		1	1	1	1				
-10	537539	Washer, Special	1	1	1	1	1	1	1	1	1		1	1	1	1				
* * * *																				
-11	627673	Idler, Kiss	1	1	1	1	1	1	1	1	1		1	1	1	1				
-12	22661	Nut, Elastic Stop	1	1	1	1	1	1	1	1	1		1	1	1	1				
-13	627276	① Arm, Generator Belt Adjusting	1	1	1	1	1	1	1	1	1		1	1	1	1				
-14	AN75A15	Bolt	1	1	1	1	1	1	1	1	1		1	1	1	1				
-15	627279	Washer, Special	6	6	6	6	6	6	6	6	6		6	6	6	6				
-16	627181	Bushing	3	3	3	3	3	3	3	3	3		3	3	3	3				
-17	627282	Bushing, Rubber		6	6		6		6	6	6			6	6					
-17	630519	Bushing, Rubber	6			6		6					6			6				
-18	627068	① Bracket, Generator Support	1	1	1	1	1	1	1	1	1		1	1	1	1				
-19	627277	① Bracket, Generator Mounting		1							1			1						
-19	627690	① Bracket, Generator Mounting	1		1	1	1	1	1	1	1		1		1	1				

NOTE:

① See Section VI for Specification Applications.

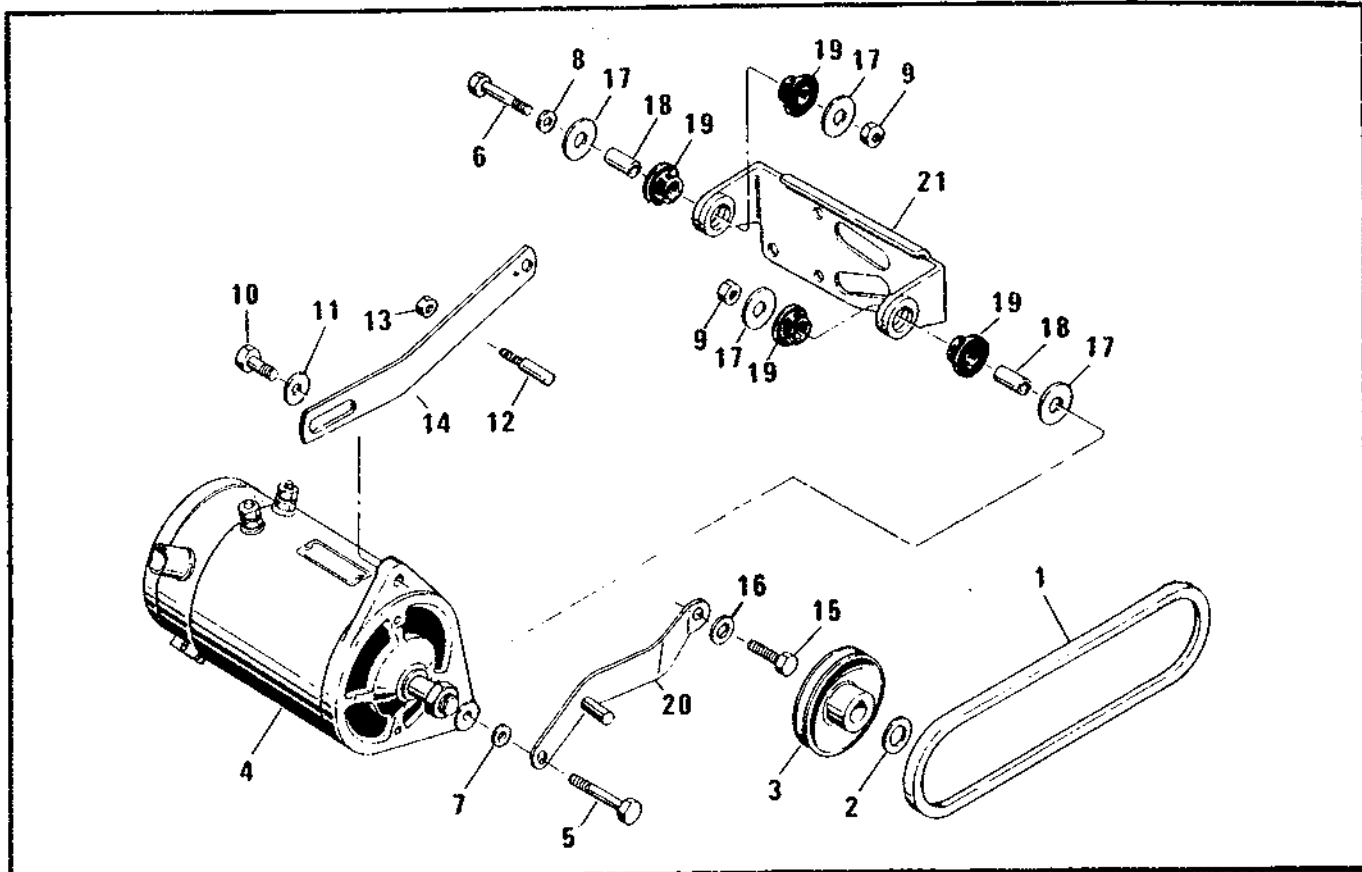


FIGURE 35 - GENERATOR AND MOUNTING BRACKETS
MODEL IO-470-M

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																	
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U			
35-1	539547-32.00	Belt, Generator Drive												1						
-2	536213	Washer												1						
-3	627377	① Sheave, Generator Drive												1						
-4	629417	① Generator, 24 Volt, 50 Amp												1						
ATTACHING PARTS																				
-5	AN5-17A	Bolt												1						
-6	AN5-15A	Bolt												1						
-7	2555	Washer, Plain, 5/16												1						
-8	2473	Washer, Plain, 5/16												1						
-9	2439	Nut, Plain, Hex, 5/16												2						
-10	AN75A6	Bolt												1						
-11	537539	Washer, Plain, 11/32												1						
* * * * *																				
-12	627673-2	Idler, Kiss												1						
-13	22661	Nut, Elastic Stop, 1/4												1						
-14	629825	① Arm, Generator Belt Adjusting												1						
-15	AN75A10	Bolt												1						
-16	MS35338-45	Washer, Lock												1						
-17	627279	Washer, Special												4						
-18	627281	Bushing												2						
-19	630519	Bushing, Rubber												4						
-20	630039	① Bracket Assembly, Generator Support												1						
-21	628004	① Bracket, Generator Mounting												1						
NOTE:																				
① See Section VI for Specification Applications.																				

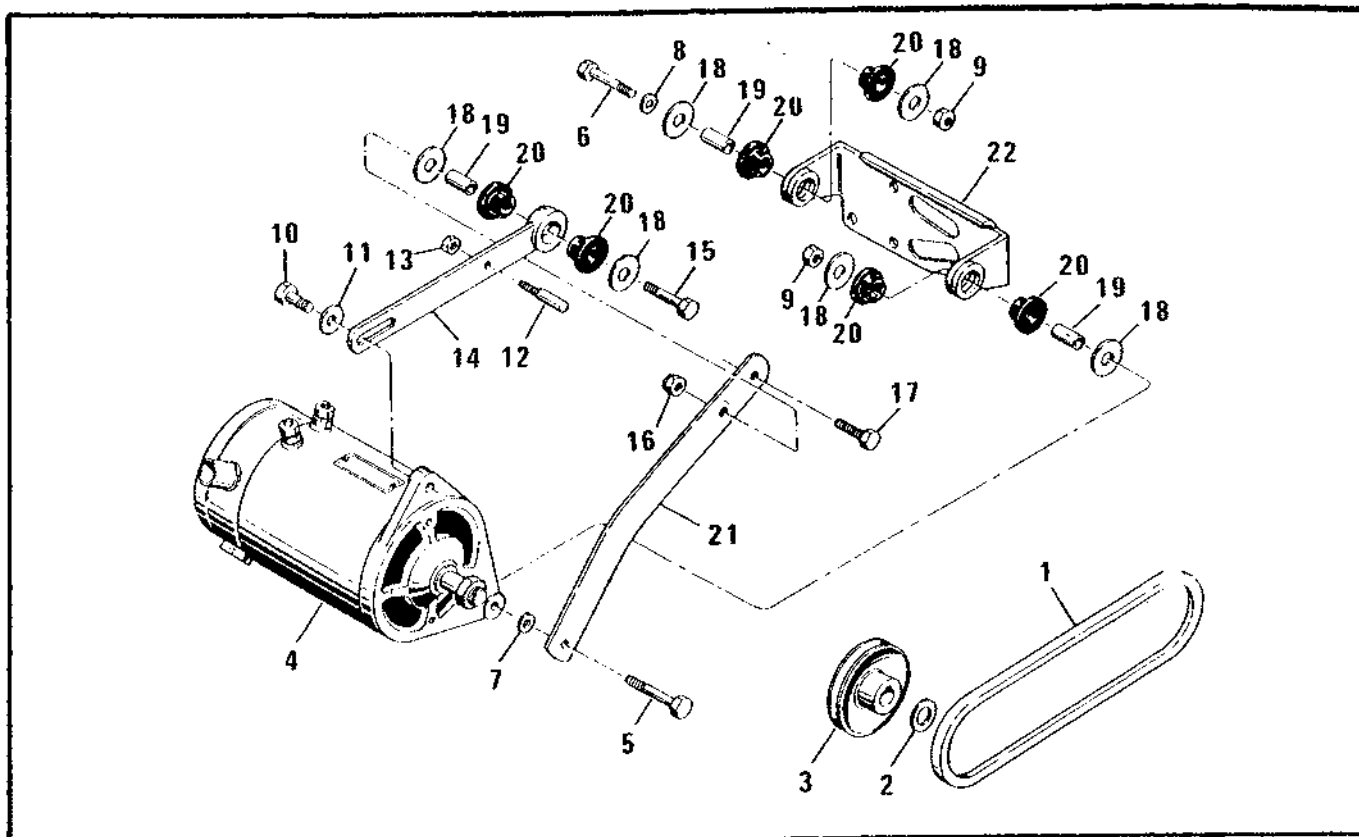


FIGURE 36 - GENERATOR AND MOUNTING BRACKETS
MODELS IO-470-U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																	
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
36-1	539547-30.00	Belt, Generator Drive																1	1	
-2	536213	Washer																1	1	
-3	628005	① Sheave, Generator Drive																1	1	
-4	629417	① Generator, 24 Volt, 50 Amp																1	1	
ATTACHING PARTS																				
-5	AN5-17A	Bolt																1	1	
-6	AN75-16	Bolt																1	1	
-7	2555	Washer, Plain, 5/16																1	1	
-8	2473	Washer, Plain, 5/16																1	1	
-9	2439	Nut, Plain, Hex																2	2	
-10	AN75A6	Bolt																1	1	
-11	537539	Washer, Plain, 11/32																1	1	
* * * *																				
-12	627673	Idler, Kiss																1	1	
-13	22661	Nut, Elastic Stop, 1/4																1	1	
-14	628580	① Arm, Generator Belt Adjusting																1	1	
-15	538607	Bolt, 5/16 x 1-15/32 Inch Long																1	1	
-16	21213	Nut, Elastic Stop																1	1	
-17	AN75A10	Bolt																1	1	
-18	627279	Washer, Special, 21/64																6	6	
-19	627281	Bushing																3	3	
-20	630519	Bushing, Rubber																6	6	
-21	628583	① Bracket, Generator Support																1	1	
-22	628004	① Bracket, Generator Mounting																1	1	

NOTE:

① See Section VI for Specification Applications.

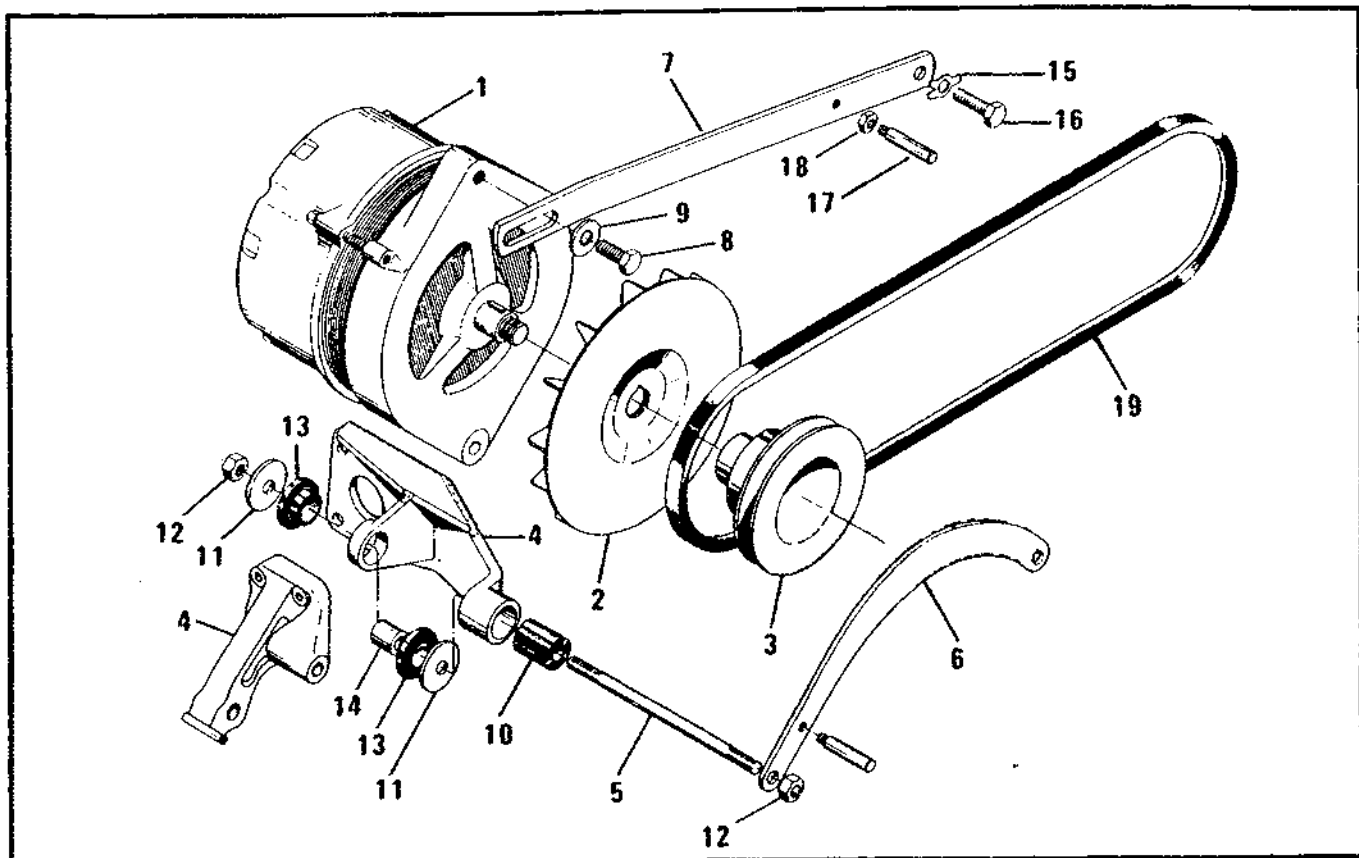


FIGURE 37 - ALTERNATOR (OPTIONAL EQUIPMENT)
ALL MODELS

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY									
37- 1	631111		Alternator									1	
- 2	631094		Fan, Alternator									1	
- 3	630985		Sheave, Alternator Driven									1	
- 4	631000		Bracket Assembly									1	
- 4	634673		Bracket, Engine Mount and Alternator									1	
- 5	630989		Shaft, Alternator Mount									1	
- 6	631200		Bracket Assembly, Alternator Support, Lower									1	
- 7	632312		Bracket, Alternator Adjusting Arm, Upper									1	
- 8	628730		Screw, Bracket at Alternator									1	
- 9	537539		Washer, Bracket at Alternator									1	
- 10	630988		Bushing, Rubber, Lower Support									1	
- 11	633062		Washer, Lower Support									2	
- 12	2439		Nut, Plain									2	
- 13	630519		Bushing, Rubber									2	
- 14	627281		Bushing									1	
- 15	501868		Washer, Tab									1	
- 16	537750		Screw									1	
- 17	627673-2		Idler, Kiss									1	
- 18	22661		Nut, Elastic Stop									1	
- 19	539547-31.19		Belt									1	

NOTES:

Optional for all O-470/10-470 Models.
See Section VI for customer specification.

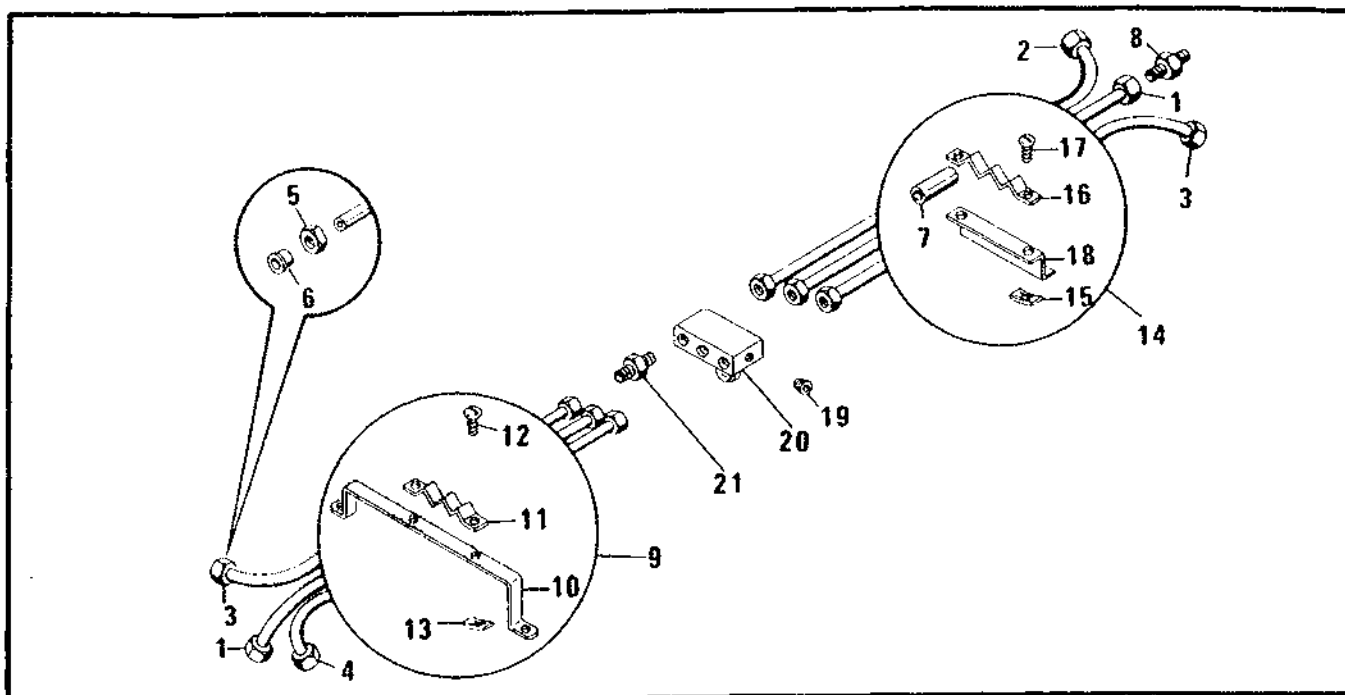


FIGURE 38 - PRIMING SYSTEM
MODELS O-470-A,B,E,G,J,K,L,M,P

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY													
			A	B	E	G	J	K	L	M	P	R	S	U		
38-	536486	Priming System Assembly		1		1				1	1					
	EQ5880	① Priming System Assembly	op		op		op	op	op							
-1	532685	Tube Assembly, Primer No. 3, 4	2	2	2	2	2	2	2	2	2					
-2	532686	Tube Assembly, Primer, No. 5	1	1	1	1	1	1	1	1	1					
-3	532687	Tube Assembly, Primer, No. 1, 6	2	2	2	2	2	2	2	2	2					
-4	536485	Tube Assembly, Primer, No. 2	1	1	1	1	1	1	1	1	1					
-5	AN805-2	Nut, Union	2	2	2	2	2	2	2	2	2					
-6	20720	Cone, Union	2	2	2	2	2	2	2	2	2					
-7	21512	Protector, Primer Tube	1	1	1	1	1	1	1	1	1					
-8	AN4022-1	Nipple, Priming System	6	6	6	6	6	6	6	6	6					
-9	532943	Clamp Assembly, 2-4-6 Side	1	1	1	1	1	1	1	1	1					
-10	532944	Bracket, Primer Lines	1	1	1	1	1	1	1	1	1					
-11	532945	Clamp, Primer Lines	1	1	1	1	1	1	1	1	1					
ATTACHING PARTS																
-12	AN530-10-6	Screw, Tapping	2	2	2	2	2	2	2	2	2					
-13	532362	Nut, Speed	2	2	2	2	2	2	2	2	2					
* * * *																
-14	532946	Clamp, Assembly, 1-3-5 Side	1	1	1	1	1	1	1	1	1					
-15	532947	Bracket, Primer Lines	1	1	1	1	1	1	1	1	1					
-16	532945	Clamp, Primer Lines	1	1	1	1	1	1	1	1	1					
ATTACHING PARTS																
-17	AN530-10-6	Screw, Tapping	2	2	2	2	2	2	2	2	2					
-18	532362	Nut, Speed	2	2	2	2	2	2	2	2	2					
* * * * *																
-19	2024	Plug, Pipe		1		1				1	1					
-20	AN780-2	Nipple, Union, Primer Distributor	6	6	6	6	6	6	6	6	6					
-21	539520	Distributor, Primer		1		1				1	1					
-21	532676	Distributor, Primer	1		1		1	1	1							

NOTE:

① This priming system is optional on these models.

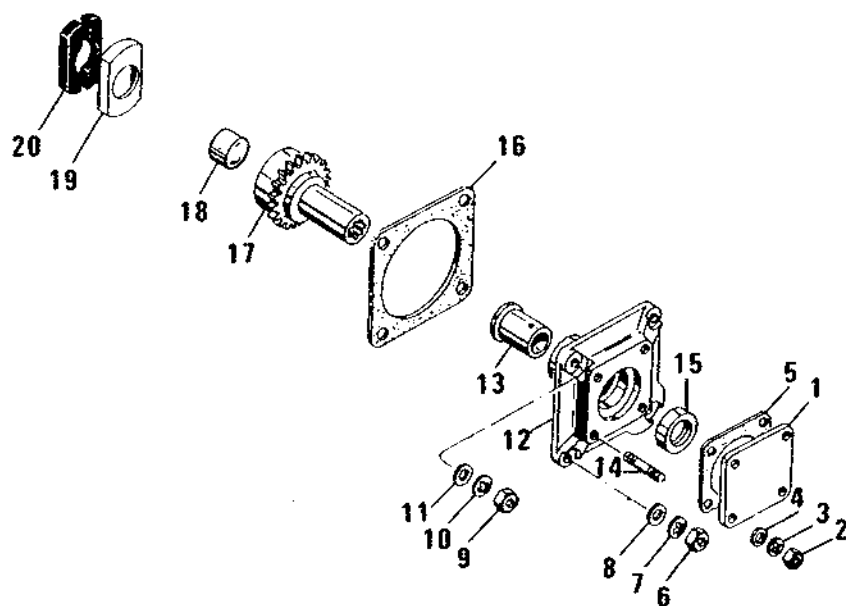


FIGURE 39 - MAGNETO AND ACCESSORY DRIVES
MODELS O-47-A,B,C,E,G,J,K,L,M,P,R,S,U

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY															
				A	B	E	G	J	K	L	M	P	R	S	U				
39-1	640380		Cover, Accessory Drive	2	2	2	2	2	2	2	2	2	2	2	2	2			
			ATTACHING PARTS																
-2	2437		Nut, Plain Hex	8	8	8	8	8	8	8	8	8	8	8	8	8			
-3	MS35338-44		Washer, Lock	8	8	8	8	8	8	8	8	8	8	8	8	8			
-4	2472		Washer, Plain	8	8	8	8	8	8	8	8	8	8	8	8	8			
			* * * *																
-5	MS9134-01	&	Gasket, Cover	2	2	2	2	2	2	2	2	2	2	2	2	2			
-6	2439		Nut, Plain Hex	6	6	6	6	6	6	6	6	6	6	6	6	6			
-7	MS35338-45		Washer, Lock	6	6	6	6	6	6	6	6	6	6	6	6	6			
-8	2473		Washer, Plain	6	6	6	6	6	6	6	6	6	6	6	6	6			
-9	2441		Nut, Plain Hex	2	2	2	2	2	2	2	2	2	2	2	2	2			
-10	MS35338-46		Washer, Lock	2	2	2	2	2	2	2	2	2	2	2	2	2			
-11	401507		Washer, Plain	2	2	2	2	2	2	2	2	2	2	2	2	2			
-12	534861A1		Adapter Assembly, Magneto & Accessory Drive	2	2	2	2	2	2	2	2	2	2	2	2		2		
-12	632653A1		Adapter Assembly, Magneto & Accessory Drive																
-13	534742		. Bushing, Adapter	2	2	2	2	2	2	2	2	2	2	2	2				
-13	632330		. Bushing, Adapter														2		
-14	401852	†	Stud, 1/4 x 1-13/32 Inch Long	4	4	4	4	4	4	4	4	4	4	4	4	4			
-15	25102	&	. Seal, Oil, Adapter	1	1	1	1	1	1	1	1	1	1	1	1	1			
-16	534863	&	Gasket, Adapter	2	2	2	2	2	2	2	2	2	2	2	2	2			
-17	629076		Gear Assembly, Magneto & Accessory Drive	2	2	2	2	2	2	2	2	2	2	2	2	2			
-18	629077		. Sleeve, Gear	1	1	1	1	1	1	1	1	1	1	1	1	1			
-19	531178		Retainer, Magneto Drive Coupling	2	2	2	2	2	2	2	2	2	2	2	2	2			
-20	638172		Coupling, Magneto	4	4	4	4	4	4	4	4	4	4	4	4	4			

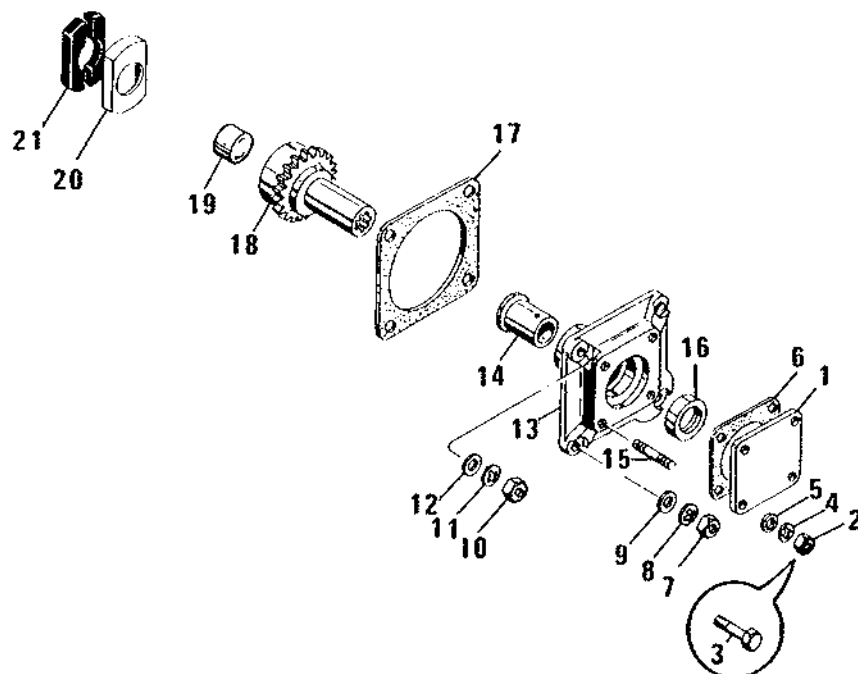


FIGURE 40 - MAGNETO AND ACCESSORY DRIVES
MODELS 10-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																			
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V				
40-1	640380	Cover, Accessory Drive	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
		ATTACHING PARTS																				
-2	2437	Nut, Plain, Hex	8	8	8	8	8	8	8	8	8	4	8	8	8	8	8	8	8	8	8	
-3	537629	Bolt, 1/4 x 11/16 Inch Long										4										
-4	MS35338-44	Washer, Lock	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
-5	2472	Washer, Plain	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
		* * * *																				
-6	MS9134-01	& Gasket, Cover	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
-7	2439	Nut, Plain, Hex	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
-8	MS35338-45	Washer, Lock	6	6	6	6	6	6	6	6	6	6	6	4	6	6	6	6	6	6	6	
-9	2473	Washer, Plain	6	6	6	6	6	6	6	6	6	6	6	4	6	6	6	6	6	6	6	
-10	2441	Nut, Plain, Hex	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
-11	MS35338-46	Washer, Lock	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
-12	401507	Washer, Plain	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
-13	632077	Adapter Assembly, Magneto & Accessory Drive 2-4-6 Side											1									
-13	534861A1	Adapter Assembly, Magneto & Accessory Drive . . .	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	
-14	534742	. Bushing, Adapter	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-15	25008	† . Stud, 1/4 x 1-13/32 Inch Long	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
-16	25102	& . Seal, Oil, Adapter	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-17	534863	& Gasket, Adapter	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
-18	629076	Gear, Assembly, Magneto & Accessory Drive	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
-19	629077	. Sleeve, Gear	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-20	531178	Retainer, Magneto Drive Coupling	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
-21	638172	Coupling, Magneto	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	

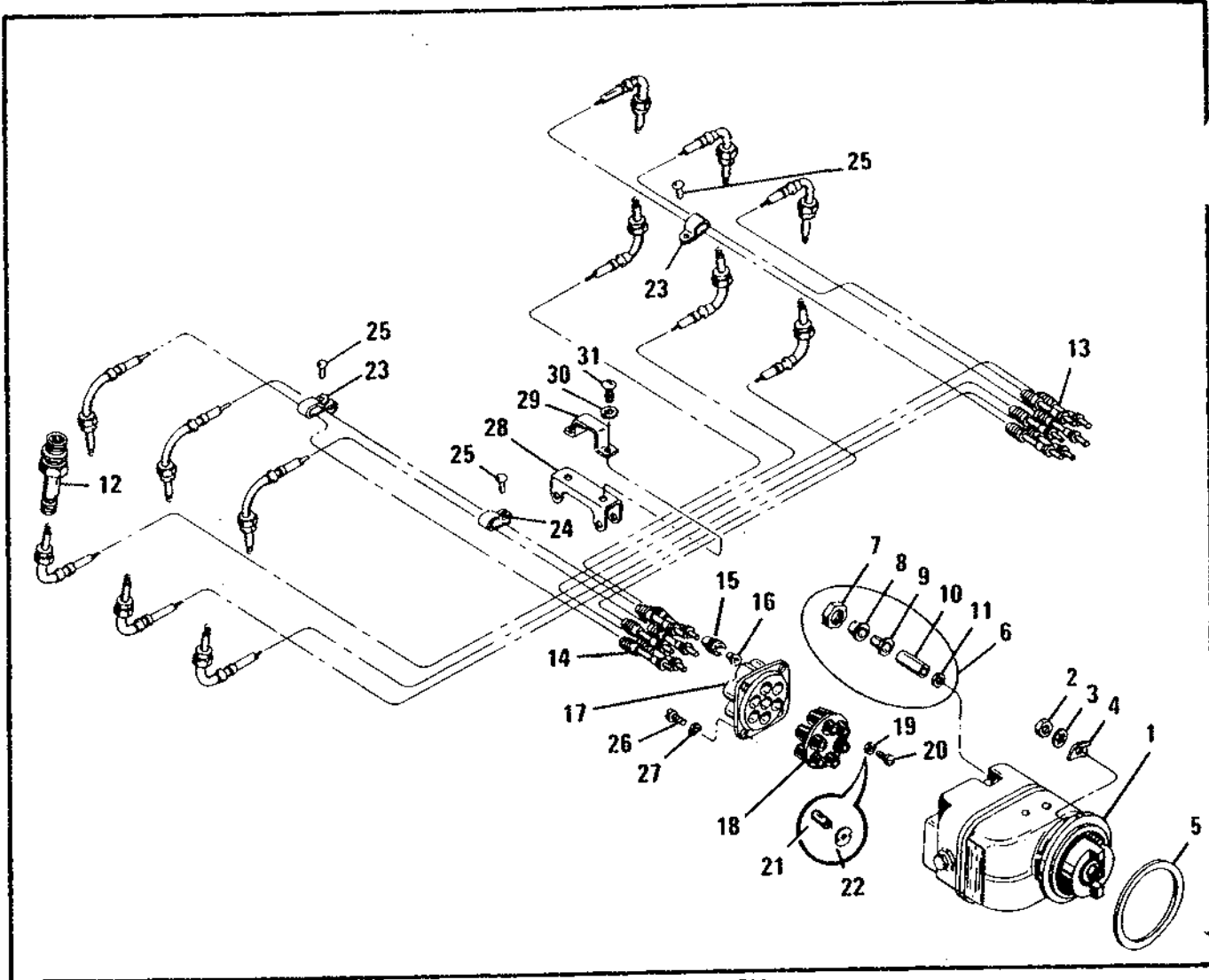


FIGURE 41-IGNITION SYSTEM
MODELS O-470-A,B,E,G,J,K,L,M,P,R

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																	
				A	B	E	G	J	K	L	M	P	R	S	U						
41-1	631237	①	Magneto Assembly	2	2	2	2	2	2	2	2	2	2	2	2						
			ATTACHING PARTS																		
-2	2439		Nut, Hex	4	4	4	4	4	4	4	4	4	4	4	4						
-3	MS35338-45		Washer, Lock	4	4	4	4	4	4	4	4	4	4	4	4						
-4	535847		Washer, Magneto Holding	4	4	4	4	4	4	4	4	4	4	4	4						
			* * * *																		
-5	534750	&	Gasket, Magneto	2	2	2	2	2	2	2	2	2	2	2	2						
-6	352024		Kit, Ground Terminal	2	2	2	2	2	2	2	2	2	2	2	2						
-7	25318		Nut, Coupling	1	1	1	1	1	1	1	1	1	1	1	1						
-8	25317		Ferrule, Ground Wire, Outer	1	1	1	1	1	1	1	1	1	1	1	1						
-9	25316		Ferrule, Ground Wire, Inner	1	1	1	1	1	1	1	1	1	1	1	1						
-10	530455		Sleeve, Insulating	1	1	1	1	1	1	1	1	1	1	1	1						
-11	25314		Washer, Plain	1	1	1	1	1	1	1	1	1	1	1	1						
-12	630863		Spark Plug, 18mm	12				12													
-12	539433		Spark Plug, 18mm								12	12						12			
-12	627643		Spark Plug, 18mm					12		12								12			
-12	627978		Spark Plug, 18mm											12							

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY												
				A	B	E	G	J	K	L	M	P	R	S	U	
41-13	625298	①②③	Harness Assembly, Shielded Ignition, Left Magneto	1	1	1		1	1	1						
-14	625299	①②③	Harness Assembly, Shielded Ignition, Right Magneto	1	1	1		1	1	1						
-13	625982	①②④	Harness Assembly, Shielded Ignition, Left Magneto				1					1				
-14	625983	①②④	Harness Assembly, Shielded Ignition, Right Magneto				1					1				
-13	627805	①②③	Harness Assembly, Shielded Ignition, Left Magneto							1						
-14	627804	①②③	Harness Assembly, Shielded Ignition, Right Magneto							1						
-13	633113	①②④	Harness Assembly, Shielded Ignition, Left Magneto										1			
-14	633114	①②④	Harness Assembly, Shielded Ignition, Right Magneto										1			
-15	25302	⑤	Nut	12	12	12	12	12	12	12	12	12	12	12		
-16	20087	⑤	Ferrule	12	12	12	12	12	12	12	12	12	12	12		
-17	25312		Plate, Cable Outlet	2	2	2	2	2	2	2	2	2	2	2		
-18	36219		Grommet, Plate	2	2	2	2	2	2	2	2	2	2	2		
-19	25388		Washer, Cable Contact	12												
-20	25387		Screw, Cable Contact	12												
-21	627001		Sleeve, Distributor Cable		12	12	12	12	12	12	12	12	12	12		
-22	627002		Washer, Magneto Block		12	12	12	12	12	12	12	12	12	12		
-23	535042		Clamp, Ignition Leads	2												
-24	627921		Clamp, Ignition Leads								2					
ATTACHING PARTS																
-25	627759		Bolt								2					
-26	627756		Nut, Stop								2					
-27	21264		Rivet	2												
* * * *																
-28	25320		Screw, Machine	8	8	8	8	8	8	8	8	8	8	8		
-29	25321		Washer, Lock	8	8	8	8	8	8	8	8	8	8	8		
-30	628271		Band, Clamp								2					
	539140		Bracket Assembly, Ignition Harness		1	1	1	1	1	1	1	1	1	1		
	535559		Bracket Assembly, Ignition Harness	1												
-31	630093		Bracket & Nut Assembly, Ignition Harness		1	1	1	1	1	1	1	1	1	1		
-31	538480		Bracket, Ignition Harness	1												
-32	535557		Clip, Bracket	1	1	1	1	1	1	1	1	1	1	1		
-33	20527		Washer, Lock	2	2	2	2	2	2	2	2	2	2	2		
-34	AN515-8-6		Screw, Machine	2	2	2	2	2	2	2	2	2	2	2		

NOTES:

- ① See Section VI for Specification Applications.
- ② See Figure No. 46 for individual cable assemblies.
- ③ See Figure No. 48 for detail parts of ignition cable spark plug end.
- ④ See Figure No. 47 for detail parts of ignition cable spark plug end.
- ⑤ Applicable to all cable assemblies.

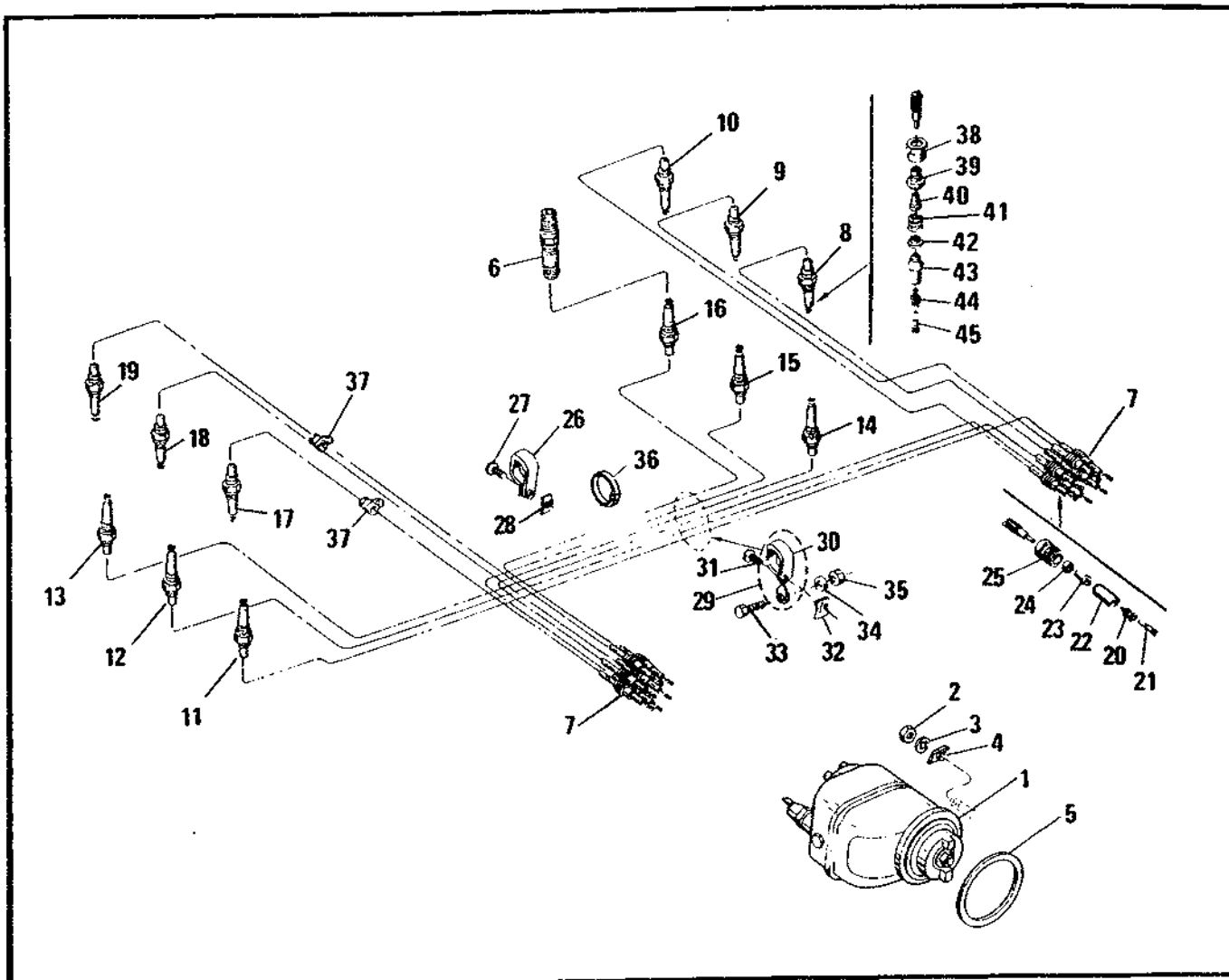


FIGURE 42 - IGNITION SYSTEM
MODELS O-470-S,U

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY													
			A	B	E	G	J	K	L	M	P	R	S	U		
42-1	625765	① Magneto Assembly											2	2		
ATTACHING PARTS																
-2	2439	Nut, Hex											4	4		
-3	MS35338-45	Washer, Lock											4	4		
-4	535847	Washer, Magneto Holding											4	4		
* * * *																
-5	534750	Gasket, Magneto											2	2		
-6	631277	Spark Plug											12			
-6	634675	Spark Plug												12		
-7	633311	① Harness Assembly											1	1		
-8	633580	② Cable Assembly, No. 1 Upper, 19 Inches Long ..											1	1		
-9	633580	② Cable Assembly, No. 3 Upper, 21 Inches Long ..											1	1		
-10	633579	② Cable Assembly, No. 5 Upper, 28 Inches Long ..											1	1		
-11	633579	② Cable Assembly, No. 2 Lower, 43 Inches Long ..											1	1		
-12	633579	② Cable Assembly, No. 4 Lower, 39 Inches Long ..											1	1		
-13	633579	② Cable Assembly, No. 6 Lower, 42 Inches Long ..											1	1		
-14	633579	② Cable Assembly, No. 1 Lower, 38 Inches Long ..											1	1		

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUALITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
42-15	633579	② Cable Assembly, No. 3 Lower, 42 Inches Long . .											1	1				
-16	633579	② Cable Assembly, No. 5 Lower, 50 Inches Long . .											1	1				
-17	633580	② Cable Assembly, No. 2 Upper, 21 Inches Long . .											1	1				
-18	633580	② Cable Assembly, No. 4 Upper, 18 Inches Long . .											1	1				
-19	633580	② Cable Assembly, No. 6 Upper, 25 Inches Long . .											1	1				
-20	633586	Spring											1	1				
-21	633585	Screw											1	1				
-22	633584	Sleeve, Insulating											1	1				
-23	633583	Ferrule											1	1				
-24	633582	Washer											1	1				
-25	633581	Nut, Magneto End											1	1				
-26	636692	Clamp Assembly											2	2				
-27	632105	Screw											2	2				
-28	629837	Nut											2	2				
-29	636922	Clamp Assembly											1	1				
-30	626919	Clamp											1	1				
-31	636687	Screw											1	1				
-32	633927	Nut											1	1				
-33	AN501-10-8	Screw											1	1				
-34	22910	Washer, Lock											1	1				
-35	MS20365-1032A	Nut, Elastic Stop											1	1				
-36	633926	Ty-Rap											10	10				
-37	633925	Clamp											12	12				
-38	633593	Nut											1	1				
-39	633589	Ferrule											1	1				
-40	633583	Ferrule											1	1				
-41	633590	Spring											1	1				
-42	633592	Washer											1	1				
-43	633591	Sleeve											1	1				
-44	633586	Spring											1	1				
-45	633585	Screw											1	1				

NOTES:

① See Section VI for Specification Applications.

② Service leads furnished in two lengths only and terminated at both ends. 633580 for leads up to 28 inches long. 633579 for leads up to 50 inches long. Disassemble lead assemblies at magneto end. Cut lead to length specified and reassemble per instructions in overhaul manual or Slick Electro Form No. 1007.

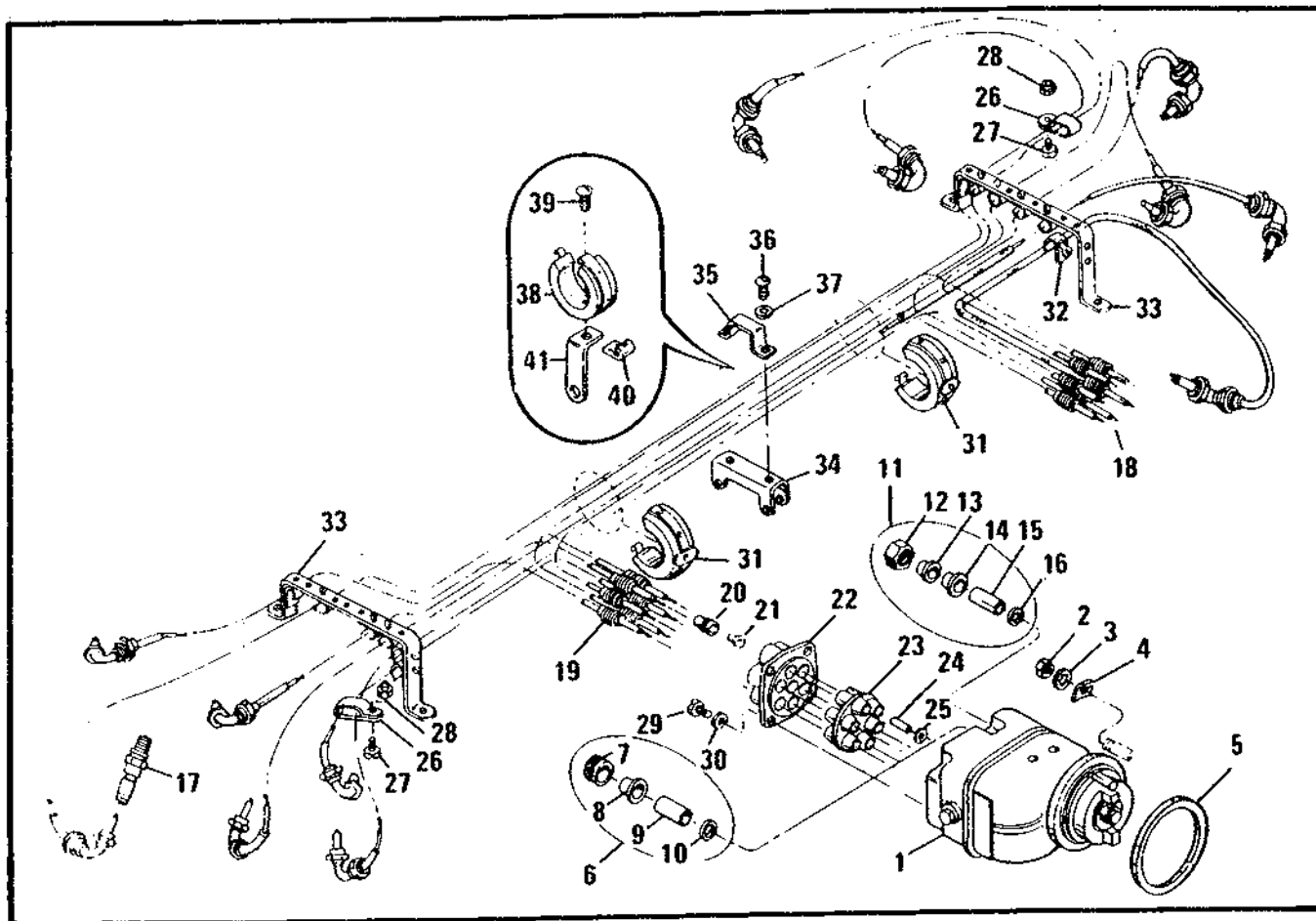


FIGURE 43 - IGNITION SYSTEM
MODELS IO-470-C, E, F, G, H, L, M, N, P, R

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY																
			1	2	3	4	5	C	D	E	F	G	H	J	K	L	M	N	P
43-1	631237	① Magneto Assembly						2	2	2	2	2	2						2
-1	628472	① Magneto Assembly, Left Hand														1	1	1	
-1	628473	① Magneto Assembly, Right Hand														1	1	1	
ATTACHING PARTS																			
-2	2439	Nut, Hex						4	4	4	4	4	4			4	4	4	4
-3	MS35338-45	Washer, Lock						4	4	4	4	4	4			4	4	4	4
-4	535847	Washer, Magneto Holding						4	4	4	4	4	4			4	4	4	4
* * * *																			
-5	534750	& Gasket, Magneto						2	2	2	2	2	2			2	2	2	2
-6	628739	Kit, Ground Terminal, Left Magneto														1	1	1	
-7	629007	. Nut, Coupling														1	1	1	
-8	629008	. Bushing, Shouldered														1	1	1	
-9	629009	. Bushing, Insulating														1	1	1	
-10	629010	. Washer, Plain														1	1	1	
	628740	Kit, Ground Terminal and Right Magneto														2	2	2	
-7	629011	. Nut, Coupling														1	1	1	
-8	629008	. Bushing, Shouldered														1	1	1	
-9	629009	. Bushing, Insulating														1	1	1	
-10	629010	. Washer, Plain														1	1	1	
-11	352024	Kit, Ground Terminal and Right Magneto						2	2	2	2	2	2						2
-12	25318	. Nut, Coupling						1	1	1	1	1	1						1
-13	25317	. Ferrule, Ground Wire, Outer						1	1	1	1	1	1						1
-14	25316	. Ferrule, Ground Wire, Inner						1	1	1	1	1	1						1

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																	
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
43-15	530455	Sleeve, Insulating	1	1	1	1	1	1							1	1				
-16	25314	Washer, Plain	1	1	1	1	1	1							1	1				
-17	630533	Spark Plug, 18mm				12														
-17	627449	Spark Plug, 18mm	12																	
-17	627450	Spark Plug, 18mm					12								12	12				
-17	634675	Spark Plug		12	12			12				12	12	12						
-18	627805	①②③ Harness Assembly, Shielded Ignition, Left Magneto		1	1	1	1	1				1	1	1	1	1				
-19	627804	①②③ Harness Assembly, Shielded Ignition, Right Magneto		1	1	1	1	1				1	1	1	1	1				
-18	627863	①②③ Harness Assembly, Shielded Ignition, Left Magneto	1																	
-19	627862	①②③ Harness Assembly, Shielded Ignition, Right Magneto	1																	
-20	25302	④ Nut	12	12	12	12	12	12				12	12	12	12	12				
-21	20087	④ Ferrule	12	12	12	12	12	12				12	12	12	12	12				
-22	25312	Plate, Cable Outlet	2	2	2	2	2	2				2	2	2	2	2				
-23	36219	Grommet, Plate	2	2	2	2	2	2				2	2	2	2	2				
-24	627001	Sleeve, Distributor Cable	12	12	12	12	12	12				12	12	12	12	12				
-25	627002	Washer, Magneto Block	12	12	12	12	12	12				12	12	12	12	12				
-26	627921	Clamp, Ignition Harness	2	2	2	2	2	2				2	2	2	2	2				
ATTACHING PARTS																				
-27	627759	Bolt	2	2	2	2	2	2				2	2	2	2	2				
-28	627756	Nut, Stop	2	2	2	2	2	2				2	2	2	2	2				
* * * *																				
-29	25320	Screw, Machine	8	8	8	8	8	8				8	8	8	8	8				
-30	25321	Washer, Lock	8	8	8	8	8	8				8	8	8	8	8				
-31	628271	Band, Clamp	2	2	2	2	2	2				2	2	2	2	2				
-32	626577-2R	Clamp, Ignition Cable	12	12	12	12	12	12				12	12	12	12	12				
-33	626486	Bracket, Fuel Discharge Tube	2	2	2	2	2	2				2	2	2	2	2				
	539140	Bracket Assembly, Ignition Harness	1	1	1	1	1	1							1	1				
-34	630093	Bracket and Nut Assembly, Ignition Harness	1	1	1	1	1	1							1	1				
-35	535557	Clip, Bracket	1	1	1	1	1	1							1	1				
ATTACHING PARTS																				
-36	AN515-8-6	Screw, Machine	2	2	2	2	2	2							2	2				
-37	MS35338-42	Washer, Lock	2	2	2	2	2	2							2	2				
* * * *																				
-38	628271	Band, Clamp				2						1	1	1						
ATTACHING PARTS																				
-39	535213	Screw, Sheet Metal										1	1	1						
-40	537911	Nut, Speed										1	1	1						
* * * *																				
-41	626524	Bracket, Ignition Harness										1	1	1						

NOTES:

- ① See Section VI for Specification Applications.
- ② See Figure No. 46 for individual cable assemblies.
- ③ See Figure No. 49 for detail parts of ignition cable spark plug end.
- ④ Applicable to all cable assemblies.

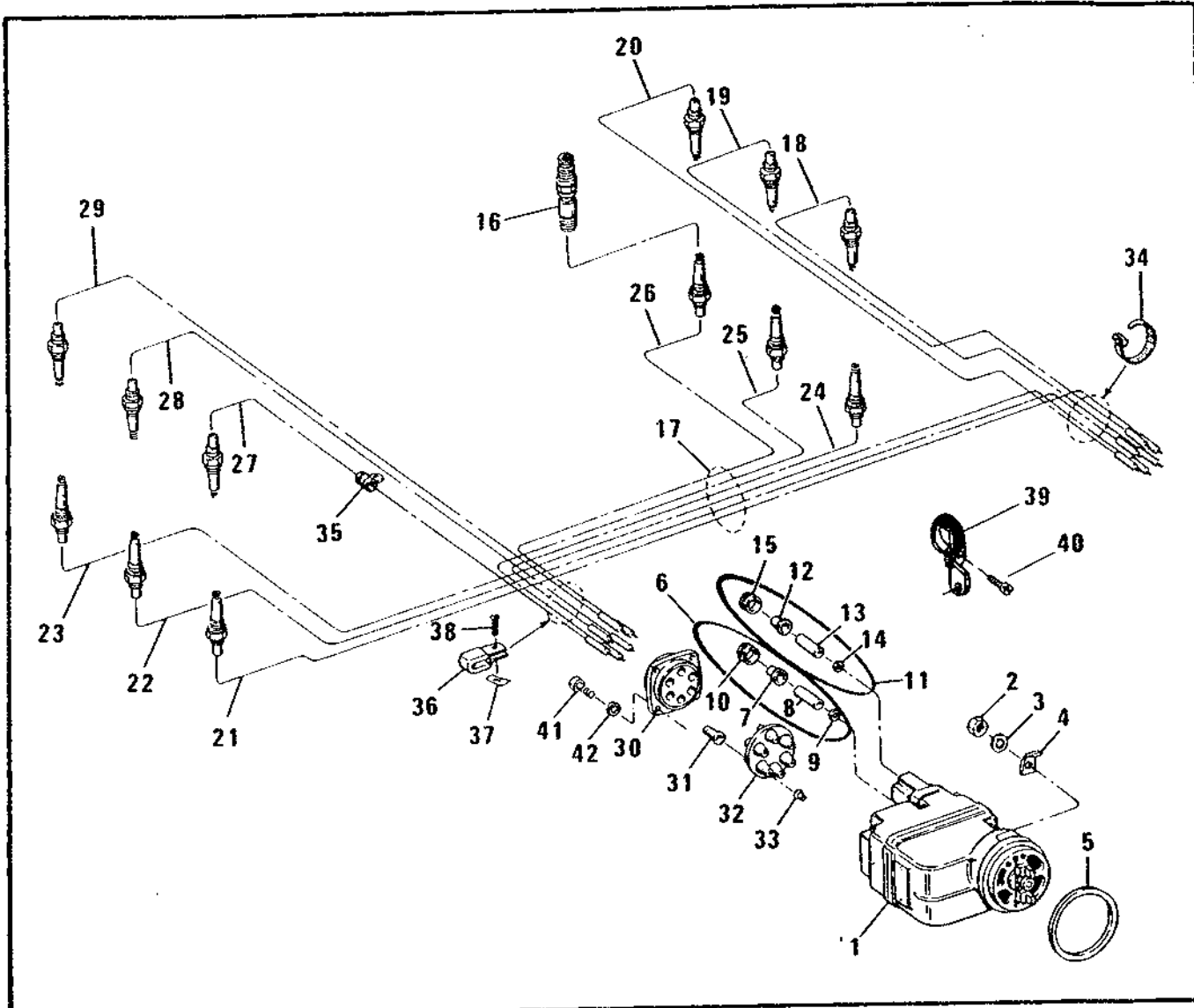


FIGURE 44 • IGNITION SYSTEM
MODELS 10-470-S,U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																			
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V				
44-1	628472	① Magneto Assembly, Left Hand														1	1	1				
-1	628473	① Magneto Assembly, Right Hand														1	1	1				
ATTACHING PARTS																						
-2	2439	Nut, Hex														4	4	4				
-3	MS35338-45	Washer, Lock														4	4	4				
-4	535847	Washer, Magneto Holding														4	4	4				
* * * *																						
-5	534750	& Gasket, Magneto														2	2	2				
-6	628739	Kit, Ground Terminal, Left Magneto														1	1	1				
-7	629008	. Bushing, Shouldered														1	1	1				
-8	629009	. Bushing, Insulating														1	1	1				
-9	629010	. Washer, Plain														1	1	1				
-10	629007	. Nut, Coupling														1	1	1				
-11	628740	Kit, Ground Terminal, L & R Magneto														1	1	1				
-12	629008	. Bushing, Shouldered														1	1	1				
-13	629009	. Bushing, Insulating														1	1	1				

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V	
44-14	629010	. Washer, Plain															1	1	1
-15	629011	. Nut, Coupling															1	1	1
-16	634675	Spark Plug, 18mm															12	12	12
-17	636954	① ② . Harness Assembly, Complete Shielded Ignition . .															1	1	1
-18	637409-48	③ . . Cable Assembly, No. 1 Upper 15.25 Inch Long .															1	1	1
-19	637409-48	③ . . Cable Assembly, No. 3, Upper 20.06 Inch Long															1	1	1
-20	637409-48	③ . . Cable Assembly, No. 5, Upper 28.06 Inch Long															1	1	1
-21	637409-48	③ . . Cable Assembly, No. 2, Lower 39.06 Inch Long															1	1	1
-22	637409-48	③ . . Cable Assembly, No. 4, Lower 35.69 Inch Long															1	1	1
-23	637409-48	③ . . Cable Assembly, No. 6, Lower 42.06 Inch Long															1	1	1
-24	647409-48	③ . . Cable Assembly, No. 1, Lower 35.69 Inch Long															1	1	1
-25	637409-48	③ . . Cable Assembly, No. 3, Lower 40.56 Inch Long															1	1	1
-26	647409-48	③ . . Cable Assembly, No. 5, Lower 47.56 Inch Long															1	1	1
-27	647409-48	③ . . Cable Assembly, No. 2, Upper 20.00 Inch Long															1	1	1
-28	637409-48	③ . . Cable Assembly, No. 4, Upper 17.19 Inch Long															1	1	1
-29	637409-48	③ . . Cable Assembly, No. 6, Upper 23.06 Inch Long															1	1	1
-30	633009	④ . . Plate, Cable Outlet															1	1	1
-31	629498	④ . . Ferrule, Cable															6	6	6
-32	629496	④ . . Grommet, Plate															1	1	1
-33	629495	④ . . Eyelet, Cable Contact															6	6	6
-34	629494	. Strap, Ignition Harness															10	10	10
-35	632106	. Clamp, Ignition Cable															12	12	12
-36	631739	. Clamp, Ignition Harness															2	2	2
-37	629837	. Nut, Speed															2	2	2
-38	632105	. Screw															2	2	2
-39	635363	. Clamp															1	1	1
-40	635360	. Screw															1	1	1
-41	25320	Screw															8	8	8
-42	25321	Washer, Lock															8	8	8

NOTES:

- ① See Section VI for Specification Applications.
- ② See Figure No. 50 for detail parts of ignition cable spark plug end.
- ③ Service leads furnished in two (2) lengths only. 637409-48 cable assembly for leads up to 48" long. 637409-72 cable assembly for leads up to 72" long.
- ④ Applicable to all cables assemblies.
Service sleeves - Use Thomas and Betts crimping tool No. WT-217.

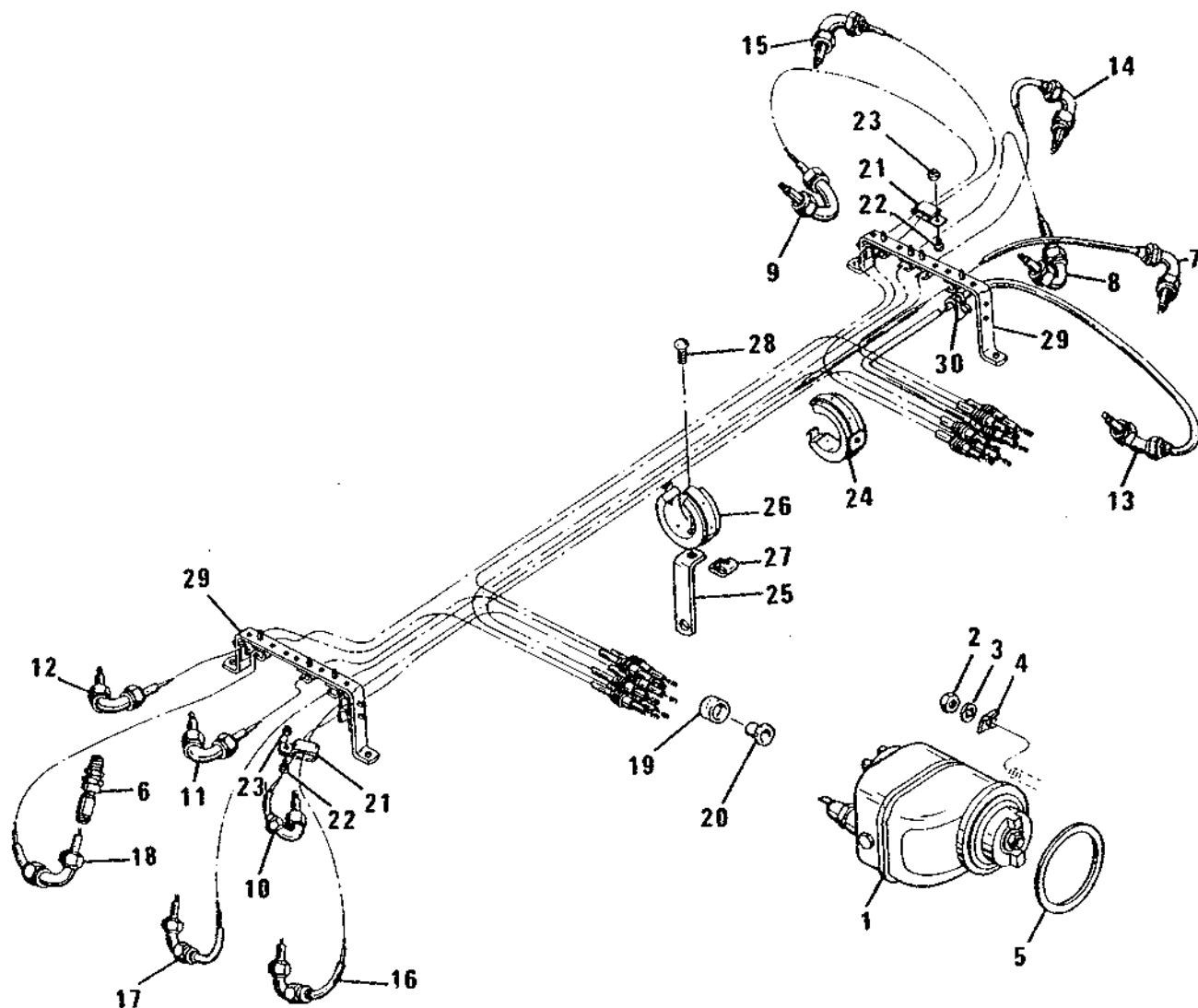


FIGURE 45 - IGNITION SYSTEM
MODELS 10-470-J,K

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V	
45-1	625765	①	Magneto Assembly								2	2								
			ATTACHING PARTS																	
-2	2439		Nut, Hex								4	4								
-3	MS35338-45		Washer, Lock								4	4								
-4	535847		Washer, Magneto Holding								4	4								
			* * * *																	
-5	534750	&	Gasket, Magneto								2	2								
-6	539433		Spark Plug, 18mm								12	12								
	628379	① ②	Harness Assembly, Shielded Ignition, Left Magneto								1	1								
-7	628391-31.75		Cable Assembly, No. 1, Lower								1	1								
-8	628391-32.00		Cable Assembly, No. 3, Lower								1	1								
-9	628391-37.50		Cable Assembly, No. 5, Lower								1	1								
-10	628320-16.25		Cable Assembly, No. 2, Upper								1	1								
-11	628320-12.75		Cable Assembly, No. 4, Upper								1	1								
-12	628320-16.00		Cable Assembly, No. 6, Upper								1	1								
	628380	① ②	Harness Assembly, Shielded Ignition, Right Magneto								1	1								
-13	628320-11.00		Cable Assembly, No. 1, Upper								1	1								
-14	628320-14.25		Cable Assembly, No. 3, Upper								1	1								
-15	628320-17.50		Cable Assembly, No. 5, Upper								1	1								
-16	628391-32.50		Cable Assembly, No. 2, Lower								1	1								
-17	628391-32.50		Cable Assembly, No. 4, Lower								1	1								
-18	628391-36.50		Cable Assembly, No. 6, Lower								1	1								
-19	25302	③	Nut								12	12								
-20	20087	③	Ferrule								12	12								
-21	627921		Clamp, Ignition Harness								2	2								
			ATTACHING PARTS																	
-22	627759		Bolt, No. 6-32 x 5/16 Inch Long								2	2								
-23	627756		Nut, Stop, No. 6-32								2	2								
			* * * *																	
-24	628271		Band, Clamp								2	2								
-25	628474		Bracket, Ignition Cable Support								1	1								
-26	628271		Band, Clamp								1	1								
			ATTACHING PARTS																	
-27	537911		Nut, Speed								1	1								
-28	AN526-1024-4		Screw, Sheet Metal								1	1								
			* * * *																	
-29	626486		Bracket, Fuel Discharge Tubes								2	2								
-30	626577-2R		Clamp, Wiring Harness								12	12								

NOTES:

- ① See Section VI for Specification Applications.
- ② See Figure No. 50 for detail parts of ignition cable spark plug end.
- ③ Applicable to all cable assemblies.

ENGINE MODEL	HARNESS ASSY. P/N	CABLE ASSY. P/N	UPPER PLUG LEAD LENGTHS						LOWER PLUG LEAD LENGTHS					
			No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
A, B, E, J, K, L	Left Mag 625298	626359		19.44		17.44		21.19	33.44		33.69		39.69	
	Right Mag 625299	626359	16.19		19.44		22.69			34.69		32.44		39.69
G, P	Left Mag 625983	626831							39.65		33.31		39.31	
		626832		19.44		18.94		21.19						
	Right Mag 625983	626831								34.31		33.06		39.31
		626832	16.19		19.14		22.69							
M	Left Mag 627805①	627040		19.44		18.94		23.19	36.94		37.19		42.19	
	Right Mag 627804①	627040	16.19		19.44		22.69			39.19		35.69		41.69
R	Left Mag 633113	633580②		21.00		18.00		25.00						
		633579②							38.00		42.00		50.00	
	Right Mag 633114	633580②	19.00		21.00									
		633579②					28.00			43.00		39.00		42.00

ENGINE MODEL	HARNESS ASSY. P/N	CABLE ASSY. P/N	UPPER PLUG LEAD LENGTHS						LOWER PLUG LEAD LENGTHS					
			No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
C	Left Mag 627863	626831							36.94		37.19		41.19	
		626832		19.44		17.94		21.19						
	Right Mag 627862	626831								37.69		35.69		41.69
		626832	16.19		19.44		22.69							
D, E, F, G, H, L, M, N, P, R	Left Mag 627805	627040		19.44		18.94		23.19	36.94		37.19		42.19	
	Right Mag 627804	627040	16.19		19.44		22.69			39.19		35.69		41.69

FIGURE 46 - IGNITION CABLE LEAD LENGTHS
MODELS O-470-A,B,E,G,J,K,L,M,P AND IO-470-C,D,E,F,G,H,L,M,N,P,R

NOTES:

- ① These harness assemblies replace 627039 and 627038 respectively which had the lower leads routed between the cylinders. However, the leads for the 627805 and 627804 assemblies have longer leads which are routed over and anchor to the rocker box cover.
- ② Service leads furnished in two lengths only. 633580 for leads up to 28 inches, long, 633578 for leads up to 50 inches long.

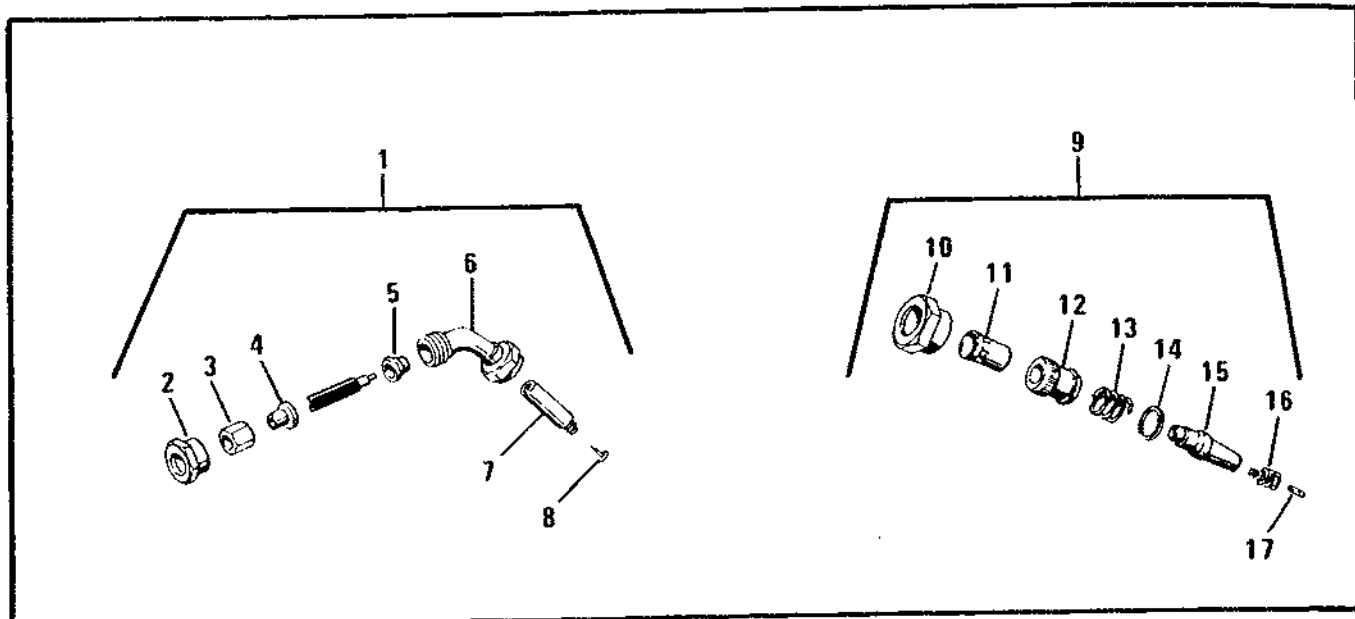


FIGURE 47 - IGNITION CABLE, SPARK PLUG END
MODELS O-470-G-P-R

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY													
			A	B	E	G	J	K	L	M	P	R				
47-1	626831	Cable Assembly (See Figure 46)				rf					rf					
-1	626832	Cable Assembly (See Figure 46)				rf					rf					
-2	636675	. Nut, Spark Plug End				1					1					
-3	636676	. Ferrule, Cable, Outer				1					1					
-4	636677	. Ferrule, Cable, Inner				1					1					
-5	636678	. Grommet				1					1					
-6	WE365	. Elbow Assembly (626831 Cable)				1					1					
-6	WE1017	. Elbow Assembly (626832 Cable)				1					1					
-7	628986	. Sleeve, Spark Plug Terminal				1					1					
-8	626718	. Nail				1					1					
-9	633580	Cable Assembly (See Figure 46)										rf				
-9	633579	Cable Assembly (See Figure 46)										rf				
-10	633593	. Nut, Spark Plug End										1				
-11	633589	. Ferrule										1				
-12	633583	. Ferrule										1				
-13	633590	. Spring										1				
-14	633592	. Washer										1				
-15	633591	. Sleeve										1				
-16	633586	. Spring										1				
-17	633585	. Terminal										1				

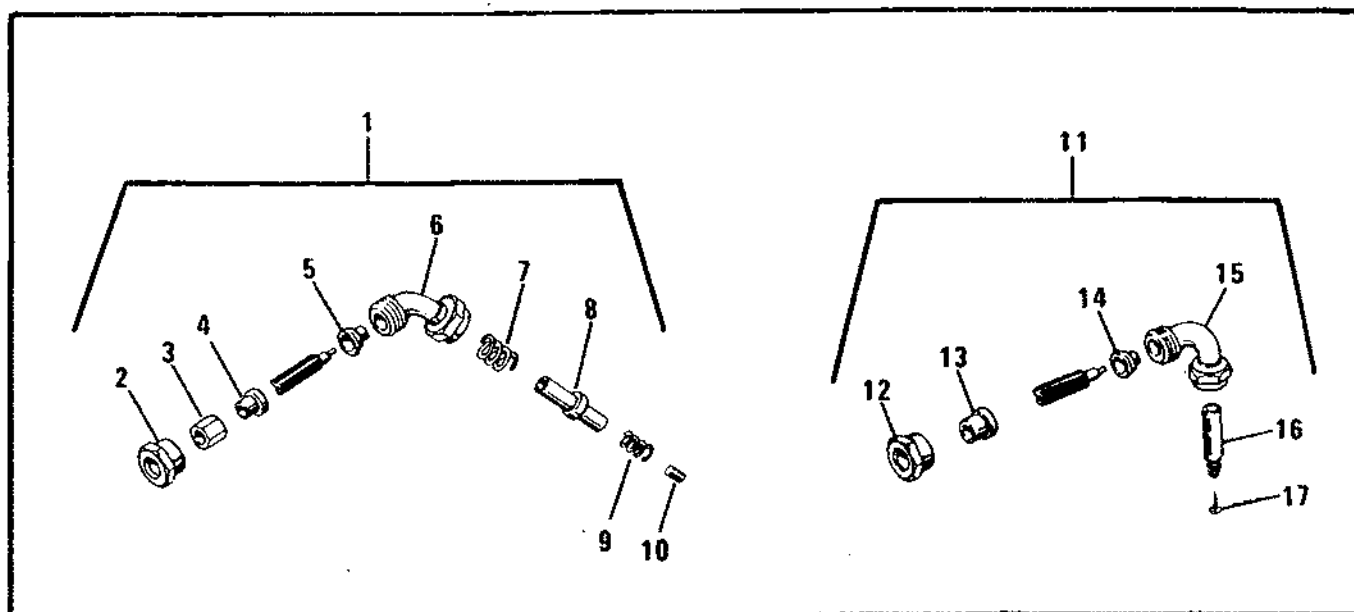


FIGURE 48 - IGNITION CABLE, SPARK PLUG END
MODELS O-470-A,B,E,J,K,L,M

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
48-1	627040	Cable Assembly (See Figure 46)										rf						
-2	636675	. Nut, Spark Plug End										1						
-3	636676	. Ferrule, Cable Outer										1						
-4	636677	. Ferrule, Cable Inner										1						
-5	636678	. Grommet										1						
-6	WE630	. Elbow Assembly										1						
-7	WE626	. Spring, Compression										1						
-8	WE565	. Grommet										1						
-9	626714	. Spring, Terminal										1						
-10	626713	. Stud, Terminal Spring										1						
-11	626359	Cable Assembly (See Figure 46)	rf	rf	rf			rf	rf	rf								
-12	636675	. Nut, Spark Plug End	1	1	1			1	1	1								
-13	WE502	. Ferrule, Cable	1	1	1			1	1	1								
-14	636678	. Grommet	1	1	1			1	1	1								
-15	WE1017	. Elbow Assembly	1	1	1			1	1	1								
-16	628986	. Sleeve, Spark Plug Terminal	1	1	1			1	1	1								
-17	626718	. Nail	1	1	1			1	1	1								

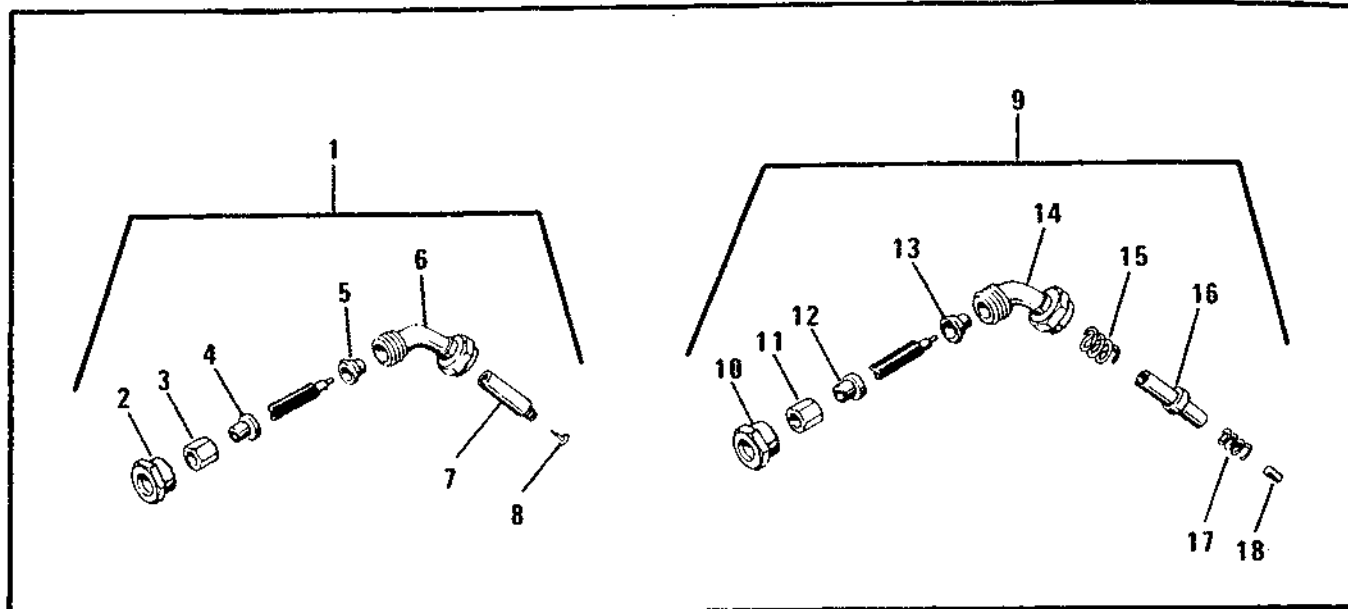


FIGURE 49 - IGNITION CABLE, SPARK PLUG END
MODELS IO-470-C,D,E,F,G,H,L,M,N,P,R

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																	
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
49-1	626831	Cable Assembly (See Figure 46)	rf																	
-1	626832	Cable Assembly (See Figure 46)	rf																	
-2	636675	. Nut, Spark Plug End	1																	
-3	636676	. Ferrule, Cable Outer	1																	
-4	636677	. Ferrule, Cable Inner	1																	
-5	636678	. Grommet	1																	
-6	WE365	. Elbow Assembly (626831 Cable)	1																	
-6	WE1017	. Elbow Assembly (626832 Cable)	1																	
-7	628986	. Sleeve, Spark Plug Terminal	1																	
-8	626718	. Nail	1																	
-9	627040	Cable Assembly (See Figure 46)	rf	rf	rf	rf	rf	rf			rf	rf	rf	rf	rf					
-10	636675	. Nut, Spark Plug	1	1	1	1	1	1			1	1	1	1	1					
-11	636676	. Ferrule, Cable Outer	1	1	1	1	1	1			1	1	1	1	1					
-12	636677	. Ferrule, Cable Inner	1	1	1	1	1	1			1	1	1	1	1					
-13	636678	. Grommet	1	1	1	1	1	1			1	1	1	1	1					
-14	WE630	. Elbow Assembly	1	1	1	1	1	1			1	1	1	1	1					
-15	WE626	. Spring, Compression	1	1	1	1	1	1			1	1	1	1	1					
-16	WE565	. Grommet	1	1	1	1	1	1			1	1	1	1	1					
-17	626714	. Spring, Terminal	1	1	1	1	1	1			1	1	1	1	1					
-18	626713	. Stud, Terminal Spring	1	1	1	1	1	1			1	1	1	1	1					

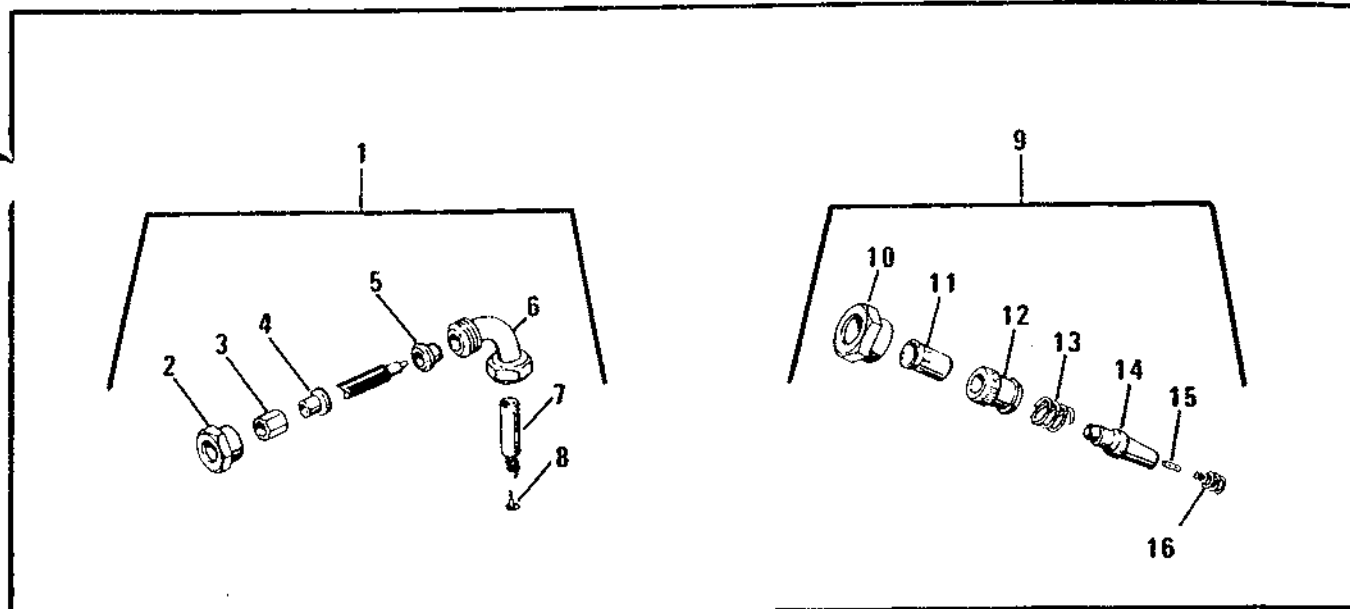


FIGURE 50 · IGNITION CABLE, SPARK PLUG END
MODELS 10-470-J,K,S,U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V
50-1	628391	Cable Assembly (See Figure 45)							rf	rf								
-1	628320	Cable Assembly (See Figure 45)							rf	rf								
-2	636675	. Nut, Spark Plug End							1	1								
-3	636676	. Ferrule, Cable Outer							1	1								
-4	636677	. Ferrule, Cable Inner							1	1								
-5	636678	. Grommet							1	1								
-6	636679	. Elbow Assembly (628320 Cable)							1	1								
-6	WE365	. Elbow Assembly (626831 Cable)							1	1								
-7	628986	. Sleeve, Spark Plug Terminal							1	1								
-8	626718	. Nail							1	1								
-9	637409	Cable Assembly (See Figure 44)													rf	rf	rf	
-10	629502	. Nut, Spark Plug End													1	1	1	
-11	633012	. Ferrule													1	1	1	
-12	633096	. Ferrule													1	1	1	
-13	629504	. Spring Assembly, Compression													1	1	1	
-14	629505	. Sleeve, Spark Plug Terminal													1	1	1	
-15	633099	. Terminal, Crimp Type													1	1	1	
-16	629506	. Spring, Spark Plug Terminal													1	1	1	

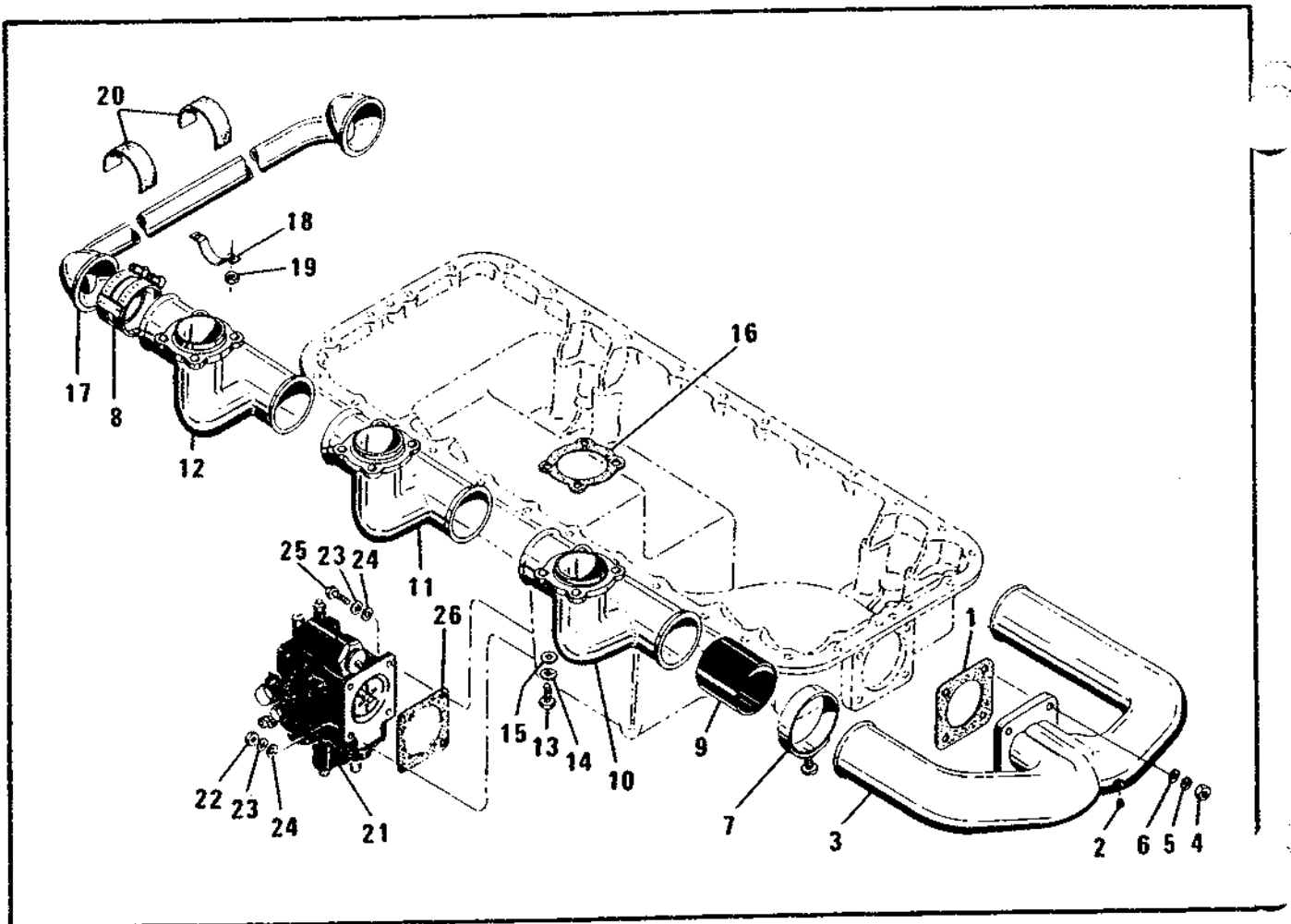


FIGURE 51 - INDUCTION SYSTEM
MODELS O-470-G,P

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY												
			A	B	E	G	J	K	L	M	P	R	S	U	
51-1	35985	& Gasket, Manifold				1					1				
-2	629518-1H	Plug, Pipe, 1/8 Inch NPT				1					1				
-3	538927	Manifold Assembly, Rear				1					1				
ATTACHING PART															
-4	2439	Nut, Hex				4					4				
-5	MS35338-45	Washer, Lock				4					4				
-6	22533	Washer, Plain				4					4				
* * * *															
-7	36151J	Clamp, Hose				12					12				
-8	539487	Clamp Assembly, Hose				2					2				
-9	639660-13	& Hose, Intake Manifold				8					8				
-10	537874	Tube Assembly, Intake Manifold No. 2				1					1				
-11	537875	Tube Assembly, Intake Manifold No. 3, 4				2					2				
-12	537873	Tube Assembly, Intake Manifold, No. 1, 5, 6				3					3				
ATTACHING PARTS															
-13	24835	Bolt, 1/4 x 7/8 Inch Long				24					24				
-14	MS35338-44	Washer, Lock				24					24				
-15	20522	Washer, Plain				24					24				
* * * *															
-16	536413	& Gasket, Intake Manifolds				6					6				
-17	538882	Tube Assembly, Balance				1					1				
-18	625411	Clamp, Balance Tube				2					2				
ATTACHING PARTS															
-19	22661	Nut, Self-locking				4					4				
* * * *															
-20	532364-50	Felt, Sump-to-Balance Tube				2					2				
-21	628023	① Carburetor, Model PSH-5BD (Bendix No. 391735-1)				1					1				
ATTACHING PARTS															
-22	2439	Nut, Hex				2					2				
-23	MS35338-45	Washer, Lock				4					4				
-24	22533	Washer, Plain				4					4				
-25	537961	Bolt, 5/16 x 1 Inch Long				2					2				
* * * *															
-26	35985	& Gasket, Carburetor				1					1				

NOTE:

① See Section VI for Specification Applications.

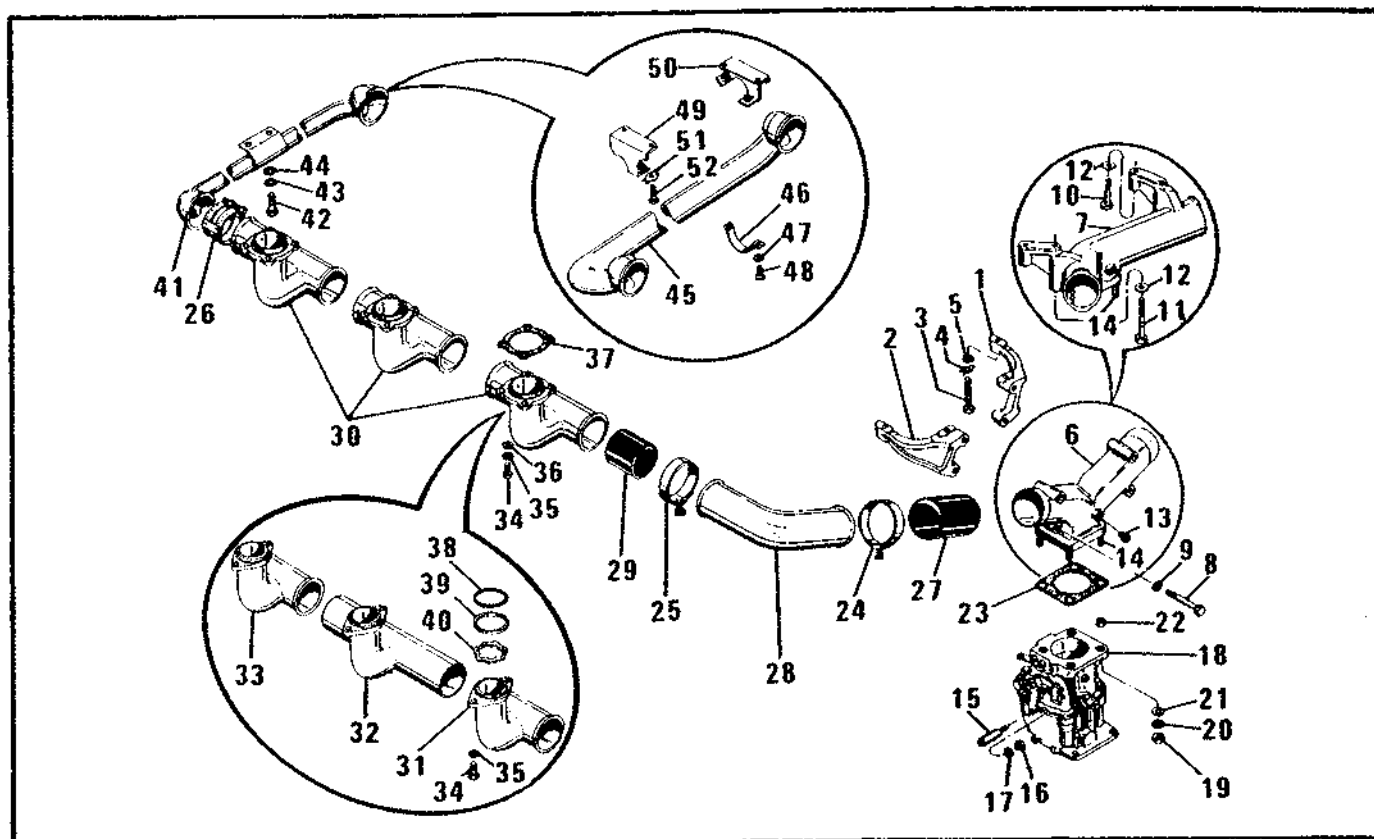


FIGURE 52 - INDUCTION SYSTEM
MODELS O-470-A, J, K, L, R, S, U

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
52-1	536036	Bracket Manifold Riser, Right Side	1				1	1										
-2	536037	Bracket, Manifold Riser, Left Side	1				1	1										
ATTACHING PARTS																		
-3	AN75A15	Bolt	4				4	4										
-4	501868	Washer, Tab	4				4	4										
-5	2473	Washer, Plain	4				4	4										

-6	538361A1	Riser Assembly, Manifold	1				1	1										
-7	627658A1	Riser Assembly, Manifold							1			1	1	1				
ATTACHING PARTS																		
-8	AN75A26	Bolt	4				4	4										
-9	2473	Washer, Plain	4				4	4										
-10	538999	Bolt, 5/16 x 3-5/8 Inch Long							2			2	2	2				
-11	AN75A15	Bolt							2			2	2	2				
-12	2473	Washer, Plain							4			4	4	4				

-13	629518-1H	Plug, Pipe, 1/8 Inch NPT	1				1	1	1			1	1	1				
-14	401971	† Stud, 5/16 x 1-5/8 Inch Long	4				4	4	4			4	4	4				
-15	536432	Extension, Throttle Control	1				1	1	1			1						
ATTACHING PARTS																		
-16	22661	Nut, Hex	1				1	1	1			1						
-17	20522	Washer, Plain	1				1	1	1			1						
-18	538872	① Carburetor, Model MA4-5					1											
-18	633027	① Carburetor, Model	1					1	1									
-18	641139	① Carburetor, Model MA4-5										1	1					

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
52-18	641860	① Carburetor, Model MA4-5												1				
-19	2439	Nut, Hex	4				4	4	4			4	4	4				
-20	MS35338-45	Washer, Lock	4				4	4	4			4	4	4				
-21	2473	Washer, Plain	4				4	4	4			4	4	4				
		* * * *																
-22	535961	Sleeve, Carburetor Mounting	4				4	4	4			4	4	4				
-23	35985	& Gasket, Carburetor	1				1	1	1			1	1	1				
-24	631972	Clamp, Hose						4	4			4	4	4				
-25	36151J	Clamp, Hose	16				16											
-25	36151L	Clamp, Hose						2	2			2	2	2				
-26	539487	Clamp Assembly, Hose	2				2	2	2			2	2	2				
-27	535832	& Hose, Riser-to-Elbow	2				2					2	2	2				
-27	639660-13	Hose, Riser-to-Elbow						2	2			2	2	2				
-28	535681	Tube, Elbow	2				2	2										
-28	539758	Tube, Elbow							2									
-28	632323	Tube Assembly, Elbow										2	2	2				
-29	639660-13	& Hose, Intake Manifold	8				8	8	8			8	8	8				
-30	629138	Tube Assembly, Intake Manifold						6	6			6	6	5				
-30	629325	Tube Assembly, Intake Manifold No. 6												1				
-31	535484	Tube Assembly, Intake Manifold No. 2	1															
-31	538554	Tube Assembly, Intake Manifold No. 2					1											
-32	535079	Tube Assembly, Intake Manifold No. 3, 4	2															
-32	538554	Tube Assembly, Intake Manifold No. 3, 4					2											
-33	535076	Tube Assembly, Intake Manifold No. 1, 5, 6	3															
-33	538554	Tube Assembly, Intake Manifold, No. 1, 5, 6					3											
		ATTACHING PARTS																
-34	24835	Bolt, 1/4 x 7/8 Inch Long	2				12	24	24			24	24	24				
-35	MS35338-44	Washer, Lock	2				12	24	24			24	24	24				
-36	20522	Washer, Plain						24	24			24	24	24				
		* * * *																
-37	536413	& Gasket, Intake Manifold						6	6			6	6	6				
-38	536740	& Seal, Intake Manifold Tube	6				6											
-39	534365	Washer, Intake Manifold Tube	6				6											
-40	534360	Spring, Intake Manifold Tube	6				6											
-41	630626	Tube Assembly, Balance					1	1	1			1	1					
-41	630628	Tube Assembly, Balance												1				
		ATTACHING PARTS																
-42	530346	② Screw, Hex Head, 5/16 x 7/8 Inch Long					rf	rf	rf			rf		rf				
-43	13XX202B	② Washer, Lock					rf	rf	rf			rf		rf				
-44	2473	② Washer, Plain					rf	rf	rf			rf		rf				
		* * * *																
-45	535912	Tube Assembly, Balance	1															
-46	535787	Clamp, Balance Tube	2															
		ATTACHING PARTS																
-47	MS35338-44	Washer, Lock	4															
-48	AN520-416-12	Screw, Machine	4															
		* * * *																
-49	535785	Bracket, Balance Tube, Left Side	1															
-50	535784	Bracket, Balance Tube, Right Side	1															
		ATTACHING PARTS																
-51	501868	Washer, Tab	4															
-52	530346	Screw, Hex Head, 5/16 x 7/8 Inch Long	4															

NOTES:

① See Section VI for Specification Applications.

② Reference Figure 25.

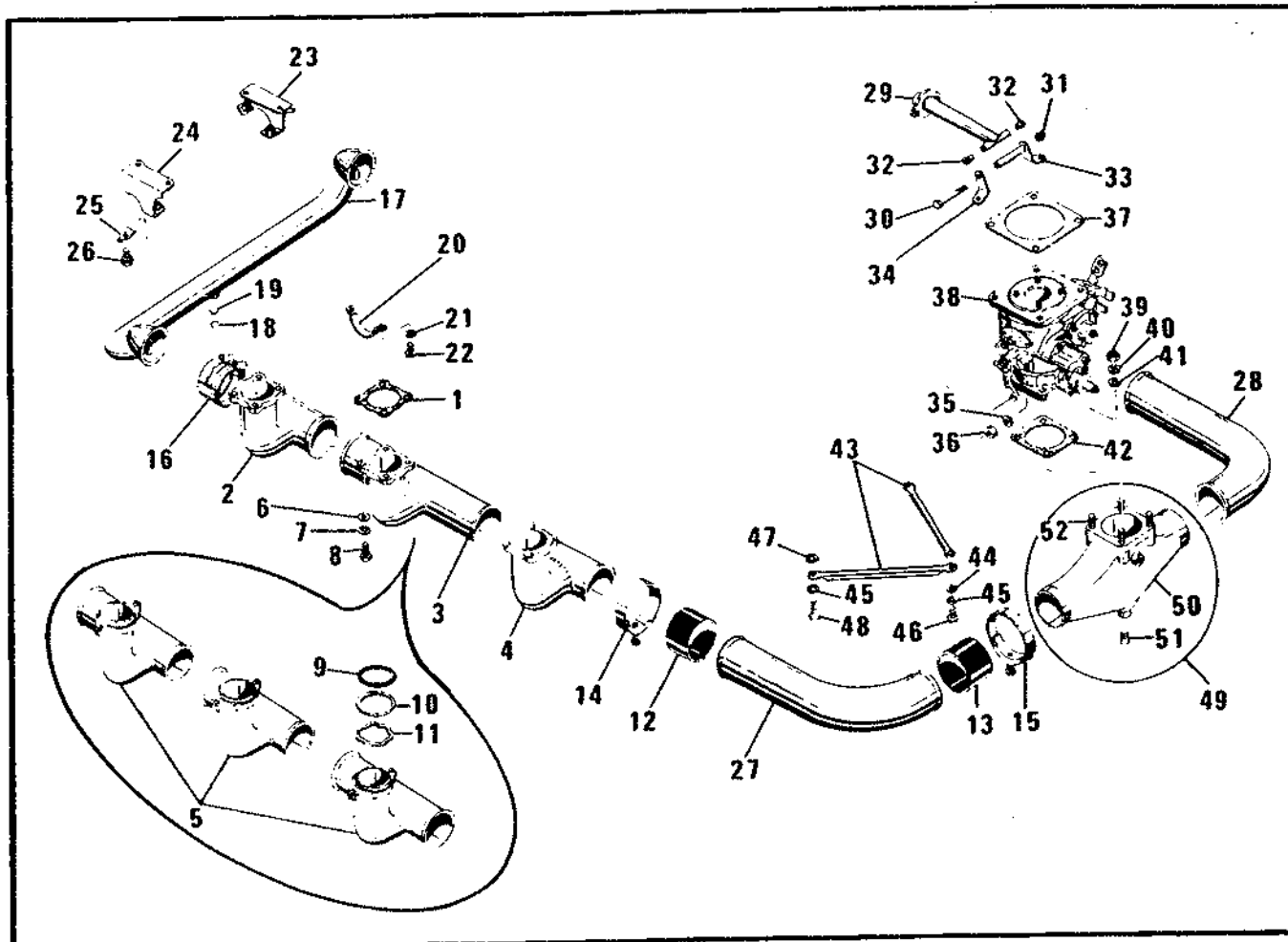


FIGURE 53 - INDUCTION SYSTEM
MODELS O-470-B, E, M

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY													
			1	2	3	4	5	A	B	E	G	J	K	L	M	P
53-1	536413	& Gasket, Intake Manifolds						6							6	
-2	537873	Tube Assembly, Intake Manifold, No. 1, 5, 6						3							3	
-3	537875	Tube Assembly, Intake Manifold, No. 3, 4						2							2	
-4	537874	Tube Assembly, Intake Manifold, No. 2						1							1	
-5	538564	Tube Assembly, Intake Manifolds								6						
ATTACHING PARTS																
-6	20522	Washer, Plain, 5/16 Inch						24							24	
-7	MS35338-44	Washer, Lock						24	12						24	
-8	24835	Bolt, 1/4 x 7/8 Inch Long						24	12						24	

-9	536740	& Seal, Intake Manifold Tube								6						
-10	534365	Washer, Intake Manifold Tube								6						
-11	534360	Spring, Intake Manifold Tube								6						
-12	639660-13	& Hose, Intake Manifold						8	8						8	
-13	639660-13	& Hose, Riser-to-Elbow						2							2	
-14	36151J	Clamp, Hose						4	16						8	
-15	631972	Clamp, Hose						4							8	
-16	539487	Clamp Assembly, Hose						2	2						2	
-17	536332A1	Tube and Valve Assembly, Balance						1	1						1	
-18	536326	Ring, Internal Retaining						1	1						1	
-19	538433	Valve, Manifold Drain						1	1						1	

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY															
				A	B	E	G	J	K	L	M	P	R	S	U				
53-20	535787		Clamp, Balance Tube		2	2					2								
			ATTACHING PARTS																
-21	MS35338-44		Washer, Lock		4	4					4								
-22	AN520-416-12		Screw, Machine		4	4					4								
			* * * *																
-23	535784		Bracket, Balance Tube, Right Side		1	1					1								
-24	535785		Bracket, Balance Tube, Left Side		1	1					1								
			ATTACHING PARTS																
-25	501868		Washer, Tab, 5/16 Inch		4	4					4								
-26	AN75A15		Bolt		4														
-26	537961		Bolt, 5/16 x 1 Inch Long								4								
-26	535960		Bolt, 5/16 x 13/16 Inch Long			4													
			* * * *																
-27	536871		Tube, Elbow, Left Side		1	1					1								
-28	536872		Tube, Elbow, Right Side		1	1					1								
-29	538469		Bracket Assembly, Carburetor Support		1	1					1								
-30	AN4-26A		Bolt		1	1					1								
-31	MS21083N4		Nut, Self-locking		1	1					1								
-32	538468		Bushing, Carburetor Support Bracket		2	2					2								
-33	538470		Bracket, Carburetor Support, Right Hand		1	1					1								
-34	539113		Bracket, Carburetor Support, Left Hand		1	1					1								
-35	20522		Washer, Plain		1	1					1								
-36	22661		Nut, Self-locking		1	1					1								
-37	25135	&	Gasket, Carburetor Air Scoop		1	1					1								
-38	536911	①	Carburetor, Model PSD-5C (Bendix No. 391435)			1													
-38	627178	①	Carburetor, Model PSD-5C (Bendix No. 391668-2)		1						1								
			ATTACHING PARTS																
-39	2439		Nut, Hex		4	4					4								
-40	MS35338-45		Washer, Lock		4	4					4								
-41	2473		Washer, Plain		4	4					4								
			* * * *																
-42	35985	&	Gasket, Carburetor		1	1					1								
-43	537939		Bracket, Crankcase-to-Riser		2														
			ATTACHING PARTS																
-44	2473		Washer, Plain		1						1								
-45	MS35338-45		Washer, Lock		3						3								
-46	536795		Screw, Hex Head, 5/16 x 3/4 Inch Long		1						1								
-47	538996		Spacer, 11/32 Inch x 3/16 Inch Thick		2						2								
-48	537750		Screw, Hex Head, 5/16 x 1-43/64 Inch Long		2						2								
			* * * *																
-49	538434A1		Riser Assembly, Manifold		1	1					1								
-50	No Number		Riser, Manifold		ns	ns					ns								
-51	629518-1H		Plug, Pipe, 1/8 Inch NPT		2	1					1								
-52	401824	†	Stud, 5/16 x 1-1/2 Inch Long		4	4					4								

NOTE:

① See Section VI for Specification Applications.

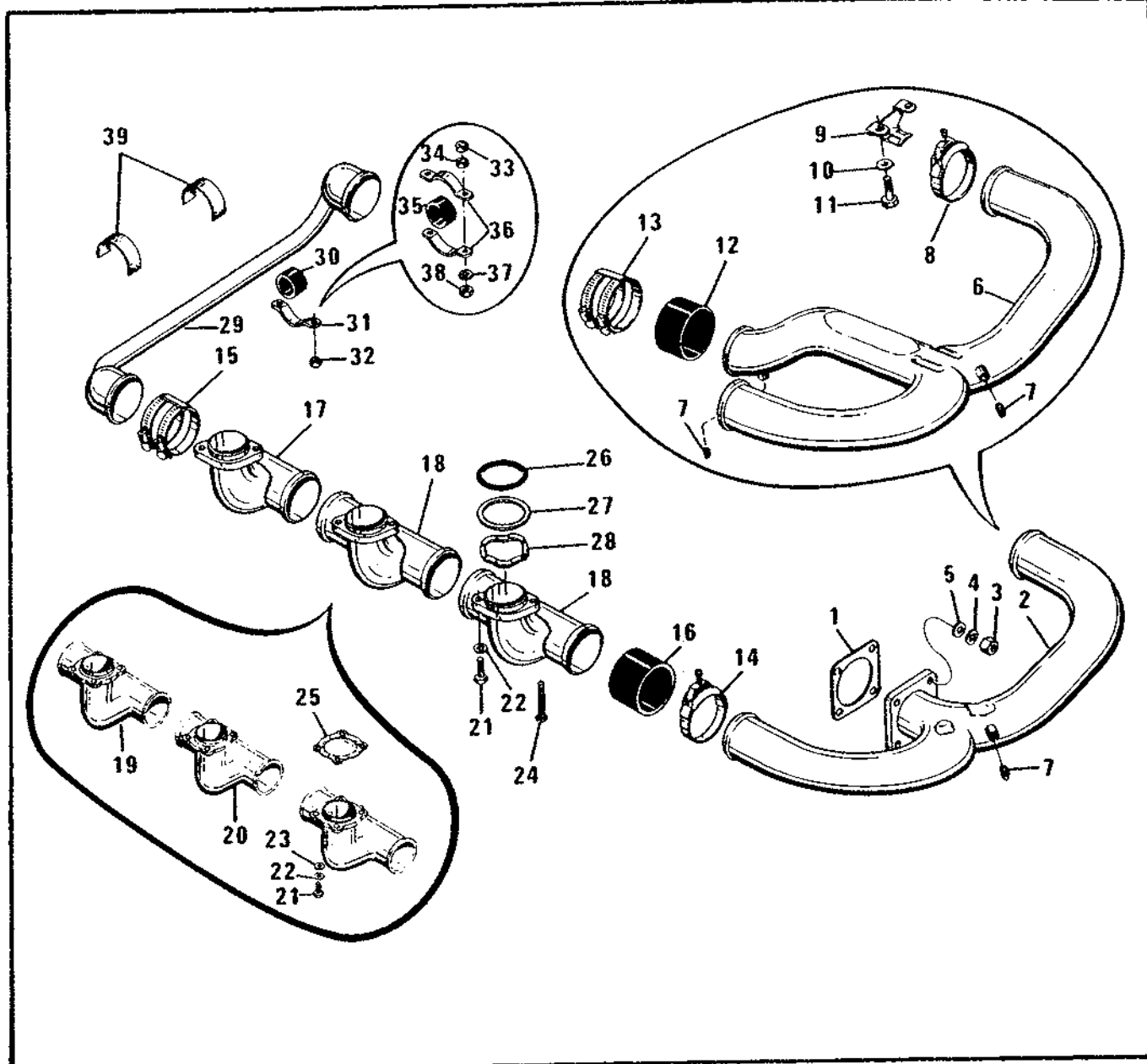


FIGURE 54 - INDUCTION SYSTEM
MODELS 10-470-C,H,J,K,N

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY																	
			1	2	3	4	5	C	D	E	F	G	H	J	K	L	M	N	P	R
54-1	35985	& Gasket, Manifold						1					1	1						
-2	628336	Manifold Assembly, Rear												1						
-2	629599	Manifold Assembly, Rear						1					1							
ATTACHING PARTS																				
-3	2439	Nut, Hex						4					4	4						
-4	MS35338-45	Washer, Lock						4					4	4						
-5	22533	Washer, Plain						4					4	4						

-6	629601	Manifold Assembly, Rear																1		
-6	628383	Manifold Assembly, Rear													1					
-7	629518-1H	Plug, Pipe, 1/8 Inch NPT						1					1	1	2			1		

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUALITY PER ASSEMBLY																		
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V			
54-8	AN737TW82	Clamp, Manifold Bracket									1										
-9	628390	Bracket, Sump-to-Manifold Clamp									1										
		ATTACHING PARTS																			
-10	MS35303-36	Bolt									2										
-11	538949	Washer, Plain									2										
		* * * *																			
-12	639660-13	& Hose, Throttle Body-to-Manifold									1										
-12	539023	& Hose, Throttle Body-to-Manifold														1					
-13	539487	Clamp Assembly, Hose									1										
-13	629163	Clamp Assembly, Hose														1					
-14	36151J	Clamp, Hose								16	16										
-14	36151L	Clamp, Hose	12					12								8					
-15	539487	Clamp Assembly, Hose	2					2	2	2						4					
-16	639660-13	& Hose, Intake Manifold	8					8	8	8						8					
-17	628381	Tube Assembly, Intake Manifold No. 6							1	1											
-18	538554	Tube Assy, Intake Manifold No. 1, 2, 3, 4, 5							5	5											
-19	629325	Tube Assembly, Intake Manifold No. 6	1					1								1					
-20	629138	Tube Assy, Intake Manifold No. 1, 2, 3, 4, 5	5					5								5					
		ATTACHING PARTS																			
-21	24835	Bolt, 1/4 - 20 x 7/8 Inch Long	24					24	12	11						24					
-22	MS35338-44	Washer, Lock	24					24	12	12						24					
-23	20522	Washer, Plain	24					24								24					
-24	535631	① Screw								1											
		* * * *																			
-25	536413	& Gasket, Intake Manifold	6					6								6					
-26	536740	& Seal, Intake Manifold Tube							6	6											
-27	534365	Washer, Intake Manifold Tube							6	6											
-28	534360	Spring, Intake Manifold Tube							6	6											
-29	626527	Tube Assembly, Balance	1					1	1	1						1					
-30	626530	Bushing, Balance Tube	2					2	2												
-31	625411	Clamp, Balance Tube	2					2	2												
		ATTACHING PARTS																			
-32	22661	Nut, Self-locking	4					4	4												
		* * * *																			
-33	2472	Spacer, Balance Tube								4						4					
-34	25164	Spacer, Balance Tube								4						4					
-35	628597	Bushing, Balance Tube								2						2					
-36	628416	Clamp, Balance Tube								4						4					
		ATTACHING PARTS																			
-37	MS35338-44	Washer, Lock								4						4					
-38	2437	Nut, Hex								4						4					
		* * * *																			
-39	532364-50	Felt, Sump-to-Balance Tube	2					2	2	2											

NOTE:
① No. 2 Cylinder Only.

NOTE:

① No. 2 Cylinder Only.

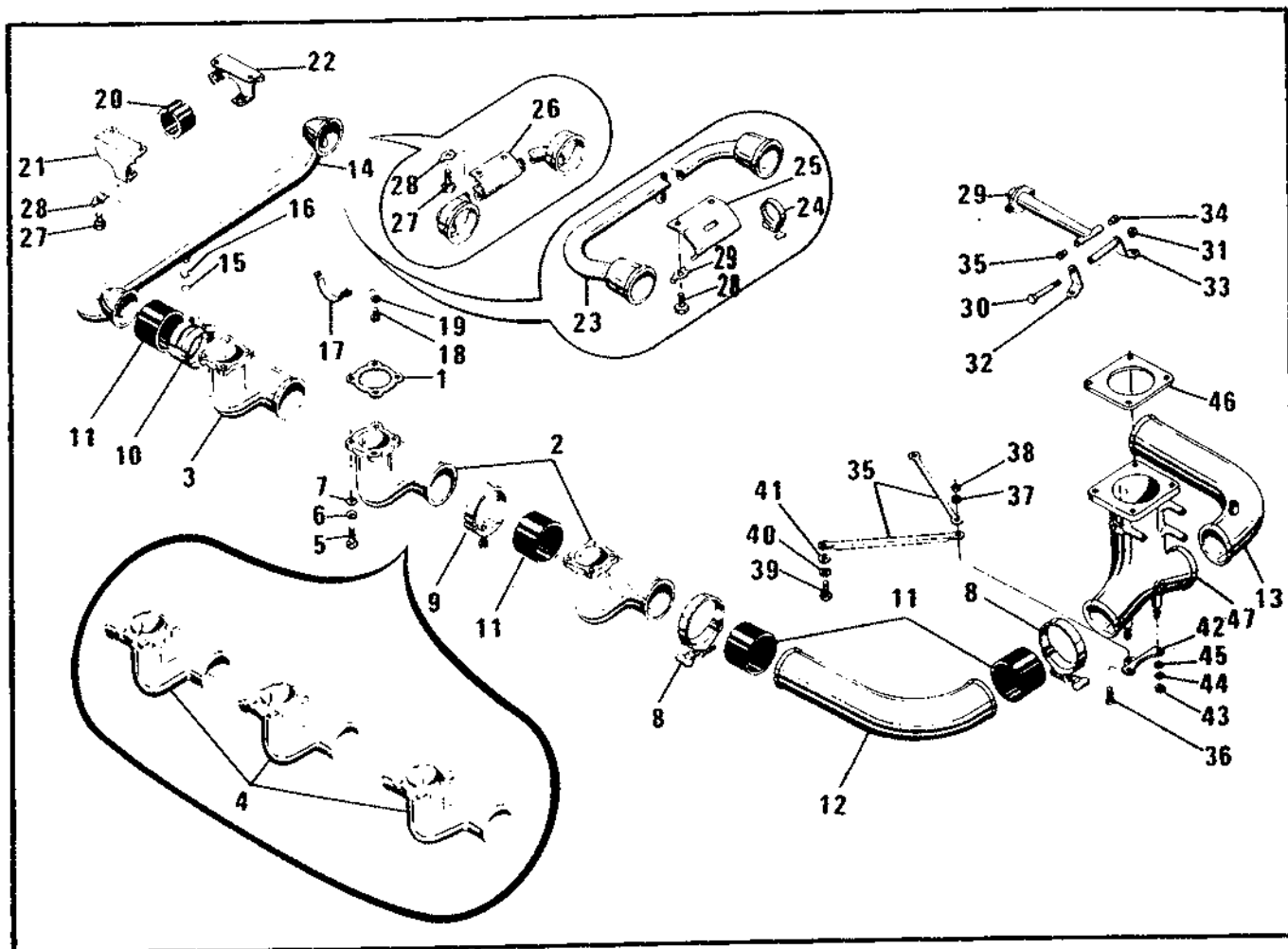


FIGURE 55 - INDUCTION SYSTEM
MODELS 10-470-D, E, G, L, P, R, U, V

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY															
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V
55-1	536413	&	Gasket, Intake Manifold	6	6		6					6			6	6		6	6
-2	629138		Tube Assy, Intake Manifold, No. 1, 2, 3, 4, 5	5								5						5	5
-3	629325		Tube Assy, Intake Manifold, No. 6	1								1						1	1
-4	629138		Tube Assembly, Intake Manifolds		6		6								6	6			
ATTACHING PARTS																			
-5	24835		Bolt, 1/4 - 20 x 7/8 Inch Long	24	24		24					24			24	24		24	24
-6	MS35338-44		Washer, Lock	24	24		24					24			24	24		24	24
-7	20522		Washer, Plain	24	24		24					24			24	24		24	24
* * * *																			
-8	631972		Clamp, Hose	8	8		8					8			8	8		8	8
-9	36151L		Clamp, Hose	8	8		8					8			8	8		8	8
-10	539487		Clamp Assembly, Hose	2	2		2					2			2	2		2	2
-11	639660-13		Hose, Intake Manifold	10	10		10					10			10	10		10	10
-12	627011		Tube, Elbow, Left Side		1		1					1			1	1			
-12	626744		Tube, Elbow, Left Side	1														1	
-13	629595		Tube, Elbow, Right Side		1		1					1			1	1			
-13	629597		Tube, Elbow, Right Side	1														1	
-14	627250A1		Tube and Valve Assembly, Balance	1															
-15	536326		Ring, Internal Retaining	1														1	

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																		
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V			
55 -16	538433	. Valve, Manifold Drain	1															1			
-17	535787	Clamp, Bracket	2																		
ATTACHING PARTS																					
-18	AN520-416-12	Screw, Hex Head	4																		
-19	MS35338-44	Washer, Lock	4																		
* * * * *																					
-20	627254	Tube, Balance Tube Clamp	2																		
-21	535785	Bracket, Balance Tube, Left Side	1																		
-22	535784	Bracket, Balance Tube, Right Side	1																		
-23	628701	Tube Assembly, Balance									1							1	1		
-24	AN737TW46	Clamp, Balance Tube									1							1	1		
-25	632280	Bracket, Balance Tube									1							1	1		
-26	630627	Tube Assembly, Balance			1		1								1	1					
ATTACHING PARTS																					
-27	537961	Bolt, 5/16 - 18 x 1 Inch Long	4	4			4								4	4		4			
-28	501868	Washer, Tab	4	4			4								4	4		4			
* * * * *																					
-29	538469	Bracket Assembly, Air Throttle	1															1	1		
-29	641643	Bracket Assembly, Air Throttle		1			1				1				1	1					
-30	AN4-26A	Bolt	1	1			1								1	1		1	1		
-30	AN4-27A	Bolt									1										
-31	MS21083N8	Nut, Self-locking	1	1			1				1				1	1		1	1		
-32	634805	Bracket, Air Throttle Support, Left-hand	1	1			1				1				1	1		1	1		
-33	634807	Bracket Assembly	1	1			1				1				1	1		1	1		
-34	538468	Bushing, Air Throttle Support	2	2			2				2				2	2		2	2		
-35	627681	Bracket, Crankcase-to-air throttle	2	2			2				2				2	2		2	2		
ATTACHING PARTS																					
-36	535666	Screw, Hex Head, 5/16 - 24 x 5/8 Inch Long	1	1			1				1				1	1		1	1		
-37	MS35338-45	Washer, Lock	1	1			1				1				1	1		1	1		
-38	2439	Nut, Hex	1	1			1				1				1	1		1	1		
-39	537750	Screw, Hex Head, 5/16 - 18 x 1-1/8 Inch Long	2	2			2				2				2	2		2	2		
-40	13XX202B	Washer, Lock	2	2			2				2				2	2		2	2		
-41	2473	Washer, Plain	2	2			2				2				2	2		2	2		
* * * * *																					
-42	627836	Bracket, Air Throttle Support, Lower		1			1				1				1	1		1	1		
-42	627670	Bracket, Air Throttle Support, Lower	1															1	1		
ATTACHING PARTS																					
-43	2437	Nut, Hex, 1/4	2	2			2				2				2	2		2	2		
-44	MS35338-44	Washer, Lock	2	2			2				2				2	2		2	2		
-45	20522	Washer, Plain		2			2				2				2	2					
* * * * *																					
-46	627368	& Gasket, Air Throttle	1	1			1				1				1	1		1	1		
-47	***	Throttle Assembly, Air	rf	rf			rf				rf				rf	rf		rf	rf		

OTE:

*** See appropriate Fuel Injection Figure.

OTE:

*** See appropriate Fuel Injection Figure.

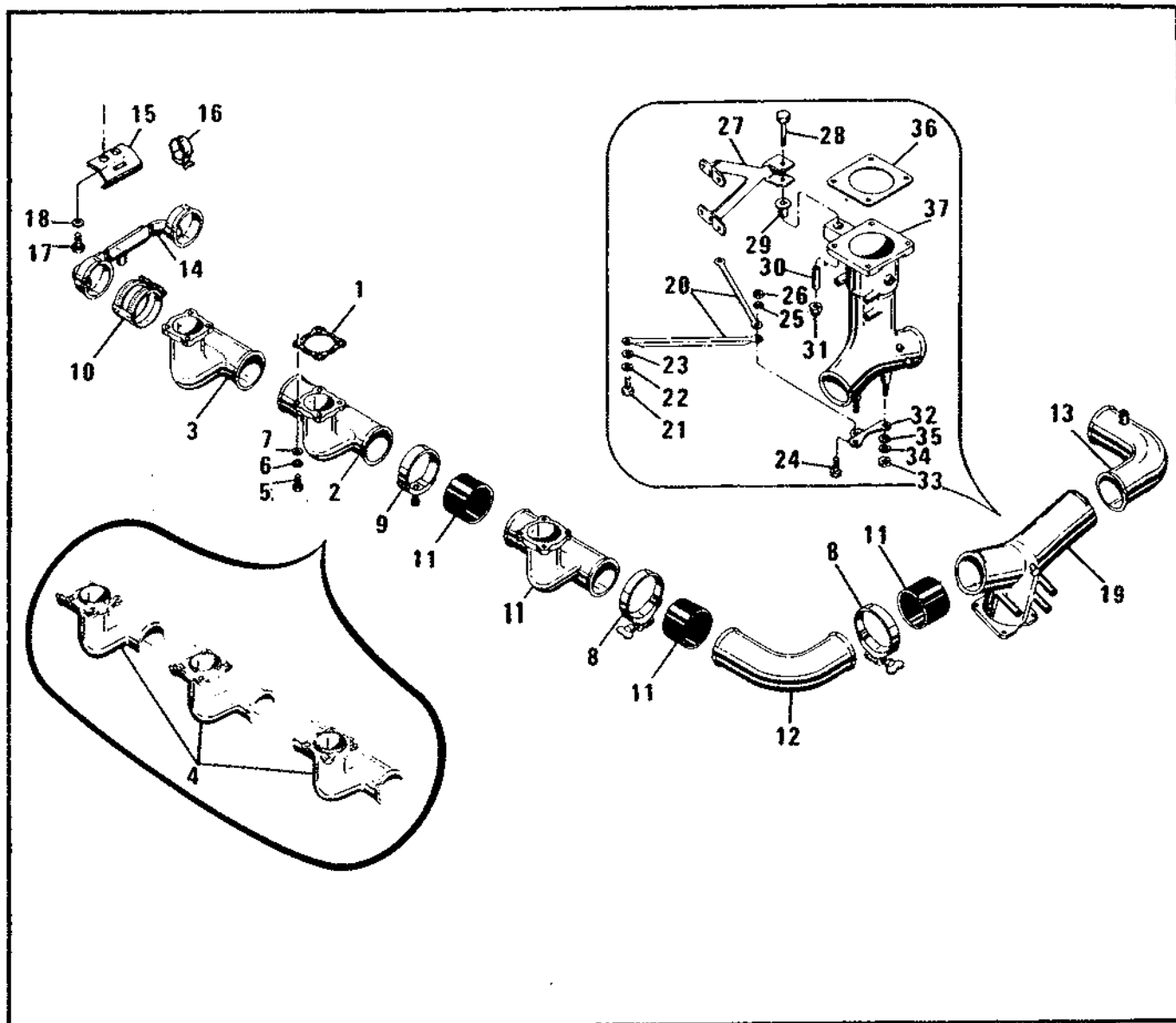


FIGURE 56 - INDUCTION SYSTEM
MODELS 10-470-F,S

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																			
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V				
56-1	536413	&	Gasket, Intake Manifold				6										6						
-2	629138		Tube Assy, Intake Manifold, No. 1, 2, 3, 4, 5				5																
-3	629325		Tube Assembly, Intake Manifold, No. 6				1																
-4	629138		Tube Assembly, Intake Manifold														6						
ATTACHING PARTS																							
-5	24835		Bolt, 1/4 x 7/8 Inch Long				24										24						
-6	MS35338-44		Washer, Lock				24										24						
-7	20522		Washer, Plain				24										24						
* * * *																							
-8	631972		Clamp, Hose				8										8						
-9	36151L		Clamp, Hose				8										8						
-10	539487		Clamp Assembly, Hose				2										2						
-11	639660-13	&	Hose, Intake Manifold				10										10						
-12	535681		Tube, Elbow, Left Side				1																

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V	
56-12	627011	Tube, Elbow, Left Side																1	
-13	627820	Tube, Elbow, Right Side				1												1	
-13	629595	Tube, Elbow, Right Side																	
-14	630628	Tube Assembly, Balance				1												1	
-14	630627	Tube Assembly, Balance																1	
-15	630296	Bracket, Balance Tube				1												1	
-16	AN737TW26	Clamp, Balance Tube				1												1	
ATTACHING PARTS																			
-17	530346	Screw, Hex Head, 5/16 x 7/8 Inch Long				2												4	
-17	537961	Screw, 5/16 - 18 x 1 Inch Long																	
-18	13XX202B	Washer, Lock				2												4	
-18	501868	Washer, Tab																	
* * * *																			
-19	***	Throttle Assembly, Air (See Figure 61)				rf												2	
-20	627681	Bracket, Crankcase-to-air throttle																	
ATTACHING PARTS																			
-21	537750	Bolt, 5/16 - 18 x 1-1/8 Inch Long																2	
-22	13XX202B	Washer, Lock																2	
-23	2473	Washer, Plain																2	
-24	535666	Screw, Hex Head, 5/16 x 5/8 Inch Long																1	
-25	MS35338-45	Washer, Lock																1	
-26	2439	Nut, Hex																1	
* * * *																			
-27	630474	Bracket Assembly, Air Throttle																1	
-28	537728	Bolt, 1/4 - 28 x 25/32 Inch Long																1	
-29	629353	Bushing, Air Throttle Support																2	
-30	629354	Sleeve, Air Throttle Support																1	
-31	22661	Nut, Self-locking																1	
-32	627836	Bracket, Air Throttle Support, Lower																1	
ATTACHING PARTS																			
-33	2437	Nut, Hex																2	
-34	MS35338-44	Washer, Lock																2	
-35	20522	Washer, Plain																2	
* * * *																			
-36	627368	& Gasket, Air Throttle																1	
-37	***	Throttle Assembly, Air (See Figure 65)																rf	

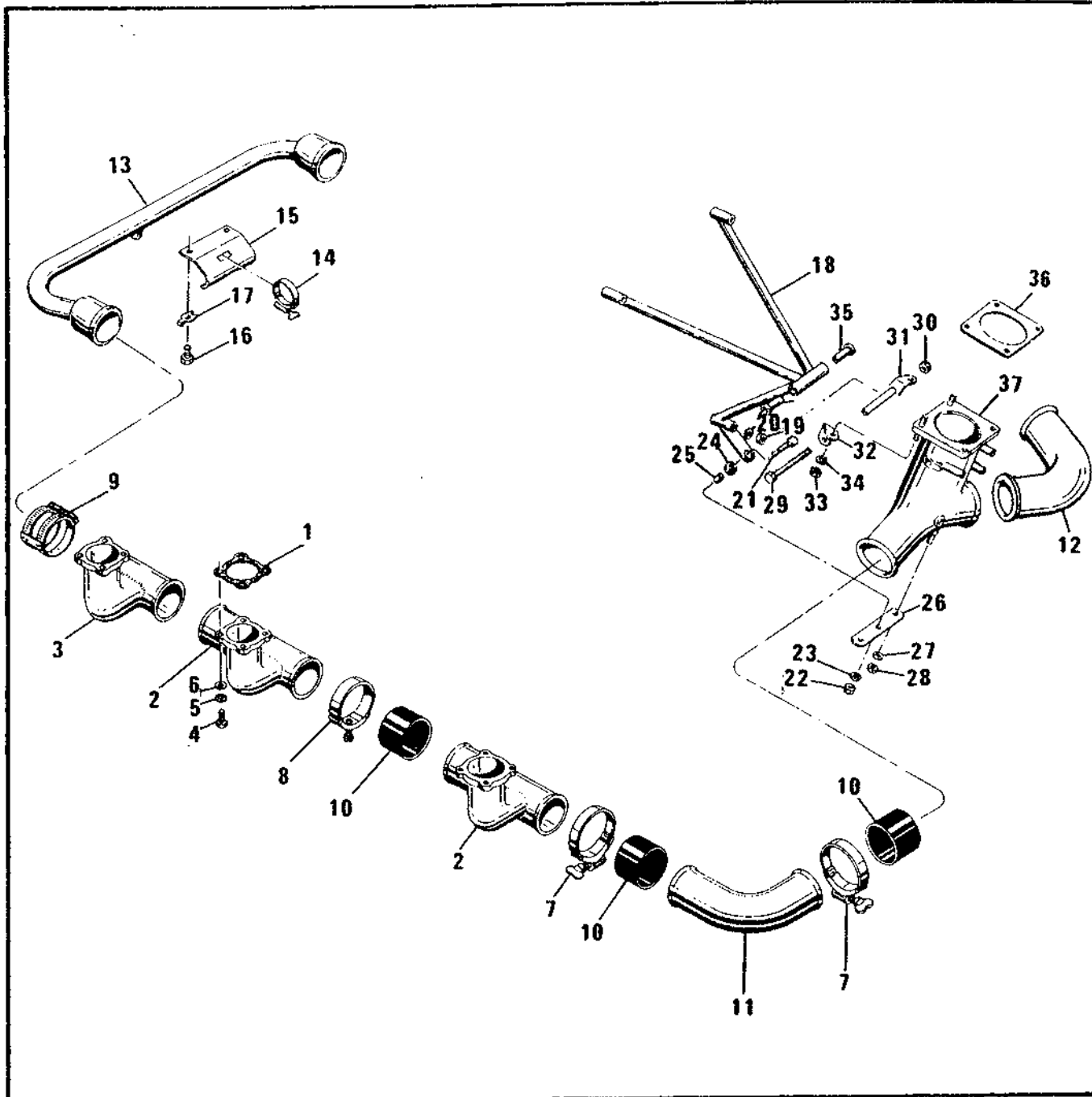


FIGURE 57 - INDUCTION SYSTEM
MODEL IO-470-M

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
57-1	536413	&	Gasket, Intake Manifold													6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

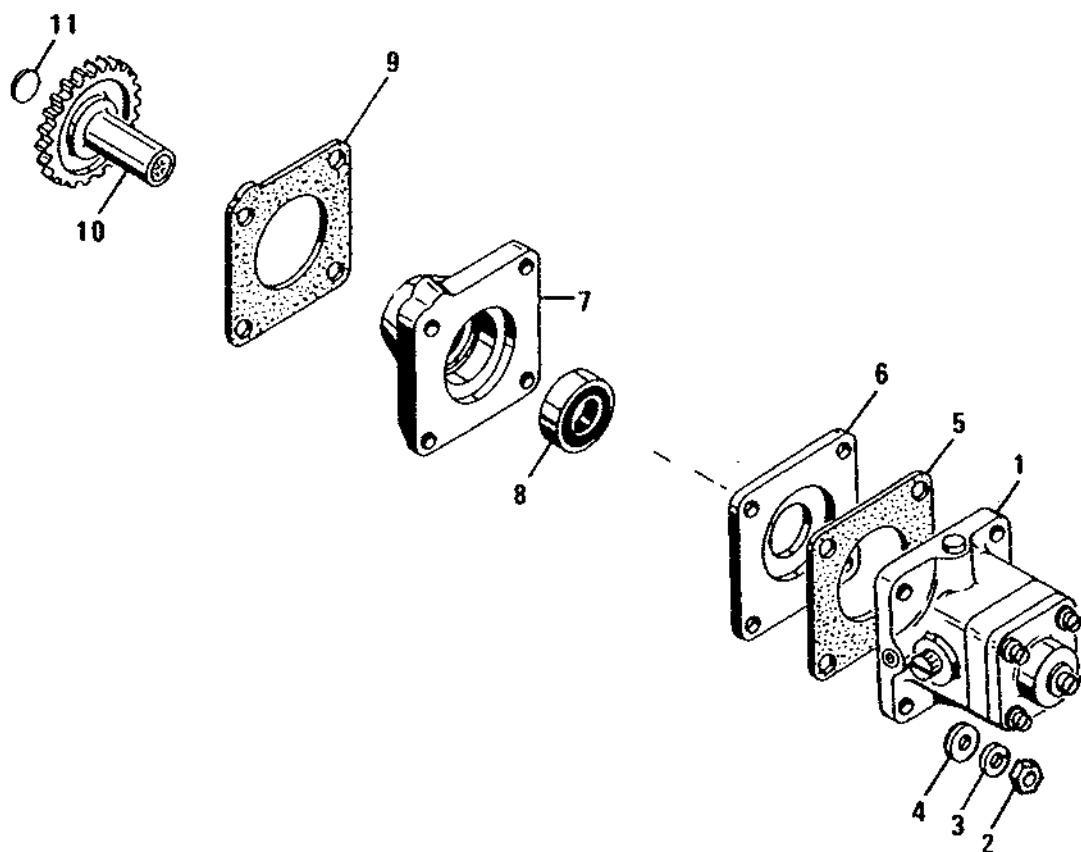


FIGURE 58 - FUEL PUMP ASSEMBLY (OLD STYLE)
MODELS O-470-B,E,G,M,P

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY											
			A	B	E	G	J	K	L	M	P	R		
58-1	626845	① Pump Assembly, Fuel (Romec No. RG15980)	1	1	1					1	1			
		ATTACHING PARTS												
-2	2439	Nut, Plain Hex	4	4	4					4	4			
-3	MS35338-45	Washer, Lock	4	4	4					4	4			
-4	2473	Washer, Plain	4	4	4					4	4			
		* * * *												
-5	MS9137-01	Gasket, Fuel Pump	2	2	2					2	2			
-6	537682	Insulator, Fuel Pump	1	1	1					1	1			
-7	627518	Adapter Assembly, Fuel Pump	1		1						1			
-7	534987	Adapter Assembly, Fuel Pump		1						1				
-8	534956	& . Oil Seal	1	1	1					1	1			
-9	534941	& Gasket, Fuel Pump Adapter	1	1	1					1	1			
-10	534995	Gear Assembly, Fuel Pump Drive	1	1	1					1	1			
-11	539634	. Plug	1	1	1					1	1			

NOTE:

① This pump no longer available. For replacement order 640643-5 and EQ6537. See Figure 59.

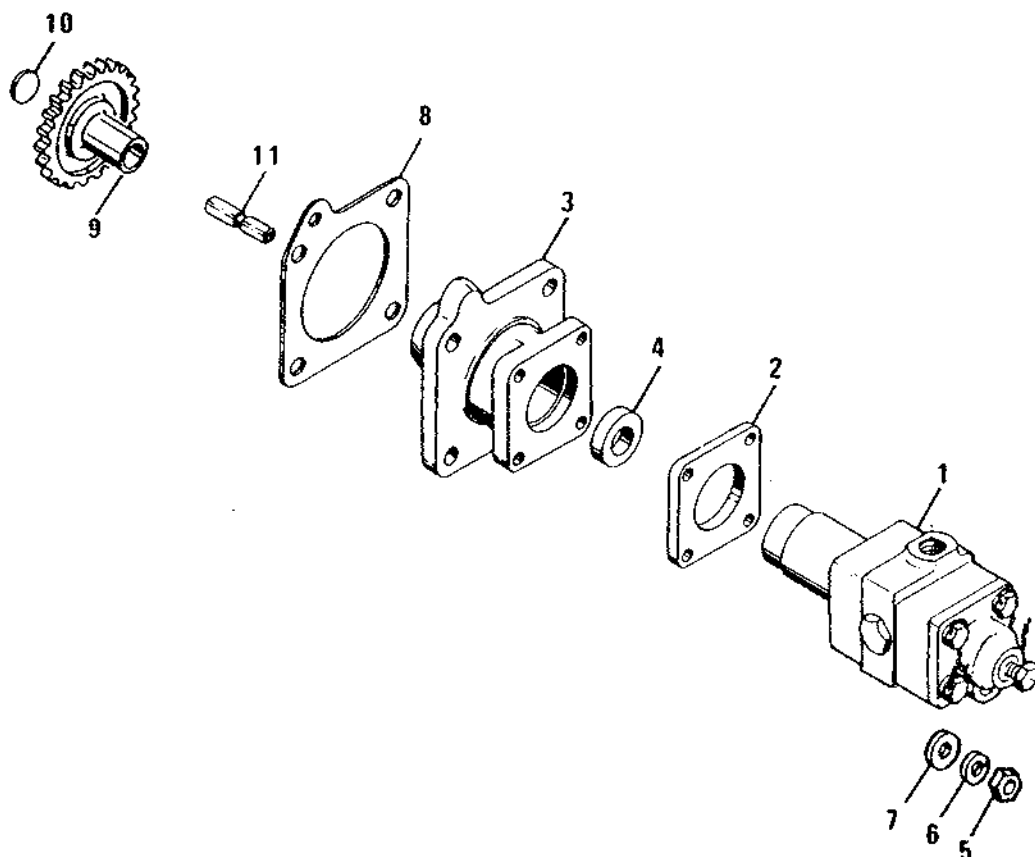


FIGURE 59 - FUEL PUMP ASSEMBLY (NEW STYLE)
MODELS O-470-B, E, G, M, P

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			A	B	E	G	J	K	L	M	P	R	S	U				
59-1	640643-5	Pump Assembly, Fuel	1	1	1					1	1							
-2	632816	. Insulator, Fuel Pump	1	1	1					1	1							
-3	642515	. Adapter Assembly, Fuel Pump	1	1	1					1	1							
-4	628178	. . Seal, Oil	1	1	1					1	1							
ATTACHING PARTS																		
-5	2439	Nut	4	4	4					4	4							
-6	MS35338-45	Washer, Lock	4	4	4					4	4							
-7	2473	Washer, Plain	4	4	4					4	4							
* * * *																		
	EQ6537	Kit, Fuel Pump Assembly	1	1	1					1	1							
-8	534941	. Gasket, Fuel Pump Adapter	1	1	1					1	1							
-9	631684	. Gear Assembly, Fuel Pump	1	1	1					1	1							
-10	539634	. . Plug	1	1	1					1	1							
-11	631683	. Coupling	1	1	1					1	1							

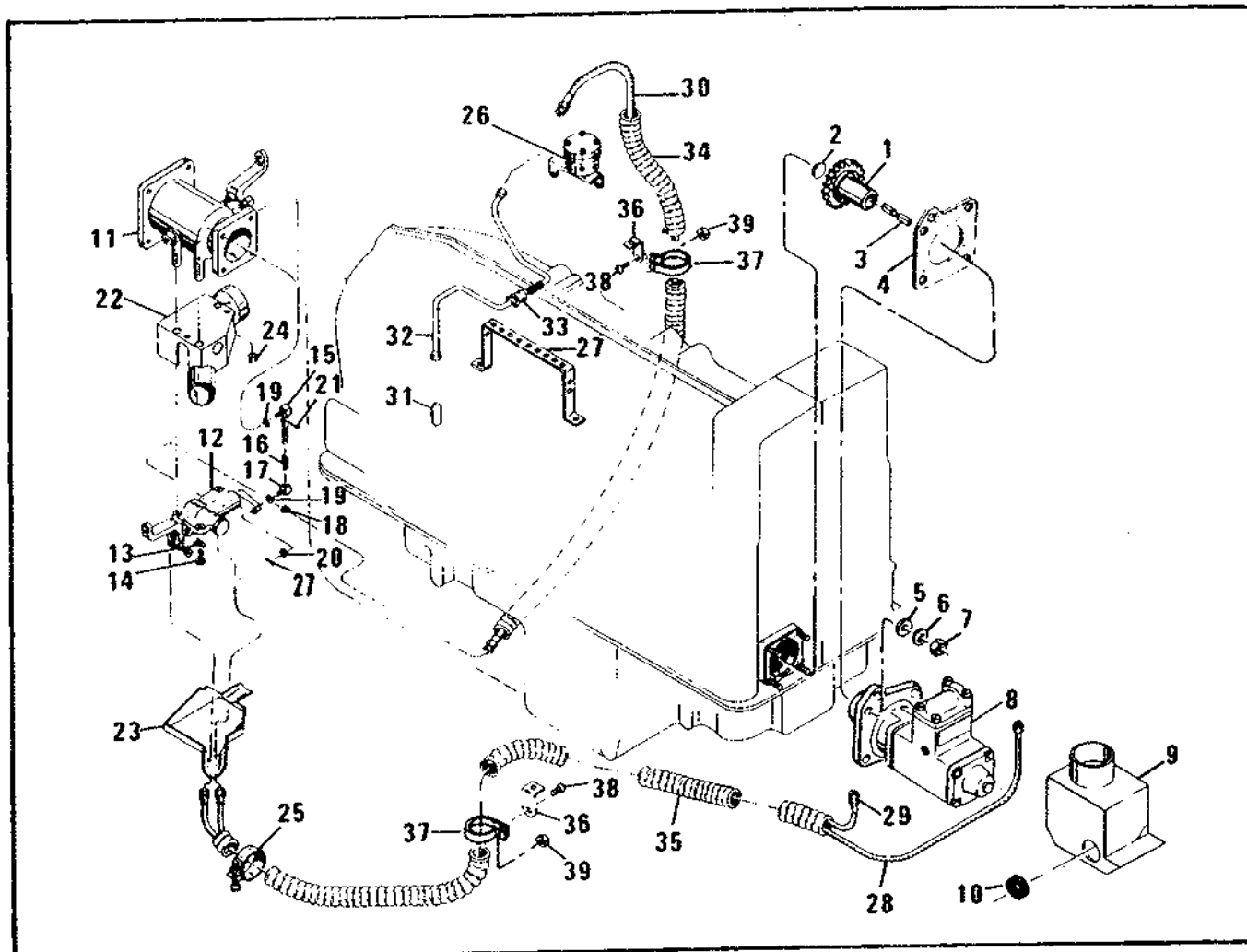


FIGURE 60 - FUEL INJECTION SYSTEM
MODELS IO-470-C,H,J

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY																	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
60-1	631684	① Gear Assembly, Fuel Pump Drive	1								1	1								
-2	539634	① Plug, Fuel Pump Gear	1								1	1								
-3	631683	Coupling, Drive	1								1	1								
-4	534941	Gasket, Fuel Pump-to-Crankcase	1								1	1								
-5	2473	Washer, Plain	4								4	4								
-6	MS35338-45	Washer, Lock	4								4	4								
-7	2439	Nut, Plain	4								4	4								
	639246A3	Fuel Injection Assembly, Complete	1								1									
	639248A3	Fuel Injection Assembly, Complete	1								1									
-8	638154-9A1	① Fuel Pump and Vapor Separator Assembly	1								1	1								
		* * * *																		
-9	631764	Shroud Assembly, Fuel Pump	1								1	1								
-10	626879-1	Grommet, Fuel Pump Shroud	4								4	4								
	626836A1	Throttle and Control Assembly	1								1									
	625487A1	Throttle and Control Assembly	1								1									
-11	626791A1	Throttle and Lever Assembly	1								1									
-11	625259A1	Throttle and Lever Assembly (for detail parts see Figure 68)	1								1									
-12	625219-2A1	Control Assembly, Complete	1								1									

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																	
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
60-12	625219-1A1		Control Assembly, Complete								1										
			ATTACHING PARTS																		
-13	501867		Washer, Tab	3						3	3										
-14	537629		Screw	3						3	3										
			* * * *																		
	632558A1		Link Rod Assembly	1						1	1										
	625539A1	②	Link Rod Assembly	1						1	1										
-15	632558		Rod and Link Assembly	1						1	1										
-15	625539	②	Rod and Link Assembly	1						1	1										
-16	626634		Spring, Compression	1						1	1										
-17	632557		Rod End, Special	1						1	1										
-17	625542	②	Rod End, Special	1						1	1										
-18	MS21044N3		Nut, Elastic Stop	1						1	1										
-19	625327-2		Washer, Wave	2						2	2										
-20	537690		Washer, Plain	2						2	2										
-21	2500		Pin, Cotter	2						2	2										
-22	627076		Shroud Assembly, Bottom	1						1	1										
-23	627094		Shroud Assembly, Cover	1						1	1										
-24	626891		Grommet, Rubber	2						2	2										
-25	24609		Clamp, Metering Unit Shroud	1						1	1										
-26	631427A15		Valve Assembly, Fuel Manifold (for detail parts see Figure 72)	1						1	1										
-27	626486		Bracket, Fuel Discharge Tubes	2						2	2										
-28	MS28741-4-0340		Hose Assembly, Flexible	1						1	1										
-29	MS28741-4-0266		Hose Assembly, Flexible	1						1	1										
-30	MS28741-4-0300		Hose Assembly, Flexible	1						1	1										
-31	627335D12	③	Nozzle Assembly, Fuel Injection	6						6	6										
-32	628154		Tube Assembly, Fuel Discharge, No. 1 & 6	2						2											
-32	638440		Tube Assembly, Fuel Discharge No. 1 & 6								2										
-32	628153		Tube Assembly, Fuel Discharge, No. 2 & 5	2						2											
-32	628439		Tube Assembly, Fuel Discharge, No. 3 & 4								2										
-32	628152		Tube Assembly, Fuel Discharge, No. 3 & 4	2						2											
-32	628441		Tube Assembly, Fuel Discharge, No. 3 & 4								2										
-33	626577-2		Clamp, Fuel Discharge Tubes	6						6	6										
-34	539819-24.00		Duct, Flexible, 1 Inch ID x 24 Inch Long	1						1	1										
-35	532313-27.00		Duct, Flexible, 1-1/2 Inch ID x 27 Inch Long	1						1	1										
-36	626524		Bracket, Tube	2						2	2										
-37	MS21333-81		Clamp	2						2	2										
			ATTACHING PARTS																		
-38	AN3-4A		Bolt	2						2	2										
-39	MS20365-1032C		Nut, Self Locking	2						2	2										

NOTES:

- ① See Figure 71 for old style fuel pump and associated parts.
- ② This link rod assembly is to be used, only with levers with no bushings. See Figures 69 and 75.
- ③ Check old nozzle on engine for nozzle size, stamped on hex, and order the complete nozzle part number (ie 627335D12C).

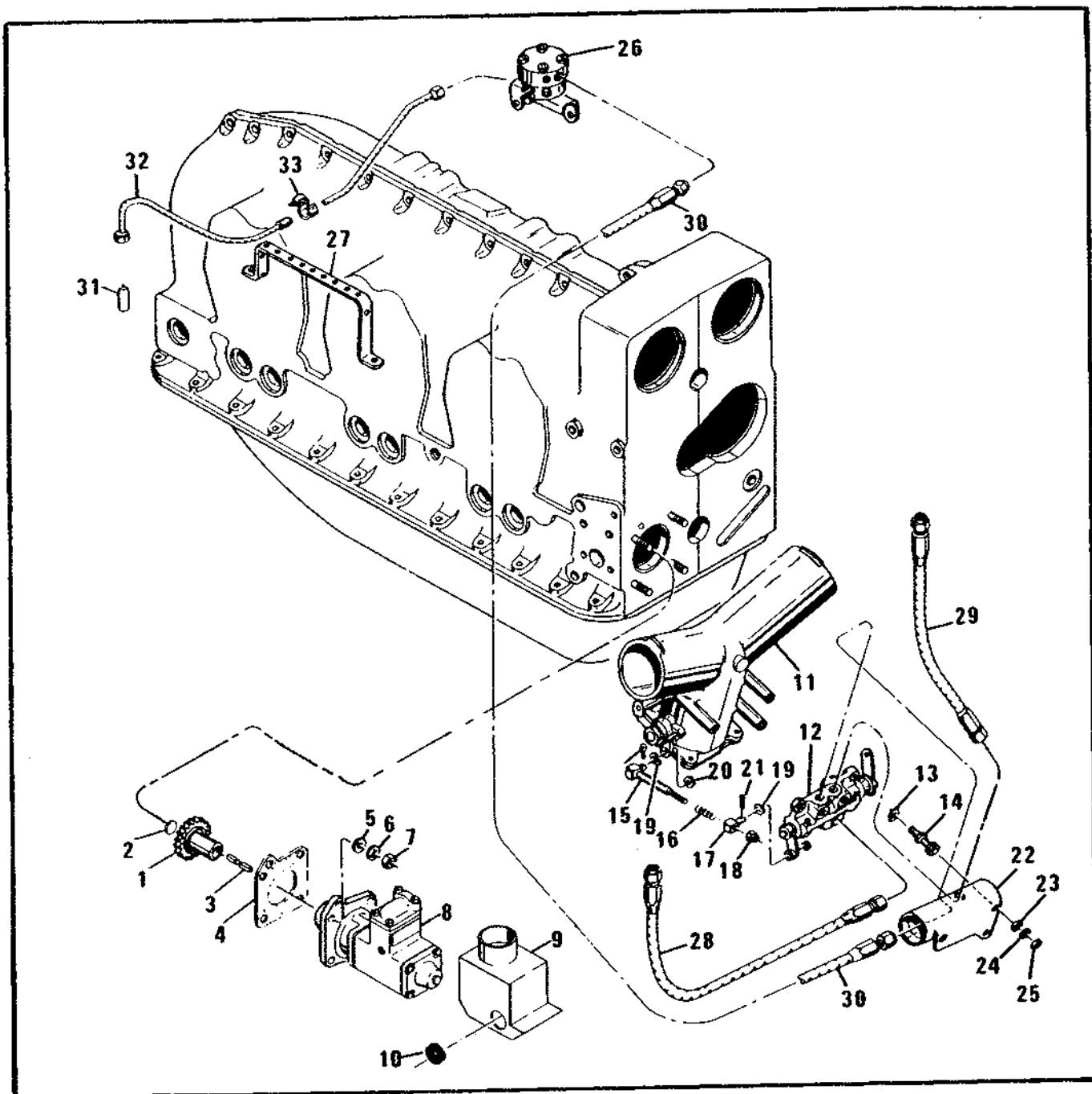


FIGURE 61 - FUEL INJECTION SYSTEM
MODEL IO-470-F

FIG. INDEX	PART NUMBER	1	2	3	4	5	DESCRIPTION	QUANTITY PER ASSEMBLY																				
								C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V					
61-1	631684	①					Gear Assembly, Fuel Pump				1																	
-2	539634	①					. Plug, Fuel Pump Gear				1																	
-3	631683						Coupling, Drive				1																	
-4	534941						Gasket, Fuel Pump-to-Crankcase				1																	
-5	2473						Washer, Plain				4																	
-6	MS35338-45						Washer, Lock				4																	
-7	2439						Nut, Plain				4																	
	640107A3						Fuel Injection Assembly, Complete				1																	
-8	638154-9A8	①					. Fuel Pump & Vapor Separator Assembly				1																	

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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NOTES:

① See Figure 71 for old style fuel pump and associated parts.

② If replacing old style throttle body which has cast mount legs, it will be necessary to order, in addition to new throttle assembly, a 639410 bracket, a 639411 bracket and 4 each 530346 bolts.

③ This link rod assembly is to be used only with levers with no bushings. See Figures 69 and 75.

④ Check old nozzle on engine for nozzle size, stamped on hex, and order the complete nozzle part number (ie 627335D12C).

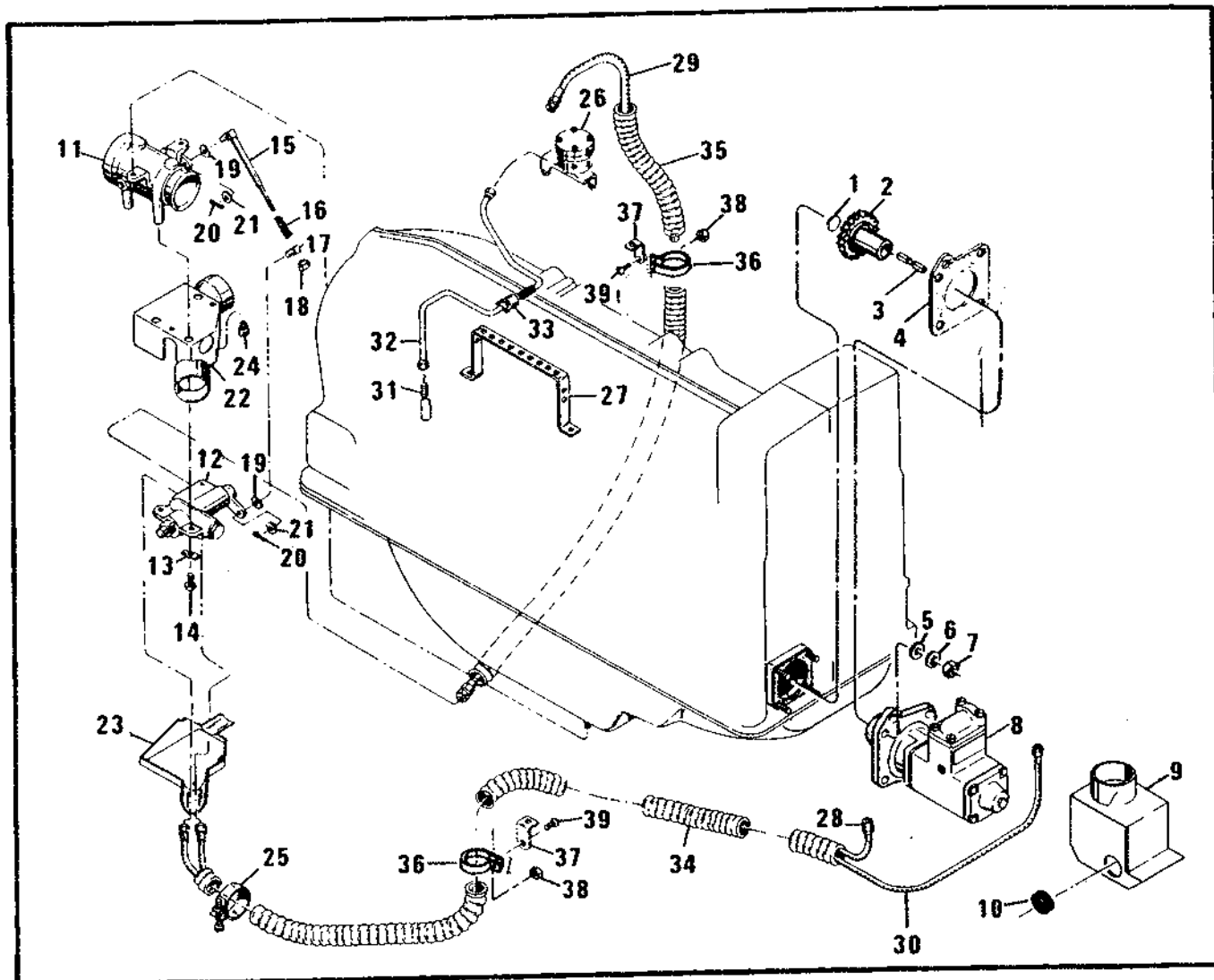


FIGURE 62 - FUEL INJECTION SYSTEM
MODELS 10-470-K,N

				QUANTITY PER ASSEMBLY																	
FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
62-1	631684	①	Gear Assembly, Fuel Pump								1			1							
-2	539634	①	. Plug, Fuel Pump Gear								1			1							
-3	631683		Coupling, Drive Gear								1			1							
-4	534941		Gasket, Fuel Pump								1			1							
-5	2473		Washer, Plain								4			4							
-6	MS35338-45		Washer, Lock								4			4							
-7	2439		Nut, Plain								4			4							
	639234A3		Fuel Injection Assembly, Complete								1										
	639247A3		Fuel Injection Assembly, Complete											1							
-8	638154-12A1	①	. Fuel Pump & Vapor Separator Assembly								1				1						
-8	638154-9A1	①	. Fuel Pump & Vapor Separator Assembly																		
			* * * *																		
-9	631764		. . Shroud Assembly, Fuel Pump								1			1							
-10	626879-1		. . Grommet, Fuel Pump Shroud								3			3							
	628428A1		. Throttle and Control Assembly								1										
	628776A1		. Throttle and Control Assembly											1							
-11	628429A1		. . Throttle and Lever Assembly								1										
-11	628775A1		. . Throttle and Lever Assembly											1							
			(for detail parts see Figure 68)																		

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																			
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V				
62-12	625219-1A2		Control Assembly, Complete								1												
-12	625219-2A1		Control Assembly, Complete													1							
ATTACHING PARTS																							
-13	501867		Washer, Tab								3					3							
-14	537629		Screw, 1/4 - 20 x 21/32 Inch Long								3					3							
* * * *																							
	632558A1		Link Rod Assembly								1					1							
	625539A1	②	Link Rod Assembly								1					1							
-15	632558		Rod and Link Assembly								1					1							
-15	625539	②	Rod and Link Assembly								1					1							
-16	626634		Spring, Compression								1					1							
-17	632557		Rod End, Special								1					1							
-17	625542	②	Rod End, Special								1					1							
-18	MS21044N3		Nut, Elastic Stop								1					1							
-19	625327-2		Washer, Wave								2					2							
-20	537690		Washer, Plain								2					2							
-21	2500		Pin, Cotter								2					2							
-22	627076		Shroud Assembly, Bottom								1					1							
-23	627094		Shroud Assembly, Cover								1					1							
-24	626891		Grommet, Rubber								2					2							
-25	24609		Clamp, Metering Unit Shroud								1					1							
-26	631427A19		Valve Assembly, Fuel Manifold								1												
-26	631427A15		Valve Assembly, Fuel Manifold (for detail parts see Figure 72)													1							
-27	626486		Bracket, Fuel Discharge Tube								2					2							
-28	MS28741-4-0266		Hose Assembly, Flexible, 1/4 ID x 26-3/4 Inch Long								1					1							
-29	MS28741-4-0340		Hose Assembly, Flexible, 1/4 ID x 34 Inch Long								1					1							
-30	MS28741-4-0300		Hose Assembly, Flexible, 1/4 ID x 30 Inch Long								1					1							
-31	627335D12	③	Nozzle Assembly, Fuel Injection								6					6							
-32	628440		Tube Assembly, Fuel Discharge No. 1 & 6								2												
-32	628154		Tube Assembly, Fuel Discharge No. 1 & 6													2							
-32	628439		Tube Assembly, Fuel Discharge No. 2 & 5								2												
-32	628153		Tube Assembly, Fuel Discharge No. 2 & 5													2							
-32	628441		Tube Assembly, Fuel Discharge No. 3 & 4								2												
-32	628152		Tube Assembly, Fuel Discharge No. 3 & 4													2							
-33	626577-2		Clamp, Fuel Discharge Tubes								6					6							
-34	532313-27.00		Duct, Flexible, 1-1/2 ID x 27 Inch Long								1					1							
-35	539819-24.00		Duct, Flexible, 1 Inch ID x 24 Inch Long								1					1							
-36	MS21333-81		Clamp								2					2							
-37	626524		Bracket, Tube								2					2							
ATTACHING PARTS																							
-38	MS20365-1032C		Nut								2					2							
-39	AN3-4A		Screw								2					2							

NOTES:

① See Figure 71 for old style fuel pump and associated parts.

② This link rod assembly is to be used only with levers with no bushings. See Figures 69 and 75.

③ Check old nozzle on engine for nozzle size, stamped on hex, and order the complete nozzle part number (ie 627335D12C).

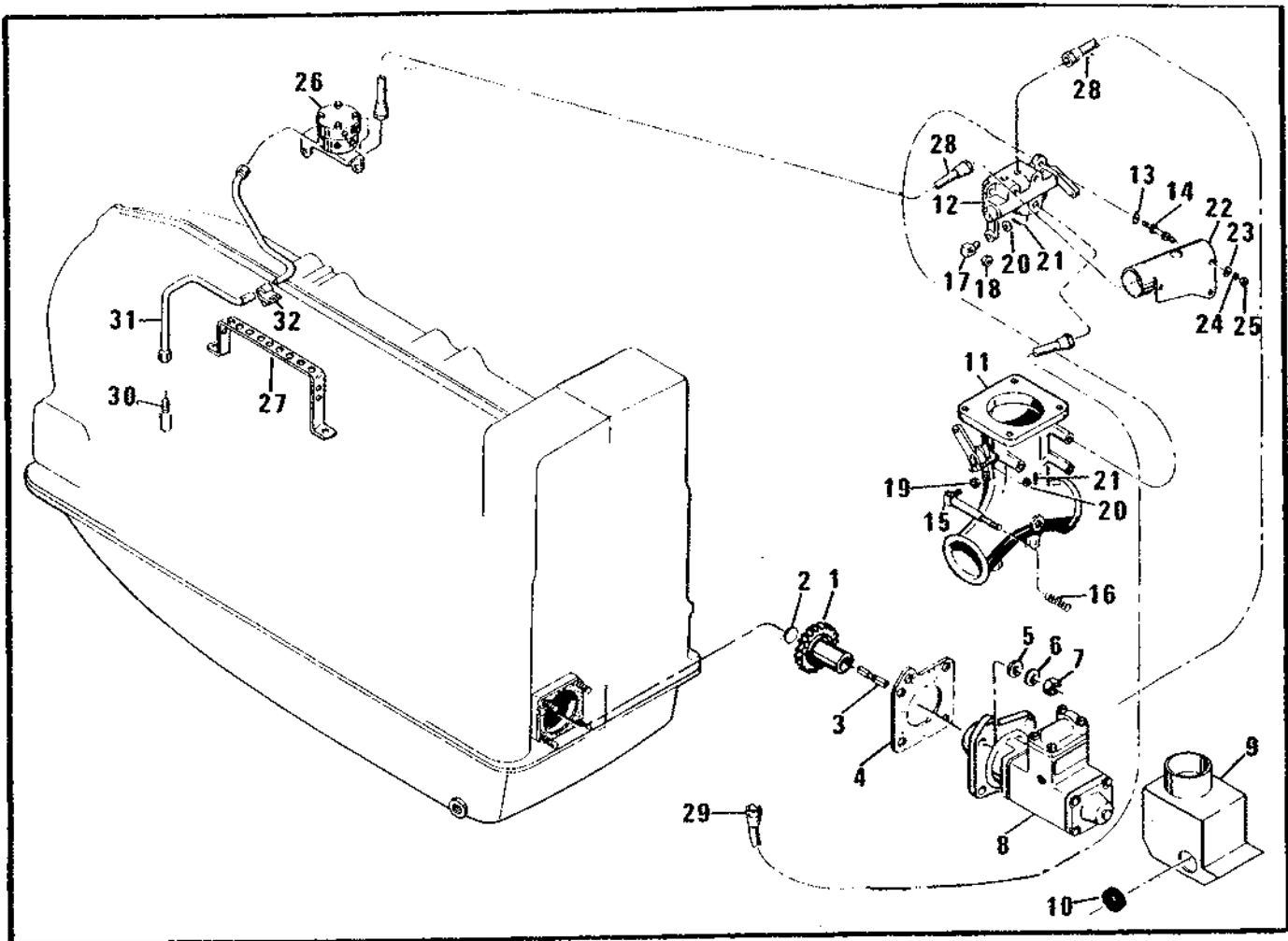


FIGURE 63 - FUEL INJECTION SYSTEM
MODEL IO-470-L

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																	
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
63-1	631684	①	Gear Assembly, Fuel Pump Drive										1								
-2	539634	①	Plug, Fuel Pump Gear										1								
-3	631683		Coupling, Drive										1								
-4	534941		Gasket, Fuel Pump										1								
-5	2473		Washer, Plain										4								
-6	MS35338-45		Washer, Lock										4								
-7	2439		Nut, Plain										4								
	639255A4		Fuel Injection Assembly, Complete										1								
-8	638154-9A12	①	Fuel Pump & Vapor Separator Assembly										1								
* * * *																					
-9	631764		Shroud Assembly										1								
-10	626879-1		Grommet, Fuel Pump Shroud										3								
	628744A1		Throttle and Control Assembly										1								
-11	627326A3		Throttle & Lever Assy, (for details see Fig. 68)										1								
-12	625219-2A4		Control Assembly, Complete										1								
ATTACHING PARTS																					
-13	501867		Washer, Tab										3								
-14	630387		Bolt, Special, 1-7/8 Inch Long										3								
* * * *																					
	632558A1		Link Rod Assembly										1								
	625539A1	②	Link Rod Assembly										1								
-15	632558		Rod & Link Assembly										1								
-15	625539	②	Rod & Link Assembly										1								
-16	626634		Spring, Compression										1								
-17	632557		Rod End, Special										1								
-17	625542	②	Rod End, Special										1								
-18	MS21044N3		Nut, Elastic Stop										1								
-19	625327-2		Washer, Wave										2								
-20	537690		Washer, Plain										2								
-21	2500		Pin, Cotter										2								
-22	632859		Shroud, Metering Unit										1								
ATTACHING PARTS																					
-23	20522		Washer, Plain										3								
-24	MS35338-44		Washer, Lock										3								
-25	2437		Nut, Plain										3								
* * * *																					
-26	631427-3A2		Valve Assembly, Fuel Manifold (for detail parts see Figure 72)										1								
-27	626486		Bracket, Fuel Discharge Tubes										2								
-28	635158-17.00		Hose Assembly, Flexible, 1/4 ID x 17 Inch Long										2								
-29	MS28741-4-0340		Hose Assembly, Flexible, 1/4 ID x 34 Inch Long										1								
-30	627335D12	③	Nozzle Assembly, Fuel Injection										6								
-31	628154		Tube Assembly, Fuel Discharge No. 1 & 6										2								
-31	628153		Tube Assembly, Fuel Discharge No. 2 & 5										2								
-31	628152		Tube Assembly, Fuel Discharge No. 3 & 4										2								
-32	626577-2		Clamp, Fuel Discharge Tubes										6								

NOTES:

① See Figure 71 for old style fuel pump and associated parts.

② This link rod assembly is to be used only with levers with no bushings. See Figures 69 and 75.

③ Check old nozzle on engine for nozzle size, stamped on hex, and order the complete nozzle part number (ie 627335D12C).

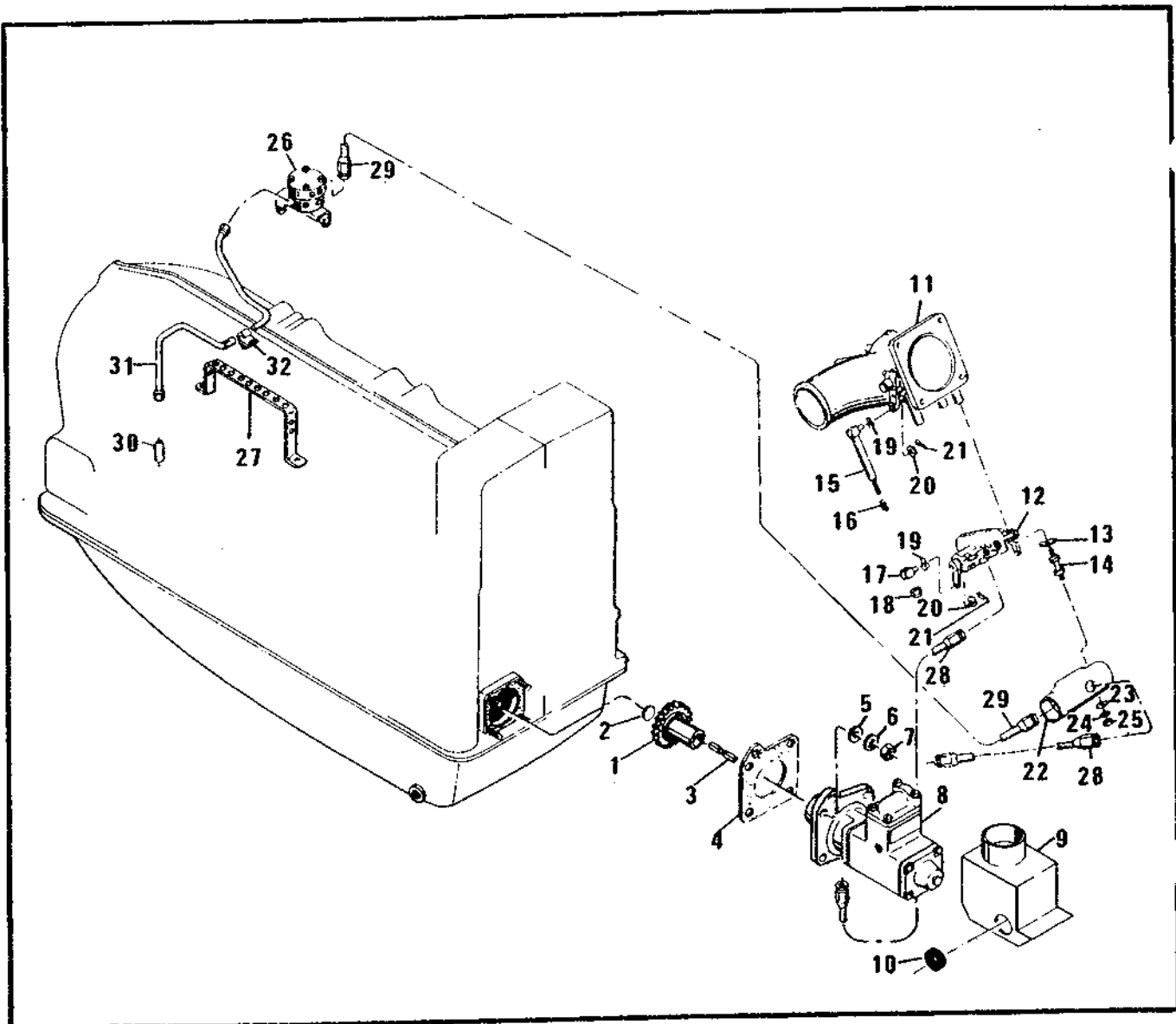


FIGURE 64 - FUEL INJECTION SYSTEM
MODEL 10-470-M

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																	
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
64-1	631684	①	Gear Assembly, Fuel Pump													1					
-2	539634	①	Plug, Fuel Pump Gear													1					
-3	631683		Coupling, Drive Gear													1					
-4	534941		Gasket, Fuel Pump-to-Crankcase													1					
-5	2473		Washer, Plain													4					
-6	MS35338-45		Washer, Lock													4					
-7	2439		Nut, Plain													4					
	639260A3		Fuel Injection Assembly, Complete													1					
-8	638154-9A4	①	Fuel Pump & Vapor Separator Assembly													1					
			* * * *																		
-9	631764		Shroud Assembly, Fuel Pump													1					
-10	626879-1		Grommet, Fuel Pump-to-Shroud													3					
	628891A1		Throttle and Control Assembly													1					
-11	628861A1		Throttle and Lever Assembly													1					
			(for detail parts see Figure 68)																		
-12	625219-2A9		Control Assembly, Complete													1					
			ATTACHING PARTS																		
-13	501867		Washer, Tab													3					
-14	630387		Bolt, Special, 1-7/8 Inch Long													3					
			* * * *																		
	632558A1		Link Rod Assembly													1					
	625539A1	②	Link Rod Assembly													1					
-15	632558		Rod & Link Assembly													1					
-15	625539	②	Rod & Link Assembly													1					
-16	626634		Spring, Compression													1					
-17	632557		Rod End, Special													1					
-17	625542	②	Rod End, Special													1					
-18	MS21044N3		Nut, Elastic Stop													1					
-19	625327-2		Washer, Wave													2					
-20	537690		Washer, Plain													2					
-21	2500		Pin, Cotter													2					
	632859A1		Shroud Assembly, Metering Unit													1					
-22	632859		Shroud, Metering Unit													1					
			ATTACHING PARTS																		
-23	20522		Washer, Plain													3					
-24	MS35338-44		Washer, Lock													3					
-25	2437		Nut, Hex													3					
			* * * *																		
-26	631427A16		Valve Assembly, Fuel Manifold													1					
			(for detail parts see Figure 72)																		
-27	626486		Bracket, Fuel Discharge Tubes													2					
-28	635158-16.00		Hose Assembly, Flexible, 1/4 ID x 16 Inch Long													2					
-29	MS28741-4-0370		Hose Assembly, Flexible, 1/4 ID x 37 Inch Long													1					
-30	62733D12	③	Nozzle Assembly, Fuel Injector													6					
-31	628154		Tube Assembly, Fuel Discharge, No. 1 & 6													2					
-31	628153		Tube Assembly, Fuel Discharge, No. 2 & 5													2					
-31	628152		Tube Assembly, Fuel Discharge, No. 3 & 4													2					
-32	626577-2		Clamp, Fuel Discharge Tubes													6					

NOTES:

- ① See Figure 71 for old style fuel pump and associated parts.
- ② This link rod assembly is to be used only with levers with no bushings. See Figures 69 and 75.
- ③ Check old nozzle on engine for nozzle size, stamped on hex, and order the complete nozzle part number (ie 627335D12C).

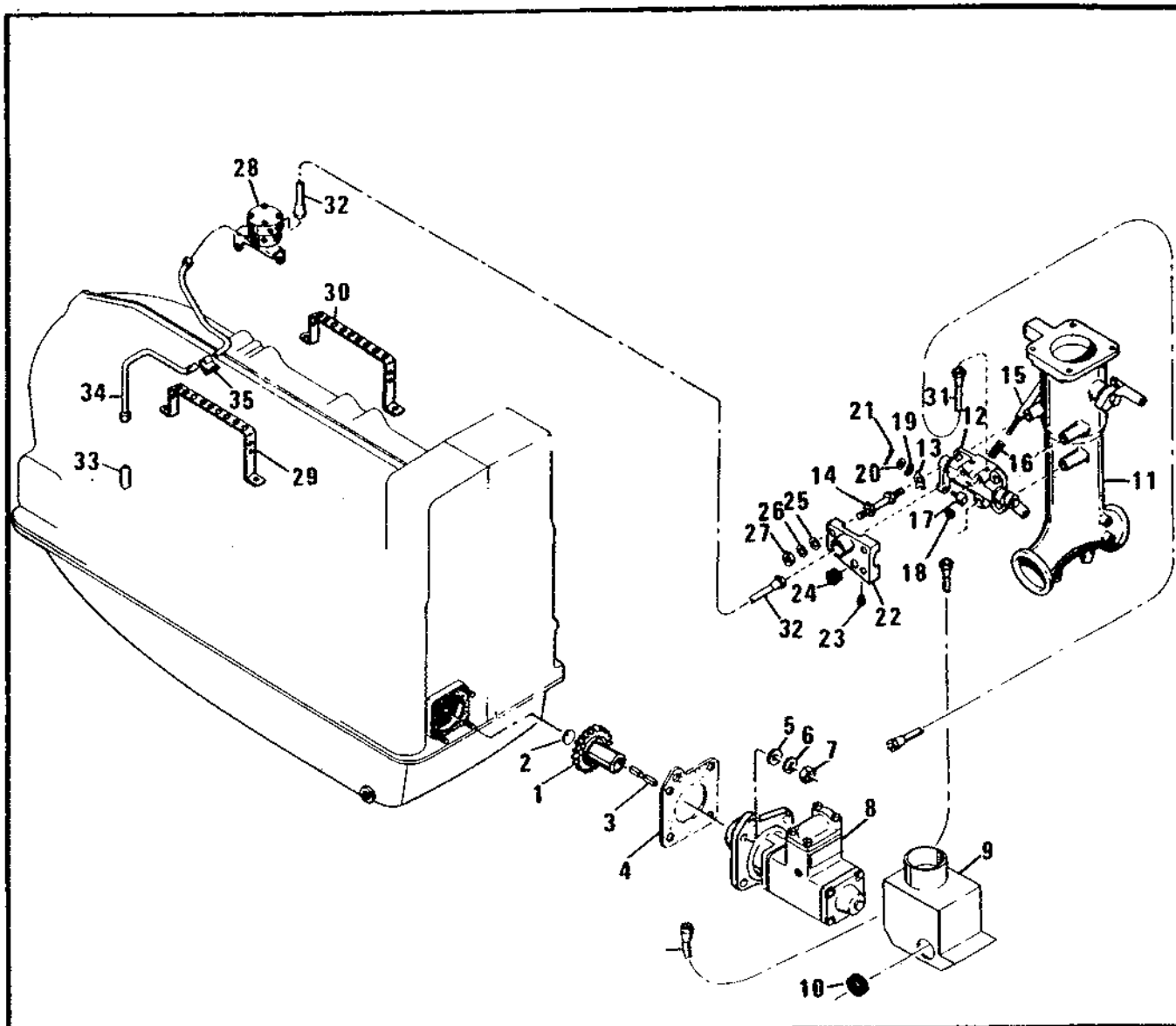


FIGURE 65 - FUEL INJECTION SYSTEM
MODEL IO-470-S

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
65-1	631684	① Gear Assembly, Fuel Pump Drive																1
-2	539634	① . Plug, Fuel Pump Gear																1
-3	631683	Coupling, Drive Gear																1
-4	534941	Gasket, Fuel Pump-to-Crankcase																1
-5	2473	Washer, Plain																4
-6	MS35338-45	Washer, Lock																4
-7	2439	Nut, Plain																4
-8	639264A2	Fuel Injection Assembly Complete																1
-8	638154-9A6	① . Fuel Pump & Vapor Separator Assembly																1
* * * * *																		
-9	631764	. . Shroud Assembly, Fuel Pump																1
-10	626879-1	. . Grommet, Fuel Pump Shroud																1
	629399A9	. Throttle and Control Assembly																1
-11	629397A1	. Throttle and Lever Assembly																1
(for details see Figure 68)																		

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																			
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V				
65-12	629703-2A4		Control Assembly, Complete																			1	
			ATTACHING PARTS																				
-13	501867		Washer, Tab																			3	
-14	630387		Bolt, Special, 1-7/8 Inch Long																			3	
			* * * *																				
	642283A1		Link Rod Assembly																			1	
	629364A1	②	Link Rod Assembly																			1	
-15	642283		Rod and Link Assembly																			1	
-15	629364	②	Rod and Link Assembly																			1	
-16	626634		Spring, Compression																			1	
-17	632557-1		Rod End, Special																			1	
-17	629330	②	Rod End, Special																			1	
-18	MS21044N3		Nut, Elastic Shop																			1	
-19	625327-2		Washer, Wave																			2	
-20	537690		Washer, Plain																			2	
-21	2500		Pin, Cotter																			2	
	629338A1		Shroud Assembly, Metering Unit Complete																			1	
-22	629338		Shroud, Metering Unit																			1	
-23	626891		Grommet, Rubber																			2	
-24	626879-1		Grommet, Rubber																			1	
			ATTACHING PARTS																				
-25	20522		Washer, Plain																			3	
-26	MS35338-44		Washer, Lock																			3	
-27	2437		Nut, Plain																			3	
			* * * *																				
-28	631427A17		Valve Assembly, Fuel Manifold (for detail parts see Figure 72)																			1	
-29	641701		Bracket, Fuel Discharge Tubes (1-3-5 side)																			1	
-30	628295		Bracket, Fuel Discharge Tubes (2-4-6 side)																			1	
-31	635158-18.00		Hose Assembly, Flexible, 1/4 ID x 18 Inch Long																			2	
-32	635158-32.00		Hose Assembly, Flexible, 1/4 ID x 32 Inch Long																			1	
-33	627335D12	③	Nozzle Assembly, Fuel Injector																			6	
-34	628154		Tube Assembly, Fuel Discharge No. 1 & 6																			2	
-34	628153		Tube Assembly, Fuel Discharge No. 2 & 5																			2	
-34	628152		Tube Assembly, Fuel Discharge No. 3 & 4																			2	
-35	626577-2		Clamp, Fuel Discharge Tubes																			6	

NOTES:

- ① See Figure 71 for old style fuel pump and associated parts.
- ② This link rod assembly is to be used only with levers with no bushings. See Figures 69 and 75.
- ③ Check old nozzle on engine for nozzle size, stamped on hex, and order the complete nozzle part number (ie 627335D12C).

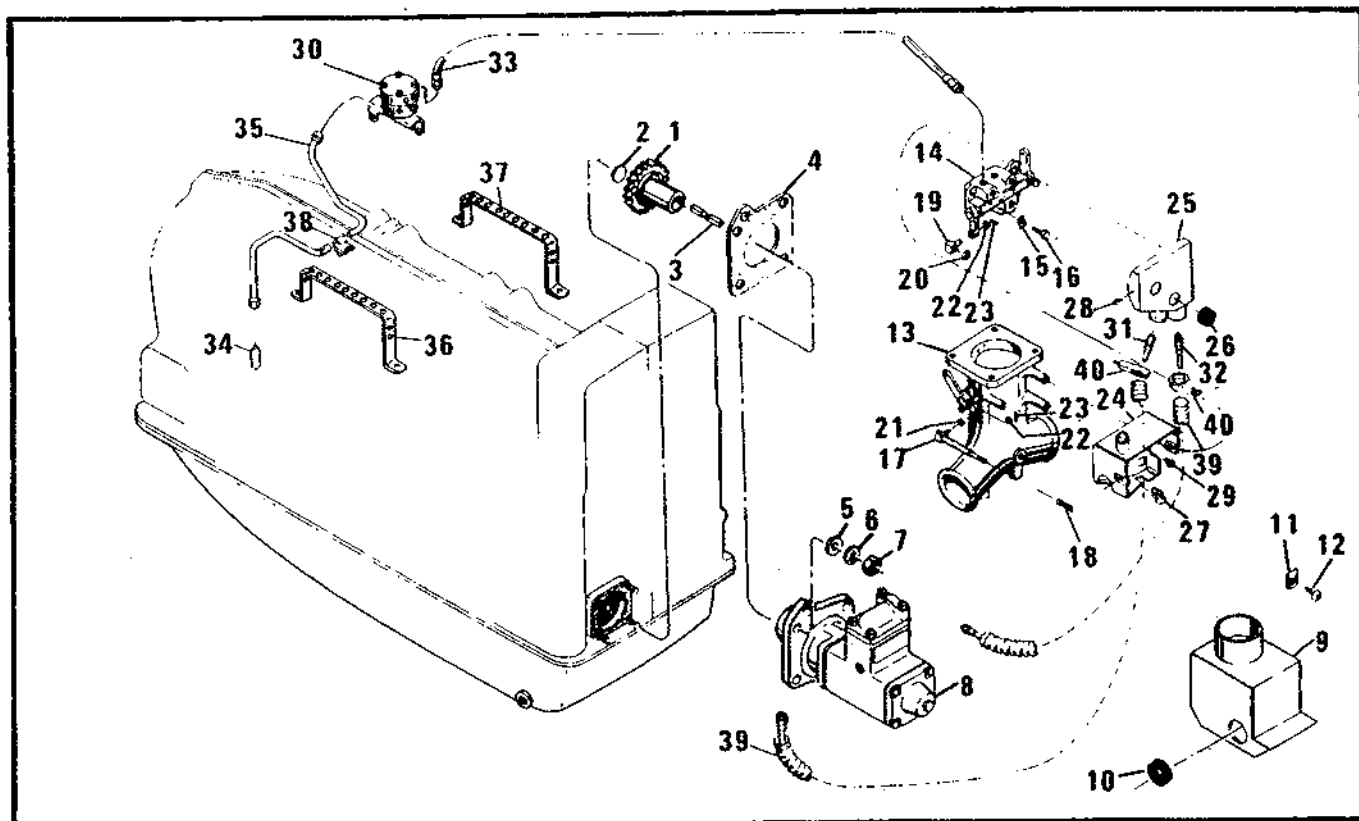


FIGURE 66 - FUEL INJECTION SYSTEM
MODELS IO-470-U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																			
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V				
66-1	631684	①	Gear Assembly, Fuel Pump Drive																	1	1		
-2	539634	①	. Plug, Fuel Pump Gear																	1	1		
-3	631683		Coupling, Fuel Pump																	1	1		
-4	534941		Gasket, Adapter-to-Crankcase																	1			
-4	631685		Gasket, Adapter-to-Crankcase																		1		
-5	2473		Washer, Plain																	4			
-5	530181		Washer, Plain																		2		
-6	MS35338-45		Washer, Lock																	4	2		
-7	2439		Nut, Plain																	4	2		
	639261A3		Fuel Injection Assembly, Complete																	1			
	639185A2		Fuel Injection Assembly, Complete																		1		
-8	638154-9A20	①	. Fuel Pump & Vapor Separator Assembly																	1			
-8	638154-3A2	①	. Fuel Pump & Vapor Separator Assembly																		1		
* * * *																							
-9	631764		. . Shroud Assembly, Fuel Pump																	1			
-9	640027		. . Shroud Assembly, Fuel Pump																		1		
-10	626879-1		. . Grommet, Fuel Pump Shroud																	3	4		
-11	537911		. . Nut, Tinnerman, Type J																	4			
-11	534337		. . Nut, Tinnerman, Type J																		4		
-12	AN526-1024-4		. . Screw, Sheet Metal																	4	4		
	630074A1		. Throttle and Control Assembly																	1			
	632885-2A1		. Throttle and Control Assembly																		1		
-13	630069A1		. . Throttle Assembly																	1			
-13	633143A1		. . Throttle Assembly (for detail parts see Fig. 68)																				
-14	629904-2A1		. . Control Assembly, Complete																	1			

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY															
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V
66-14	632916-2A2		Control Assembly, Complete																1
			ATTACHING PARTS																
-15	501867		Washer, Tab															3	3
-16	537629		Screw, 1/4 - 20 x 2 1/32 Inch Long															3	3
			* * * *																
	632558A1		Link Rod Assembly															1	1
	625539A1	②	Link Rod Assembly															1	1
-17	632558		Rod & Link Assembly															1	1
-17	625539	②	Rod & Link Assembly															1	1
-18	626634		Spring, Compression															1	1
-19	632557		Rod End, Special															1	1
-19	625542	③	Rod End, Special															1	1
-20	MS21044N3		Nut, Elastic Stop															1	1
-21	625327-2		Washer, Wave															2	2
-22	537690		Washer, Plain															2	2
-23	2500		Pin, Cotter															2	2
	627544A1		Shroud Assembly, Metering Unit, Complete															1	1
-24	627544		Shroud Assembly, Bottom															1	1
-25	627545		Shroud Assembly, Cover															1	1
-24	633195		Shroud Assembly, Bottom															1	1
-25	633198		Shroud Assembly, Cover															1	1
-26	626879-1		Grommet															2	2
-27	537911		Nut, Tinnerman, Type J															2	2
-28	AN526-1024-4		Screw, Sheet Metal															2	2
-29	626891		Grommet, Rubber															2	2
-30	631427A15		Valve Assembly, Fuel Manifold															1	1
-30	631351-10A3		Valve Assembly, Fuel Manifold (for detail parts see Figure 72)															1	1
-31	635158-15.00		Hose Assembly, Flexible, 1/4 ID x 15 Inch Long															1	1
-31	635158-16.00		Hose Assembly, Flexible, 1/4 ID x 16 Inch Long															1	1
-32	635158-17.00		Hose Assembly, Flexible, 1/4 ID x 17 Inch Long															1	1
-32	635158-18.00		Hose Assembly, Flexible, 1/4 ID x 18 Inch Long															1	1
-33	635158-40.00		Hose Assembly, Flexible, 1/4 ID x 40 Inch Long															1	1
-34	627335D12	③	Nozzle Assembly, Fuel Injector															6	6
-35	628154		Tube Assembly, Fuel Discharge No. 1 & 6															2	2
-35	628153		Tube Assembly, Fuel Discharge No. 2 & 5															2	2
-35	628152		Tube Assembly, Fuel Discharge No. 3 & 4															2	2
-36	641701		Bracket, Fuel Discharge Tubes, 1-3-5 Side															1	1
-37	628295		Bracket, Fuel Discharge Tubes, 2-4-6 Side															1	1
-38	626577-2		Clamp, Fuel Discharge															6	6
-39	625302-16.00		Duct, Flexible 1 Inch ID x 16 Inch Long															2	2
-40	AN737RM38		Clamp, Flexible Duct															2	2

NOTES:

① See Figure 71 for old style fuel pump and associated parts.

② This link rod assembly is to be used only with levers with no bushings. See Figures 69 and 75.

③ Check old nozzle on engine for nozzle size, stamped on hex, and order the complete nozzle part number (ie 627335D12C).

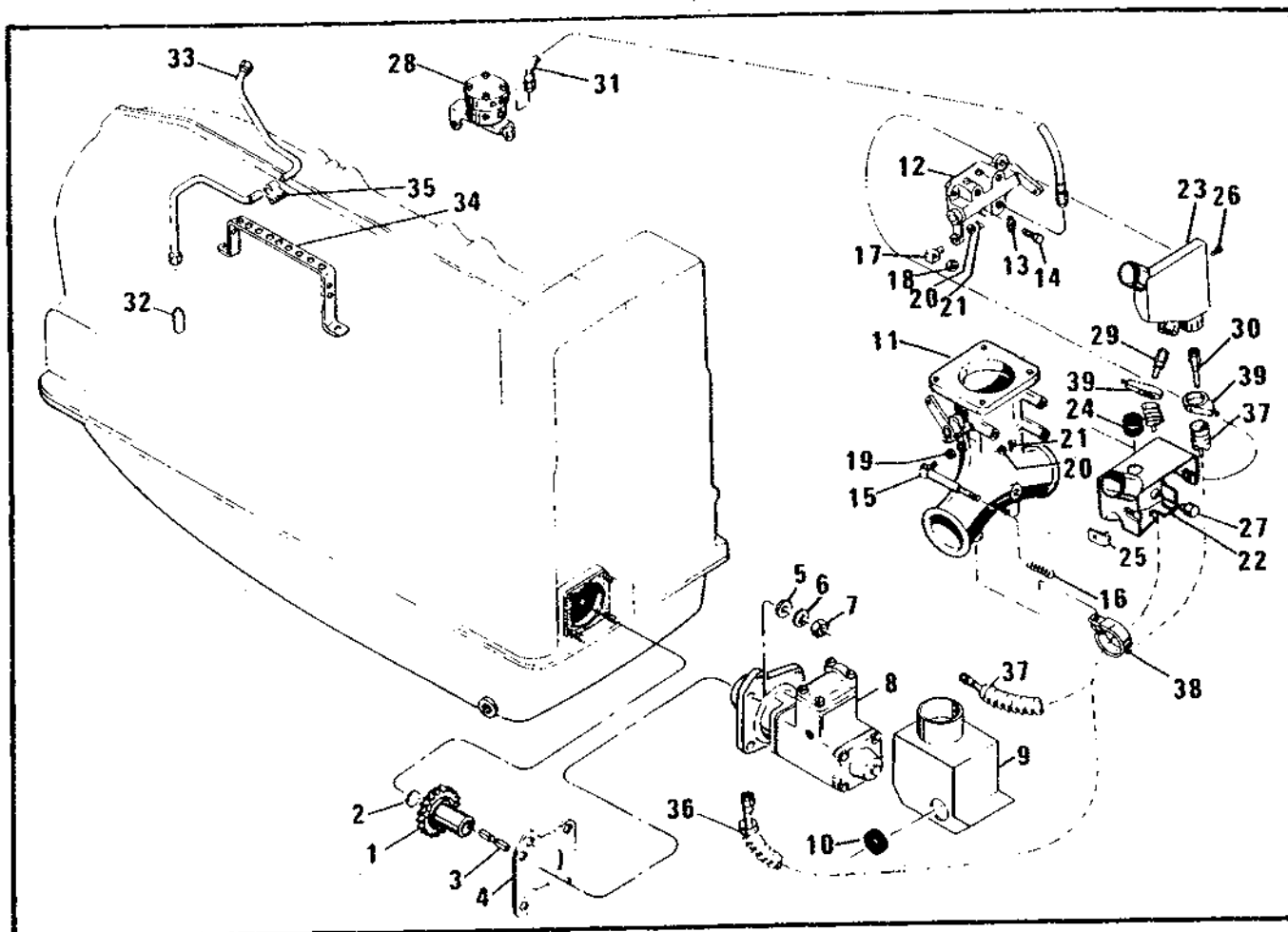


FIGURE 67 - FUEL INJECTION SYSTEM
MODELS 10-470-D, E, G, P, R

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY																	
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
67-1	631684	① Gear Assembly, Fuel Pump Drive	1													1				
-2	539634	① . Plug, Fuel Pump Gear	1	1			1									1	1			
-3	631683	Coupling, Fuel Pump	1	1			1									1	1			
-4	534941	Gasket, Adapter-to-Crankcase	1	1			1									1	1			
-5	2473	Washer, Plain	4	4			4									4	4			
-6	MS35338-45	Washer, Lock	4	4			4									4	4			
-7	2439	Nut, Plain	4	4			4									4	4			
	639257A5	Fuel Injection Assembly, Complete	1																	
	639258A3	Fuel Injection Assembly, Complete		1			1									1	1			
-8	638154-9A2	① . Fuel Pump & Vapor Separator Assembly	1	1			1									1	1			
		* * * *																		
-9	631764	. . Shroud Assembly, Fuel Pump	1				1									1	1			
-9	639266	. . Shroud Assembly, Fuel Pump		1																
-10	626879-1	. . Grommet, Fuel Pump Shroud	4	4			4									4	4			
	627315A1	. . Throttle and Control Assembly	1																	
	627315A2	. . Throttle and Control Assembly		1			1									1	1			
-11	627326A1	. . Throttle and Lever Assembly	1																	
-11	627326A2	. . Throttle and Lever Assembly		1			1									1	1			
		(for details see Figure 69)																		
-12	625219-2A2	. . Control Assembly, Complete	1																	
-12	625219-2A3	. . Control Assembly, Complete		1			1									1	1			

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																	
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
ATTACHING PARTS																					
67-13	501867		Washer, Tab	3	3			3								3	3				
-14	537629		Screw	3	3			3								3	3				
* * * *																					
	632558A1		Link Rod Assembly	1	1			1								1	1				
	625539A1	②	Link Rod Assembly	1	1			1								1	1				
-15	632558		Rod and Link Assembly	1	1			1								1	1				
-15	625539	②	Rod and Link Assembly	1	1			1								1	1				
-16	626634		Spring, Compression	1	1			1								1	1				
-17	632557		Rod End, Special	1	1			1								1	1				
-17	625542	②	Rod End, Special	1	1			1								1	1				
-18	MS21044103		Nut, Elastic Stop	1	1			1								1	1				
-19	625327-2		Washer, Wave	2	2			2								2	2				
-20	537690		Washer, Plain	2	2			2								2	2				
-21	2500		Pin, Cotter	2	2			2								2	2				
	627544A1		Shroud Assembly, Metering Unit Complete	1																	
	627713A1		Shroud Assembly, Metering Unit Complete		1			1								1	1				
-22	627544		Shroud Assembly, Bottom	1																	
-22	627713		Shroud Assembly, Bottom		1			1								1	1				
-23	627545		Shroud Assembly, Cover	1																	
-23	627734		Shroud Assembly, Cover		1			1								1	1				
-24	626879-1		Grommet, Injector	2	2			2								2	2				
-25	537911		Nut, Tinnerman, Type J	2	1			1								1	1				
-26	AN526-1024.4		Screw	2	1			1								1	1				
-27	626891		Grommet, Rubber	2	2			2								2	2				
-28	631427A15		Valve Assembly, Fuel Manifold	1	1			1								1	1				
(for detail parts see Figure 72)																					
-29	635158-15.00		Hose Assembly, Flexible, 1/4 ID x 15 Inch Long	1	1			1								1	1				
-30	635158-17.00		Hose Assembly, Flexible, 1/4 ID x 17 Inch Long	1																	
-30	635158-13.00		Hose Assembly, Flexible, 1/4 IDx 13 Inch Long		1			1								1	1				
-31	635158-40.00		Hose Assembly, Flexible, 1/4 ID x 40 Inch Long	1																	
-31	635158-32.00		Hose Assembly, Flexible, 1/4 ID x 32 Inch Long		1			1								1	1				
-32	627335D12	③	Nozzle Assembly, Fuel Injection	6	6			6								6	6				
-33	628154		Tube Assembly, Fuel Discharge, No. 1 & 6	2	2			2								2	2				
-33	628153		Tube Assembly, Fuel Discharge No. 2 & 5	2	2			2								2	2				
-33	628152		Tube Assembly, Fuel Discharge, No. 3 & 4	2	2			2								2	2				
-34	626486		Bracket, Fuel Discharge Tubes	2	2			2								2	2				
-35	626577-2		Clamp, Fuel Discharge Tubes	6	6			6								6	6				
-36	625302-16.00		Duct, Flexible, 1 Inch ID x 16 Inch Long	2	1			1								1	1				
-37	625302-12.00		Duct, Flexible, 1 Inch ID x 12 Inch Long		1			1								1	1				
-38	AN737RM38		Clamp, Flexible Duct	2	1			1								1	1				
-39	628264		Clamp, Hose		1			1								1	1				

NOTES:

- ① See Figure 71 for old style fuel pump and associated parts.
- ② This link rod assembly is to be used only with levers with no bushings. See Figures 69 and 75.
- ③ Check old nozzle on engine for nozzle size, stamped on hex, and order the complete nozzle parts number (ie 627335D12C).

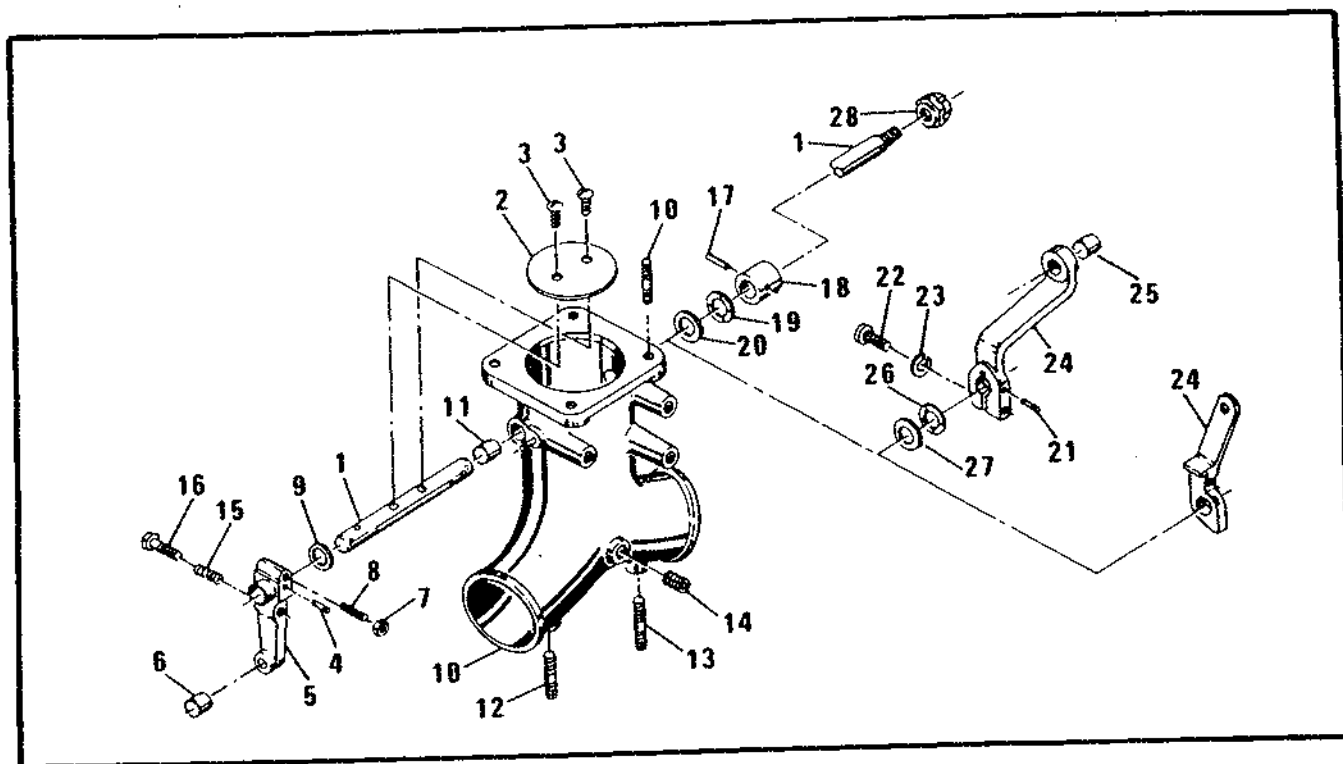


FIGURE 68 - THROTTLE AND LEVER ASSEMBLY
MODELS 10-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U,V

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY																	
			1	2	3	4	5	C	D	E	F	G	H	J	K	L	M	N	P	R
68-	625259A1	Throttle and Lever Assembly						rf					rf	rf						
	626791A1	Throttle and Lever Assembly							rf										rf	rf
	627326A1	Throttle and Lever Assembly								rf		rf								
	627326A2	Throttle and Lever Assembly														rf				
	627326A3	Throttle and Lever Assembly									rf									
	639766A1	Throttle and Lever Assembly													rf					
	628429A1	Throttle and Lever Assembly															rf			
	628775A1	Throttle and Lever Assembly																rf		
	628861A1	Throttle and Lever Assembly																		rf
	629397A1	Throttle and Lever Assembly																		rf
	630069A1	Throttle and Lever Assembly																		rf
	633143A1	Throttle and Lever Assembly																		rf
-1	625454	. Shaft-Air Throttle						1	1	1	1	1	1		1	1	1	1	1	1
-1	625600	. Shaft-Air Throttle																		1
-1	631819	. Shaft-Air Throttle																		1
-1	630124	. Shaft-Air Throttle												1	1					1
-2	539941	. Plate-Air Throttle						1	1	1	1	1	1			1	1	1	1	1
-2	625601	. Plate-Air Throttle																		1
ATTACHING PARTS																				
-3	539942	. Screw-Throttle Plate						2	2	2	2	2	2	2	2	2	2	2	2	2

-4	626813	. Pin-Tubular, Lever						1	1	1	1	1	1	1	1	1	1	1	1	1
-5	632555-44	① . Lever-Throttle Control						1	1	1	1	1	1	1	1	1	1	1	1	1
-5	632555-23	① . Lever-Throttle Control																		1
-5	632556	① . Lever-Throttle Control																		1
-6	632554-2	. Bushing						1	1	1	1	1	1	1	1	1	1	1	1	1
-7	13XX18130	. Nut, 8 - 32						1	1	1	1	1	1	1	1	1	1	1	1	1
-8	AN565E8H16	. Screw, Set						1	1	1	1	1	1	1	1	1	1	1	1	1

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	QUANTITY PER ASSEMBLY																	
				C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
68-9	625457		Washer, Plain	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-9	625457-1		Washer, Plain															1	1		
-10	626226A1		Body Assembly - Air							1											
-10	626234A1		Body Assembly - Air	1					1												
-10	625735A1		Body Assembly - Air		1	1		1				1				1	1		1		
-10	626735A2		Body Assembly - Air										1								
-10	639437	②	Body Assembly - Air				1														
-10	628382A1		Body Assembly - Air							1											
-10	628528A1		Body Assembly - Air											1							
-10	629324A1		Body Assembly - Air															1			
-11	630455		Bushing - Air Throttle	2	2	2	2	2	2			2	2	2	2	2	2	2	2		
-12	401893	†	Stud - 1/4 x 1-1/4 Inch Long		2	2		2				2	2		2	2		2	2		
-12	402711	†	Stud - 1/4-20 x 1/4-28 x 7/8 In. Lg														2				
-13	628981	†	Stud - 1/4-20 x 1/4-28 x 1-5/16 In. Lg											2							
-14	AN932-2		Plug - Manifold Pressure Boss			1	1		1				1	1		1	1	1	1		
-15	626634		Spring - Idle Adjusting	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-16	639479		Screw - Idle Adjusting	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-17	626813		Pin - Tubular, Collar	1	1				1	1	1				1			1	1		
-18	625238		Collar - Throttle Shaft	1	1				1	1	1				1			1	1		
-19	625327-1		Washer - Wave	1			1		1	1	1			1				1	1		
-20	625457		Washer - Plain	1			1		1	1	1			1				1	1		
-21	626813		Pin - Tubular, Throttle Lever	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-22	AN501-10-10		Screw - Throttle Lever		1	1		1						1			1				
-22	AN501-10-14		Screw - Throttle Lever	1					1	1	1				1						
-23	13XX-260		Lockwasher - Throttle Lever	1	1	1		1	1	1	1			1	1	1	1				
-24	626910		Lever - Throttle Shaft	1					1	1	1										
-24	632555-32	①	Lever - Throttle Shaft		1																
-24	632555-33	①	Lever - Throttle Shaft				1														
-24	632555-48	①	Lever - Throttle Shaft			1		1								1	1				
-24	632555-47	①	Lever - Throttle Shaft										1								
-24	632555-31	①	Lever - Throttle Shaft															1			
-24	632555-25	①	Lever - Throttle Shaft																		
-25	632554-1		Bushing		1	1	1	1					1	1		1	1	1	1		
-26	625327-1		Washer - Wave		1	1		1					1	1		1	1	1	1		
-27	625457		Washer - Plain		1	1		1					1	1		1	1	1	1		
-28	2457		Nut-Throttle Shaft															1	1		

NOTES:

- ① These levers are a new style which incorporate harden bushings. If replacing old style levers with no bushings, it will be necessary to order, in addition to new levers a new link rod assembly. See appropriate application Figures 60 thru 67.
- ② If replacing old style throttle body, which has cast mount legs, it will be necessary to order, in addition to new throttle assembly, a 639410 bracket, a 639411 bracket and 4 each 530346 bolts.

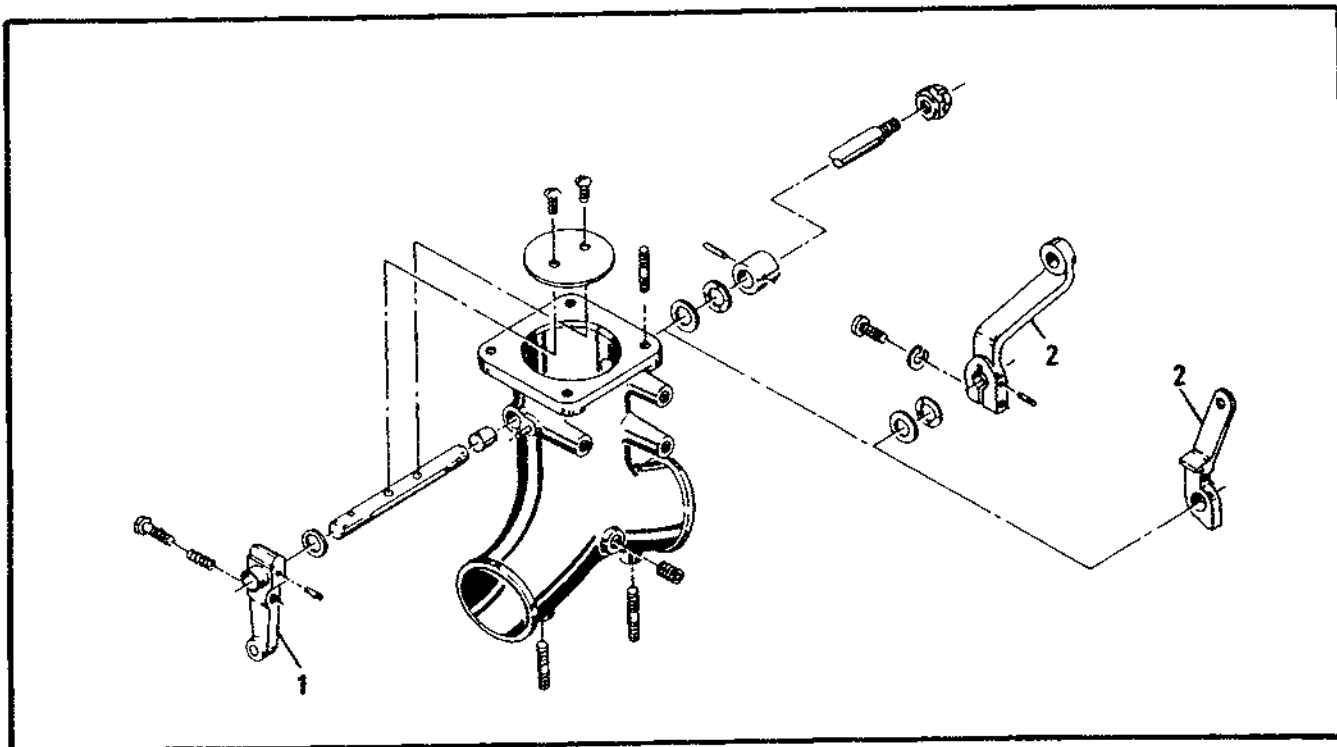


FIGURE 69 - THROTTLE LEVERS (OLD STYLE)
MODELS 10-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U,V

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY PER ASSEMBLY															
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V
69-1	625228	① Lever, Throttle Control	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
-1	629329	① Lever, Throttle Control															1	
-1	629871	① Lever, Throttle Control																1
-2	627809	① Lever, Throttle Shaft		1														
-2	629418	① Lever, Throttle Shaft				1												
-2	628095	① Lever, Throttle Shaft			1		1							1	1			
-2	628914	① Lever, Throttle Shaft										1					1	
-2	631818	① Lever, Throttle Shaft																1

NOTE:

- ① These are old style levers which are no longer available. For replacement order new lever found in Figure 68 and a new rod assembly. See appropriate application, Figures 60 thru 67.

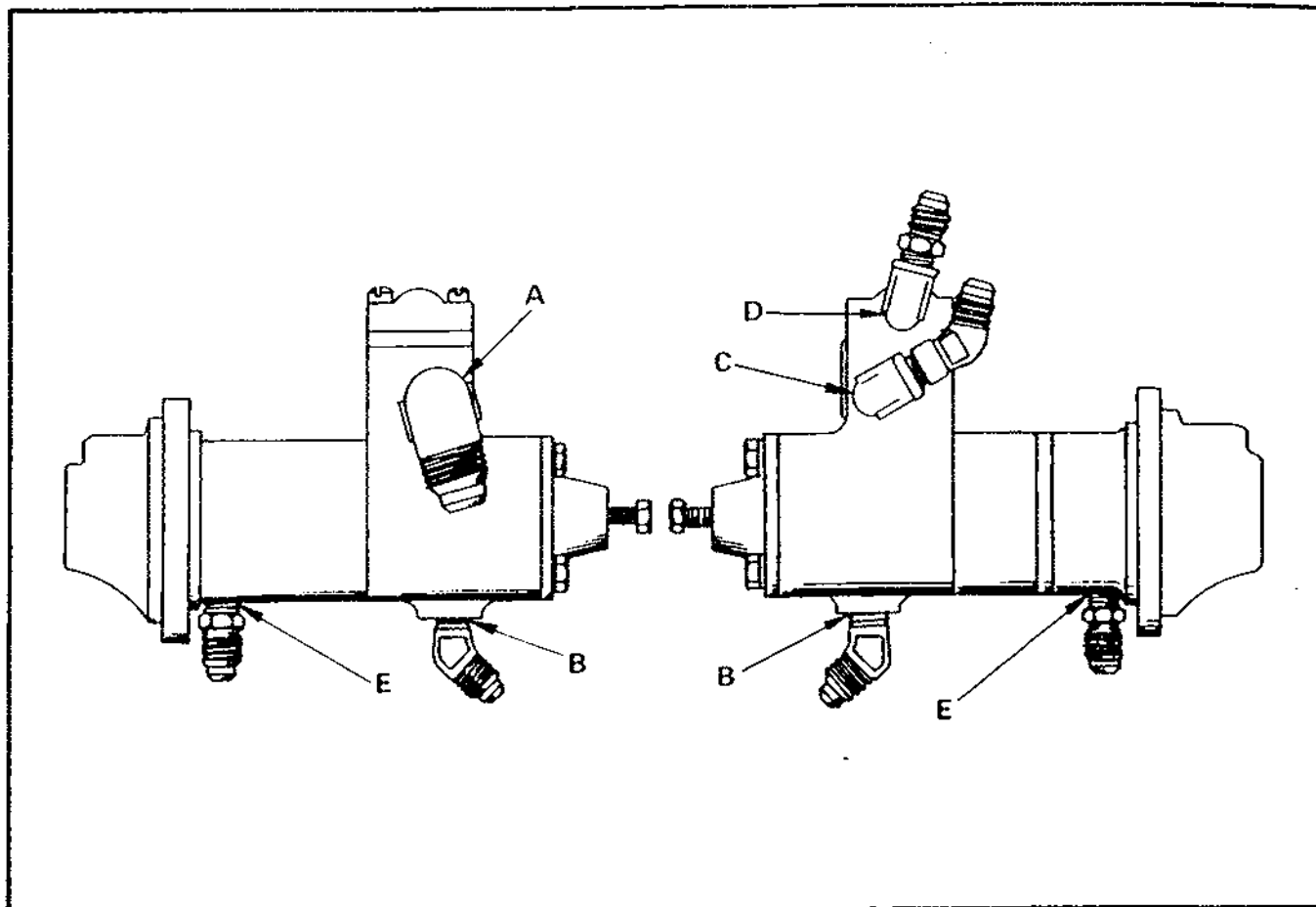


FIGURE 70 - FUEL PUMP AND VAPOR SEPARATOR FITTING LOCATIONS(NEW STYLE)
MODELS IO-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U,V

	Fuel Pump & Vapor Sep. Number	INLET Fitting "A" Number	OUTLET Fitting "B" Number	MIXTURE RETURN Fitting "C" Number	VAPOR RETURN Fitting "D" Number	SEAL DRAIN Fitting "E" Number
IO-470-C, D, E, F, G, H, J, K, N, P, R	638154	632017 AN832-6B	628437	628478	628476	
IO-470-L	638154	632017 630065	628437	628478	627119 628476	
IO-470-M	638154	632017 637286	628436	628478	AN816-6-2 627119	
IO-470-S	638154	628475	628436	628478	628476	
IO-470-U	638154	632017 AN823-6B	627119 628438	628478	628476	
IO-470-V	638154	632017	628436	628478	628476	628438

See Figure 71 for old style pump.

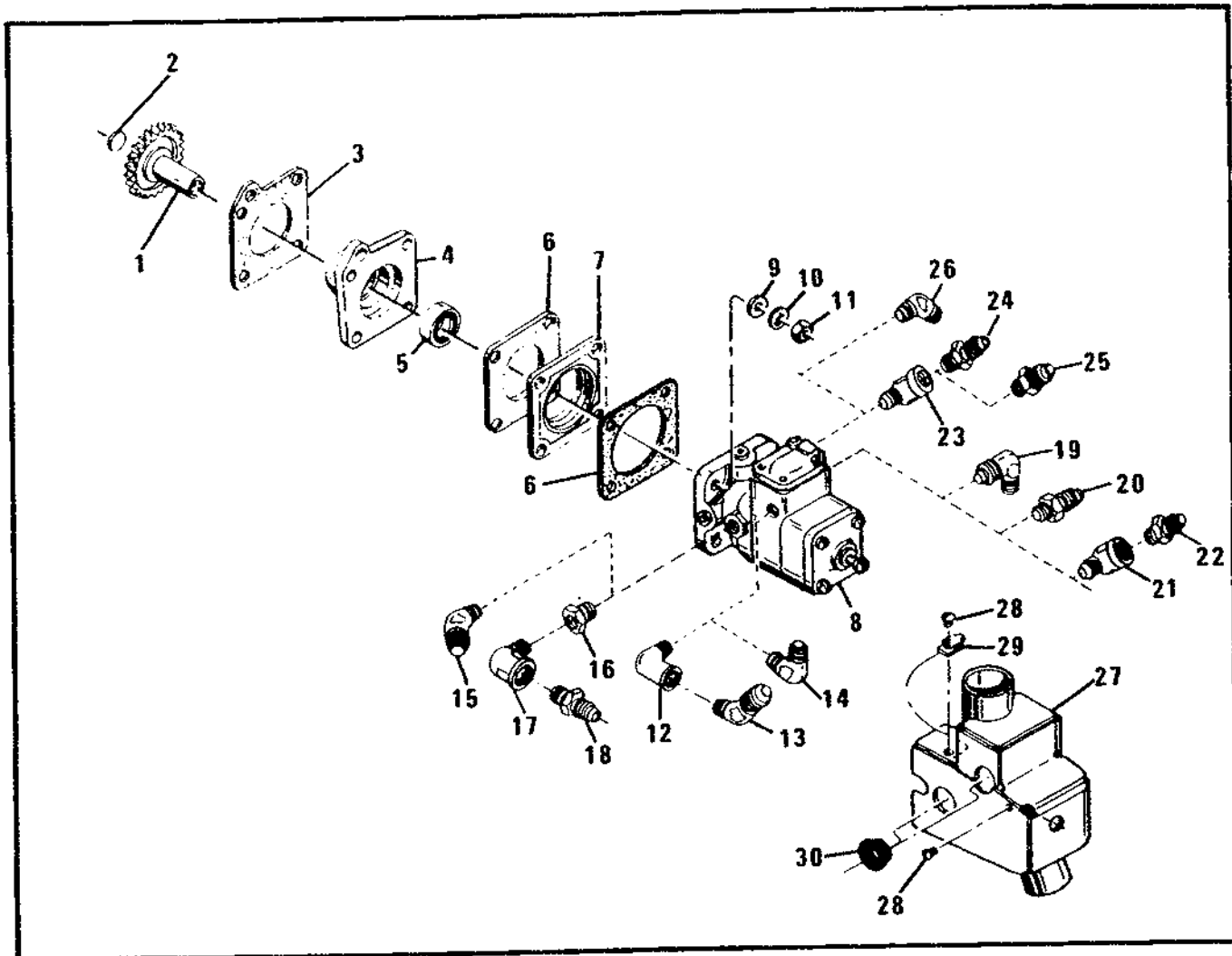


FIGURE 71 - FUEL PUMP ASSEMBLY, COMPLETE (OLD STYLE)
MODELS 10-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U

FIG. INDEX	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
71-1	534995	Gear Assembly, Fuel Pump	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-2	539634	. Plug, Expansion	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-3	534941	Gasket, Fuel Pump to Crankcase	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-4	627518	Adapter Assembly, Fuel Pump	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-5	534956	. Seal, Oil	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-6	MS9137-01	Gasket, Adapter to Fuel Pump	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-7	626839	Insulator, Fuel Pump	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-8	638156	① Fuel Pump & Vapor Separator Assy, Complete	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ATTACHING PARTS																
-9	2473	Washer, Plain	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-10	MS35338-45	Washer, Lock	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-11	2439	Nut, Plain, Hex	4	4	4	4	4	4	4	4	4	4	4	4	4	4

-12	632017	. Elbow, 90 Degree	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-13	AN823-6B	. Elbow, 45 Degree	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-13	637286	. Elbow, 45 Degree														
-14	628475	. Elbow, 90 Degree														
-15	629267	. Elbow, 45 Degree	1	1	1	1	1	1	1	1	1	1	1	1	1	1

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUALITY PER ASSEMBLY															
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V
71-15	630089	. Elbow, 45 Degree										1				1		
-16	X12143	. Bushing, Reducing									1		1				1	
-17	627119	. Elbow, 90 Degree											1				1	
-18	628438	. Fitting, Connector									1		1				1	
-19	628478	. Elbow, 90 Degree	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-20	628438	. Fitting, Connector									1							
-21	627119	. Elbow, 90 Degree			1													
-22	AN816-4B	. Nipple			1													
-23	627119	. Elbow, 90 Degree										1	1					
-24	628438	. Fitting, Connector											1					
-25	AN816-6-2	. Nipple										1						
-26	628476	. Elbow, 45 Degree	1	1	1	1	1	1	1	1			1	1	1	1	1	1
-27	639268	. Shroud Assembly, Fuel Pump	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ATTACHING PARTS																		
-28	AN526-1024-4	. Screw, Sheet Metal	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
-29	534337	. Nut, Tinnerman, Type J	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
* * * *																		
-30	626879-1	. Grommet	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

NOTE:

① This fuel pump is no longer available. For replacement order appropriate pump (found in Figures 60 thru 67) and a service kit P/N EQ6537.

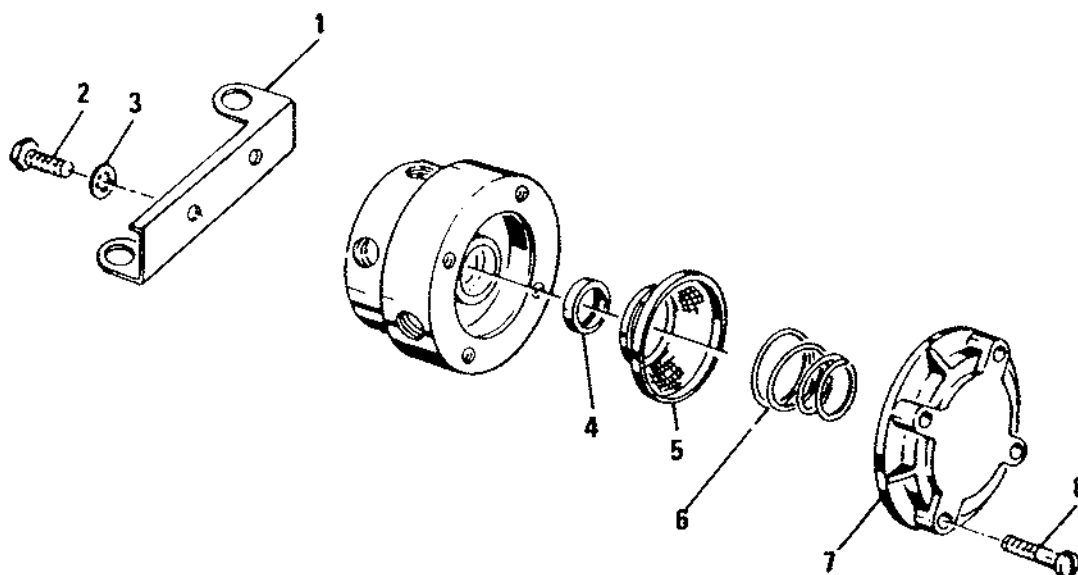


FIGURE 72 - FUEL MANIFOLD VALVE
MODELS 10-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U

FIG. INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUALITY PER ASSEMBLY															
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	
72-	631427A15	Fuel Manifold Valve Assembly	1	1	1		1	1	1				1	1	1		1	
	631427A16	Fuel Manifold Valve Assembly										1						
	631427A17	Fuel Manifold Valve Assembly				1										1		
	631427A19	Fuel Manifold Valve Assembly								1								
	631427-3A2	Fuel Manifold Valve Assembly									1							
	631351-10A3	Fuel Manifold Valve Assembly															1	
-1	642064	Bracket	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
ATTACHING PARTS																		
-2	AN500-10-5	Screw	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
-3	22910	Washer, Lock	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
* * * * *																		
-4	631330	Seal	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-5	626557	Screen	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-6	627378	Spring	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
-6	630184	Spring															1	
-7	626553	Cover	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
ATTACHING PARTS																		
-8	AN500A8-10	Screw	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
* * * * *																		

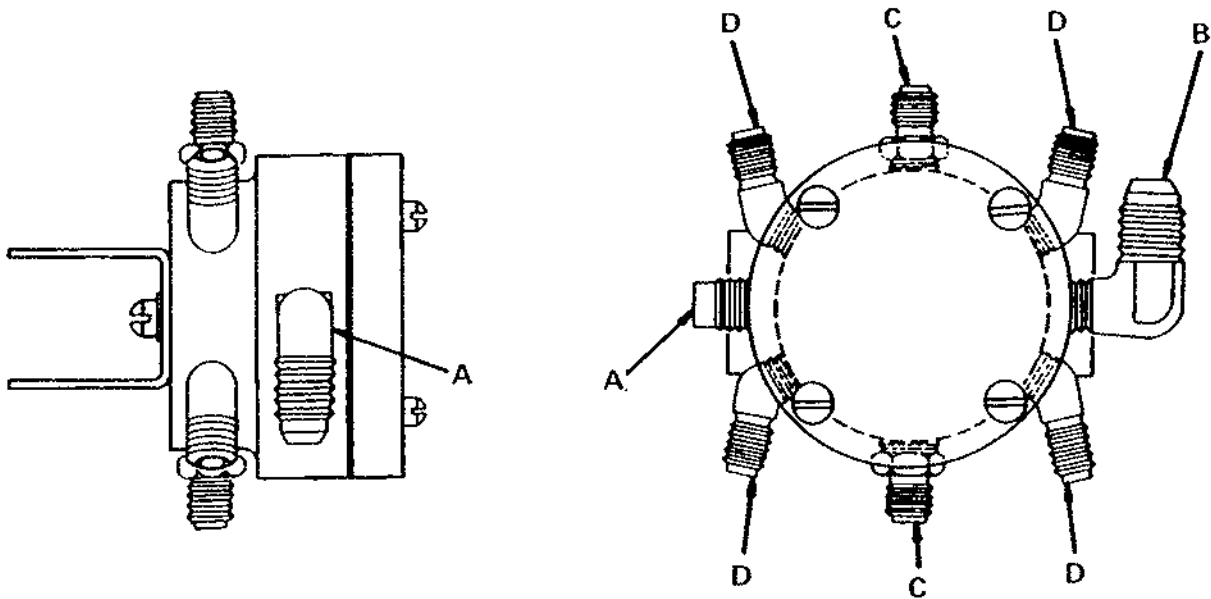


FIGURE 73 - FUEL MANIFOLD VALVE FITTING LOCATIONS
MODELS IO-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U,V

	Fuel Manifold Assembly Number	Fitting "A" Number	Fitting "B" Number	Fitting "C" Number	Fitting "D" Number
IO-470-C,D,E,G,H,J,L,N,P,R,U	631427	Plug 629518-1H	628437	AN780-2	627331
IO-470-K	631427	631658	628437	AN780-2	627331
IO-470-M	631427	628437	628437	AN780-2	627331
IO-470-F,S	631427	631720	628437	AN780-2	627331
IO-470-V	631351	631720	628437	AN780-2	627331

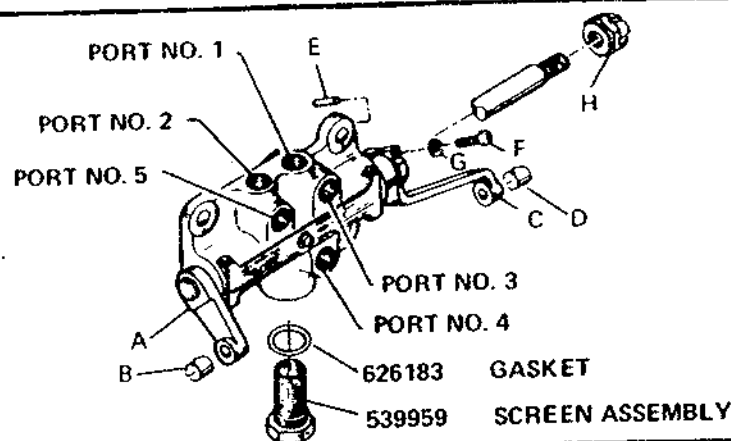


FIGURE 74 - FUEL CONTROL FITTING LOCATIONS

Model 1D-470	C-H-N	D	E-G-P-R	F	J	K	L	M	S	U	V
Control Assy. Fuel Inj. P/N	625219-2	625219-2	625219-2	625219-2	625219-1	625219-1	625219-2	625219-2	629703-2	632904-2	632916-2
Port No. 1 Fitting P/N	627119 628437	627119 628437	627119 628437	630119 628476	627119 628437	627119 628437	630119 627119 628438	X12470 627119 628478	627119 630119 628437	627119 628437	633343 628437
Port No. 2 Fitting P/N	626900 628437	628476	626900 628434	628437	626900 628437	628437 626900	628437	628437	AN932-2	628476	628437
Port No. 3 Fitting P/N	AN932-2	AN932-2	AN932-2	AN932-2	AN932-2	AN932-2	AN932-2	AN932-2	AN932-2	AN932-2	AN932-2
Port No. 4 Fitting P/N	628437	627642 AN932-2 628438	628437	628437	628437	628437	628437	627642 2024 628438	630119 628478	627642 2024 628438	628438 2024 634195
Port No. 5 Fitting P/N	627119 626900 628434	626900 628434	628437	AN932-2	627119 626900 628434	AN932-2	AN932-2	AN932-2	628438	626900 628434	AN932-2
Metering Control Lever "A" No.	① 632555-24	① 632555-24	① 632555-24	① 632555-24	① 632555-24	① 632555-24	① 632555-24	① 632555-24	① 632555-5	① 632555-24	① 632555-2
Bushing Metering Lever "B" No.	632554-2	632554-2	632554-2	632554-2	632554-2	632554-2	632554-2	632554-2	632554-2	632554-2	632554-2
Mixture Control Lever "C" No.	626910	① 632555-46	① 632555-27	① 632555-46	626910	626910	① 632555-46	① 632555-46	① 632555-28		
Bushing Mixture Lever "D" No.		632554-1	632554-1	632554-1			632554-1	632554-1	632554-1		
Pin Mixture Lever "E" No.	626813	626813	626813	626813	626813	626813	626813	626813	626813-1		
Screw Mixture Lever "F" No.	AN501 -10-14	AN501 -10-10		AN501 -10-10	AN502 -10-14	AN502 -10-14	AN501 -10-10	AN502 -10-14			
Lockwasher Mixture Lever "G" No.	13XX260	13XX260		13XX260	13XX260	13XX260	13XX260	13XX260			
Nut Mixture Lever "H" No.										MS21042 -5	MS21042 -5

NOTE:

- ① These levers are a new style which incorporate harden bushings. If replacing old style levers with no bushings, it will be necessary to order, in addition to new levers a new link rod assembly. See appropriate application, Figures 60 thru 67.

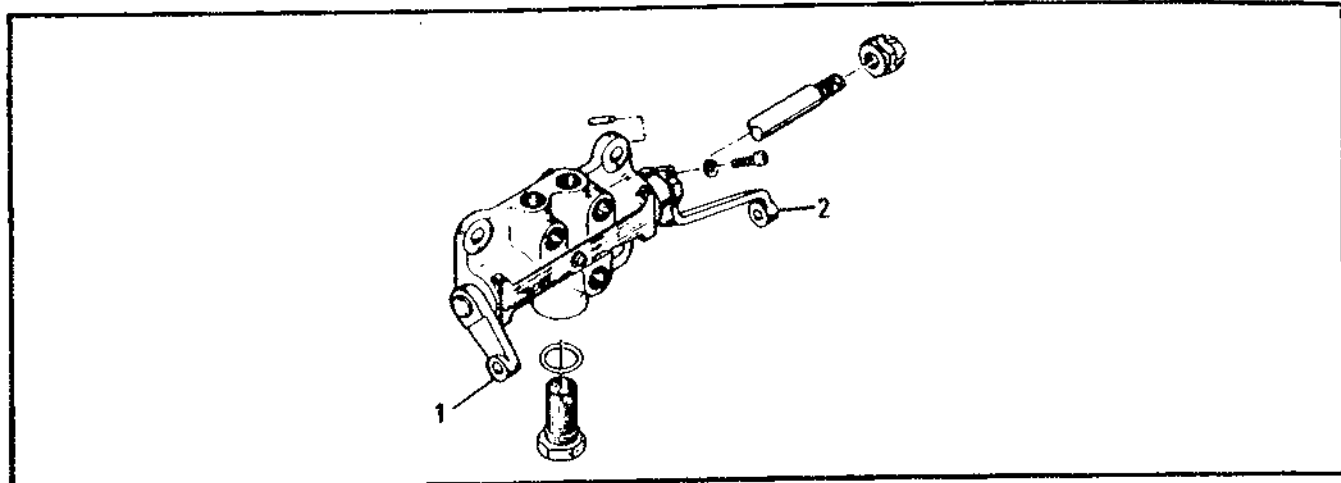


FIGURE 75 - FUEL CONTROL LEVERS(OLD STYLE)
MODELS 10-470-C,D,E,F,G,H,J,K,L,M,N,P,R,S,U,V

FIG. INDEX	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY																	
			C	D	E	F	G	H	J	K	L	M	N	P	R	S	U	V		
75-1	627590	① Lever, Mixture Control		1		1						1								
-1	629111	① Lever, Mixture Control			1		1								1	1				
-1	629351	① Lever, Mixture Control															1			
-2	539989	① Lever, Metering Control	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1		
-2	629326	① Lever, Metering Control															1			
-2	632553-2	① Lever, Metering Control																	1	

NOTE:

- ① These are old style levers which are no longer available. For replacement order new lever found in Figure 74 and new link rod assembly. See appropriate application, Figures 60 thru 67.

SECTION III

OVERSIZE AND UNDERSIZE PARTS LIST

PART NO.	NAME	DESCRIPTION	PART NO.	NAME	DESCRIPTION
25008P003	Stud	.003" OS on PD	401816P003	Stud	.003" OS on PD
25008P006	Stud	.006" OS on PD	401816P007	Stud	.007" OS on PD
25008P009	Stud	.009" OS on PD	401816P012	Stud	.012" OS on PD
350998P0015	Bushing-C/wgt	.0015" OS on OD	401824P003	Stud	.003" OS on PD
350998P003	Bushing-C/wgt	.003" OS on OD	401824P007	Stud	.007" OS on PD
350998P005	Bushing-C/wgt	.005" OS on OD	401824P012	Stud	.012" OS on PD
35966P005	Insert	.005" OS on OD	401830P003	Stud	.003" OS on PD
35966P010	Insert	.010" OS on OD	401830P007	Stud	.007" OS on PD
35966P015	Insert	.015" OS on OD	401830P012	Stud	.012" OS on PD
35966P020	Insert	.020" OS on OD	401836P003	Stud	.003" OS on PD
35966P030	Insert	.030" OS on OD	401836P007	Stud	.007" OS on PD
35967P005	Insert	.005" OS on OD	401836P012	Stud	.012" OS on PD
35967P010	Insert	.010" OS on OD	401841P003	Stud	.003" OS on PD
35967P015	Insert	.015" OS on OD	401841P007	Stud	.007" OS on PD
35967P020	Insert	.020" OS on OD	401841P012	Stud	.012" OS on PD
35967P030	Insert	.030" OS on OD	401852P003	Stud	.003" OS on PD
401798P003	Stud	.003" OS on PD	401852P007	Stud	.007" OS on PD
401798P007	Stud	.007" OS on PD	401852P012	Stud	.012" OS on PD
401798P012	Stud	.012" OS on PD	401860P003	Stud	.003" OS on PD
401804P003	Stud	.003" OS on PD	401860P007	Stud	.007" OS on PD
401804P007	Stud	.007" OS on PD	401860P012	Stud	.012" OS on PD
401804P012	Stud	.012" OS on PD	401861P003	Stud	.003" OS on PD
401806P003	Stud	.003" OS on PD	401861P007	Stud	.007" OS on PD
401804P007	Stud	.007" OS on PD	401861P012	Stud	.012" OS on PD
401804P012	Stud	.012" OS on PD	401870P003	Stud	.003" OS on PD
401808P003	Stud	.003" OS on PD	401870P007	Stud	.007" OS on PD
401808P007	Stud	.007" OS on PD	401870P012	Stud	.012" OS on PD
401808P012	Stud	.012" OS on PD	401881P003	Stud	.003" OS on PD
401809P003	Stud	.003" OS on PD	401881P007	Stud	.007" OS on PD
401809P007	Stud	.007" OS on PD	401881P012	Stud	.012" OS on PD
401809P012	Stud	.012" OS on PD	401885P003	Stud	.003" OS on PD
401814P003	Stud	.003" OS on PD	401885P007	Stud	.007" OS on PD
401814P007	Stud	.007" OS on PD	401885P012	Stud	.012" OS on PD
401814P012	Stud	.012" OS on PD			

PART NO.	NAME	DESCRIPTION	PART NO.	NAME	DESCRIPTION
401886P003	Stud	.003" OS on PD	402151P003	Stud	.003" OS on PD
401886P007	Stud	.007" OS on PD	402151P007	Stud	.007" OS on PD
401886P012	Stud	.012" OS on PD	402151P012	Stud	.012" OS on PD
401893P003	Stud	.003" OS on PD	402153P003	Stud	.003" OS on PD
401893P007	Stud	.007" OS on PD	402153P007	Stud	.007" OS on PD
401893P012	Stud	.012" OS on PD	402153P012	Stud	.012" OS on PD
401895P003	Stud	.003" OS on PD	402162P003	Stud	.003" OS on PD
401895P007	Stud	.007" OS on PD	402162P007	Stud	.007" OS on PD
401895P012	Stud	.012" OS on PD	402162P012	Stud	.012" OS on PD
401899P003	Stud	.003" OS on PD	402711P003	Stud	.003" OS on PD
401899P007	Stud	.007" OS on PD	402711P007	Stud	.007" OS on PD
401899P012	Stud	.012" OS on PD	402711P012	Stud	.012" OS on PD
401963P003	Stud	.003" OS on PD	530383M010	Bearing-C/rod	.010" US on ID
401963P007	Stud	.007" OS on PD	534895P015	Piston	.015" OS on OD
401963P012	Stud	.012" OS on PD	535661P020	Camshaft	.020" OS on OD
401965P003	Stud	.003" OS on PD	536563P005	Dowel-C/shaft	.005" OS on OD
401965P007	Stud	.007" OS on PD	537341P015	Spring - Clutch	.015" US on ID
401965P012	Stud	.012" OS on PD	537883P015	Piston	.015" OS on OD
401971P003	Stud	.003" OS on PD	538404P003	Stud	.003" OS on PD
401971P007	Stud	.007" OS on PD	538404P006	Stud	.006" OS on PD
401971P012	Stud	.012" OS on PD	538404P009	Stud	.009" OS on PD
401977P003	Stud	.003" OS on PD	539467P005	Pin - Piston	.005" OS on OD
401977P007	Stud	.007" OS on PD	539800M015	Spring - Clutch	.015" US on ID
401977P012	Stud	.012" OS on PD	539814P015	Piston	.015" OS on OD
402042P003	Stud	.003" OS on PD	626739M010	Collar - C/shaft	.010" US on ID
402042P007	Stud	.007" OS on PD	626992P015	Piston	.015" OS on OD
402042P012	Stud	.012" OS on PD	627480P005	Ring - Piston	.005" OS on OD
402048P003	Stud	.003" OS on PD	627480P015	Ring - Piston	.015" OS on OD
402048P007	Stud	.007" OS on PD	627738P015	Piston	.015" OS on OD
402048P012	Stud	.012" OS on PD	628198M010	Collar - C/shaft	.010" US on ID
402056P003	Stud	.003" OS on PD	628981P003	Stud	.003" OS on PD
402056P007	Stud	.007" OS on PD	628981P006	Stud	.006" OS on PD
402056P012	Stud	.012" OS on PD	628981P009	Stud	.009" OS on PD
402066P003	Stud	.003" OS on PD	629848M010	Bearing-C/shaft	.010" US on ID
402066P007	Stud	.007" OS on PD			
402066P012	Stud	.012" OS on PD			
402127P003	Stud	.003" OS on PD			
402127P007	Stud	.007" OS on PD			
402127P012	Stud	.012" OS on PD			
402129P003	Stud	.003" OS on PD			
402129P007	Stud	.007" OS on PD			
402129P012	Stud	.012" OS on PD			

PART NO.	NAME	DESCRIPTION	PART NO.	NAME	DESCRIPTION
630591P005	Insert	.005" OS on OD	639568P005	Ring - Piston	.005" OS on OD
630591P010	Insert	.010" OS on OD	639568P015	Ring - Piston	.015" OS on OD
630591P015	Insert	.015" OS on OD			
630591P020	Insert	.020" OS on OD	639573P010	Washer - Thrust	.010" OS on OD
630591P030	Insert	.030" OS on OD	639573P020	Washer - Thrust	.020" OS on OD
			639573P030	Washer - Thrust	.030" OS on OD
630826M010	Bearing - C/rod	.010" US on ID			
631481P015	Piston	.015" OS on OD	639768P005	Ring - Piston	.005" OS on OD
			639768P015	Ring - Piston	.015" OS on OD
631496P005	Guide - Valve	.005" OS on OD	640518P015	Piston	.015" OS on OD
631496P010	Guide - Valve	.010" OS on OD			
631496P015	Guide - Valve	.015" OS on OD	641960P005	Guide - Valve	.005" OS on OD
631496P020	Guide - Valve	.020" OS on OD	641960P010	Guide - Valve	.010" OS on OD
631496P030	Guide - Valve	.030" OS on OD	641960P015	Guide - Valve	.015" OS on OD
			641960P020	Guide - Valve	.020" OS on OD
631867P003	Stud	.003" OS on PD	641960P030	Guide - Valve	.030" OS on OD
631867P006	Stud	.006" OS on PD			
631867P009	Stud	.009" OS on PD	642086P005	Ring - Piston	.005" OS on OD
			642086P015	Ring - Piston	.015" OS on OD
632319M010	Bearing-C/shaft	.010" US on ID			
632932P015	Piston	.015" OS on OD	642720M010	Bearing - C/shaft	.010" US on ID
633136M010	Bearing-C/shaft	.010" US on ID			
639565P005	Ring - Piston	.005" OS on OD			
639565P015	Ring - Piston	.015" OS on OD			
639566P005	Ring - Piston	.005" OS on OD			
639566P015	Ring - Piston	.015" OS on OD			
639567P005	Ring - Piston	.005" OS on OD			
639567P015	Ring - Piston	.015" OS on OD			

SECTION IV

REPAIR SETS AND MATERIALS

PART NUMBER		DESCRIPTION	SIZE	CODE
641543		Thread-Silk	260 Yd. Spool	All
642188		Gasket Paste	1 Oz. Tube	All
536092A1		Gasket Set - Complete Overhaul	Standard	O-470-A-E-J
536092A2		Gasket Set - Complete Overhaul	Standard	O-470-B-M O-470-D-F-M-U-V
536092A3		Gasket Set - Complete Overhaul	Standard	O-470-K-L-R-S-U-V
536092A4		Gasket Set - Complete Overhaul	Standard	IO-470-J-K
626049A1		Gasket Set - Complete Overhaul	Standard	O-470-G-P IO-470-C-E-G-H-L N-P-R-S
642106	①	Gasket Set - Top Overhaul	Standard	O-470-A-J IO-470-J-K
642107	①	Gasket Set - Top Overhaul	Standard	O-470-B-G-K-L-M-P-R-S IO-470-C-D-E-F-G-H-L-M-N S-U-V
642108	①②	Gasket Set - Top Overhaul	Standard	
639567A9	③	Ring Set - Single Cylinder	Standard	O-470-A-B-E-J-M-P IO-470-J-K (534895 & 537883 Piston)
639567A9P005	③	Ring Set - Single Cylinder	.005 OS on OD	
639567A9P015	③	Ring Set - Single Cylinder	.015 OS on OD	
639567A10	③	Ring Set - Single Cylinder	Standard	O-470-K-L-R (626992 piston)
639567A10P005	③	Ring Set - Single Cylinder	.005 OS on OD	
639567A10P015	③	Ring Set - Single Cylinder	.015 OS on OD	
639567A12	③	Ring Set - Single Cylinder	Standard	O-470-K-L-R (632932 piston)
639567A12P005	③	Ring Set - Single Cylinder	.005 OS on OD	
639567A12P015	③	Ring Set - Single Cylinder	.015 OS on OD	
639566A1	③	Ring Set - Single Cylinder	Standard	O-470-G IO-470-C-G-P-R (539814)
639566A1P005	③	Ring Set - Single Cylinder	.005 OS on OD	
639566A1P015	③	Ring Set - Single Cylinder	.015 OS on OD	
639565A8	③	Ring Set - Single Cylinder	Standard	O-470-R-S-U (640518 & 631481 piston)
639565A8P005	③	Ring Set - Single Cylinder	.005 OS on OD	
639565A8P010	③	Ring Set - Single Cylinder	.010 OS on OD	
639565A5	③	Ring Set - Single Cylinder	Standard	IO-470-D-E-F-H-L-M-N-S-U-V (627738 Piston)
639565A5P005	③	Ring Set - Single Cylinder	.005 OS on OD	
639565A5P010	③	Ring Set - Single Cylinder	.010 OS on OD	
639723	④	Ring Set - Single Cylinder	Standard	O-470-J-K-L-M-P IO-470-J-K (534895 & 537883 piston)
639726	④	Ring Set - Single Cylinder	Standard	O-470-G IO-470-C-G-P-R (539814 piston)
639734	④	Ring Set - Single Cylinder	Standard	O-470-K-L-R (626992 piston)
639736	④	Ring Set - Single Cylinder	Standard	O-470-K-L-R (632932 piston)
639732	④	Ring Set - Single Cylinder	Standard	O-470-R-S-U IO-470-D44, -V6, -V8, -V9, -V10 (640518 & 631481 piston)

PART NUMBER		DESCRIPTION	SIZE	CODE
639729	(4)	Ring Set - Single Cylinder	Standard	IO-470-D, E, F, H, L, M, N, S, U, V (627738 piston)
633136A3	(5)(6)	Bearing Set - Crankshaft	Standard	O-470-A-E-J-K-L-M-R-S-U
633136A3M010	(5)(6)	Bearing Set - Crankshaft	.010 US on ID	
642720A1	(5)(6)	Bearing Set - Crankshaft	Standard	O-470-G-P IO-470-(All)
642720A1M010	(5)(6)	Bearing Set - Crankshaft	.010 US on ID	
633136A1	(5)(7)	Bearing Set - Crankshaft	Standard	O-470-A-E-J-K-L-M-R-S-U
633136A1M010	(5)(7)	Bearing Set - Crankshaft	.010 US on ID	
630464A5	(5)(7)	Bearing Set - Crankshaft	Standard	O-470-G-P IO-470-(All except P)
630464A5M010	(5)(7)	Bearing Set - Crankshaft	.010 US on ID	
630464A6	(5)(7)	Bearing Set - Crankshaft	Standard	IO-470-P
630464A6M010	(5)(7)	Bearing Set - Crankshaft	.010 US on ID	
633136A2	(5)(7)	Bearing Set - Crankshaft	Standard	O-470-B-M-N
633136A2M010	(5)(7)	Bearing Set - Crankshaft	.010 US on ID	
537401A1	(5)(8)	Bearing Set - Crankshaft	Standard	O-470-A-C-E-J-K-L-R
537401A1M010	(5)(8)	Bearing Set - Crankshaft	.010 US on ID	
538879A1	(5)(8)	Bearing Set - Crankshaft	Standard	O-470-B-M-N
538879A1M010	(5)(8)	Bearing Set - Crankshaft	.010 US on ID	
627795A1	(5)(8)(9)	Bearing Set - Crankshaft	Standard	O-470-G-P IO-470-(All)
627795A1M010	(5)(8)(9)	Bearing Set - Crankshaft	.010 US on ID	
626531-1		Enamel - Gold, Engine	1 Quart	All
626531-2		Enamel - Gold, Engine	1 Gallon	All
535011S		Lockwire - 0.040 in dia. steel	1 Lb. Roll	All

NOTES:

- (1) This set does not contain intake hoses.
- (2) Same as 642107, but includes spiritallic exhaust gasket.
- (3) For use with steel barrel cylinders. See Service Bulletin M74-11 for piston and cylinder applications.
- (4) For use with chrome cylinders. See Service Bulletin M78-12 for piston and cylinder applications.
- (5) This set does not contain connecting rod bearings.
- (6) For use with Phase 3 style crankcase and crankshaft. See Service Bulletin M78-9.
- (7) Thrust washer type bearings for use with Phase 2 style crankcase & crankshaft. See Service Bulletin M78-9.
- (8) Flange type bearings for use with Phase 1 style crankcase & crankshaft. See Service Bulletin M78-9.
- (9) For O-470-G engines with modernized crankshafts. See Service Bulletin M64-20.

SECTION V
NUMERICAL PARTS LIST

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AN101218	33-07	AN520-416-12	52-48	AN900-15	28-10
AN123860	05-46		53-22	AN900-18	27-12
	06-43		55-19		29-12
AN123862	03-18	AN526-1024-4	45-28	AN900-28	27-51
	04-18		66-12		29-51
	31-41		71-28	AN932-2	27-07
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AN123865	05-43		67-26		68-14
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AN123866	01-34		38-17	AN960-10L	05-28
	02-32	AN565E8H16	68-08		06-23
AN3-4A	60-38	AN6230-26	07-06	AN960-516L	26-19
	62-39	AN737RM38	66-40	AN960-816L	07-24
AN316-9R	31-45		67-38	AN960C916	31-47
	32-36	AN737TW26	56-16		32-38
AN320-9	31-45	AN737TW46	55-25	A24814	16-22
AN381-3-18	31-48		57-14		17-22
AN4-26A	53-30	AN732TW82	54-08	A24815	16-25
	55-31	AN75-16	36-06		17-25
	57-29	AN75A10	35-15	A36121	20-01
AN4-27A	55-31		36-17	EQ5880	38-
AN4-7A	57-21	AN75A15	34-14	EQ6491	05-
AN4022-1	38-08		52-03		06-
AN5-10A	33-05		52-11	EQ6537	59-
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AN5-13A	03-21		35-10	MS122122	01-28
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	04-22	AN78-10	07-23		26-12
AN5-14A	03-21	AN780-2	38-20	MS122162	01-28
	04-21		73-		02-27
AN5-15A	03-20	AN805-2	38-05	MS124657	27-14
	04-20	AN816-4B	71-22	MS20073-04-10	27-45
	34-06	AN816-6-2	70-		29-45
	35-06		71-25	MS20074-03-03	05-30
AN5-16A	34-05	AN823-6B	70-		06-25
AN5-17A	35-05		71-13	MS20074-04-03	25-05
	36-05	AN832-6B	70-		26-05
AN500-10-5	72-02	AN900-10	01-22	MS20074-04-04	25-03
AN500-416-8	05-34		02-23		26-03
	06-28		25-11	MS20365-1032A	42-35
AN500A10-4	03-04		26-16	MS20365-1032C	60-39
	04-04		27-25		62-38
AN500A8-10	72-08		27-33	MS21042-5	74-
AN501-10-10	68-22		29-33	MS21044N3	60-18
	74-	AN900-12	25-11		61-18
AN501-10-14	68-22	AN900-14	27-21		62-18
	74-		27-25		63-18
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MS21333-81	60-37		57-05		32-35
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MS214657	29-14		57-28	MS9021-038	31-04
MS28741-4-0266	60-29		57-34		32-04
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401763	23-15		02-02		17-04
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628051A1	16-	628381	54-17	628701	55-24
628051CP	16-03	628382A1	68-10	628703	57-12
628051CP-A1	16-	628383	54-06	628705	57-11
628095	69-02	628390	54-09	628730	37-08
628129	27-49	628391	50-01	628739	43-06
	29-49	628391-31.75	45-07		44-06
628152	60-32	628391-32.00	45-08	628740	43-
	62-32	628391-32.50	45-16		44-11
	63-31		45-17	628744A1	63-
	64-31	628391-36.50	45-18	628752	20-01
	65-34	628391-37.50	45-09	628760	31-49
	66-35	628409	26-02		32-39
	67-33	628416	54-36	628766	57-13
628153	60-32	628428A1	62-	628775A1	62-11
	62-32	628429A1	62-11		68-
	63-31		68-	628776A1	62-
	64-31	628434	74-	628816	57-26
	65-34	628436	70-	628822	57-18
	66-35	628437	70-	628833	57-25
	67-33		73-	628859	30-09
628154	60-32		74-	628861A1	64-11
	62-32	628438	70-		68-
	63-31		71-18	628891A1	64-
	64-31		71-20	628914	69-02
	65-34		71-24	628981	68-13
	66-35		74-	628986	47-07
	67-33	628439	60-32		48-16
628178	59-04		62-32		49-07
628198	09-16	628440	62-32		50-07
628245	07-	628441	60-32	629007	43-07
628257	05-02		62-32		44-10
	06-02	628472	43-01	629008	43-08
628260	18-42		44-01		44-07
	19-42	628473	43-01		44-12
628264	67-39		44-01	629009	43-09
628271	41-30	628474	45-25		44-08

PART NUMBER	FIG. & INDEX	PART NUMBER	FIG. & INDEX	PART NUMBER	FIG. & INDEX
629009	44-13	629505	50-14	630296	56-15
629010	43-10	629506	50-16	630387	61-14
	44-09	629518-1H	01-23		63-14
	44-14		01-24		64-14
629011	43-07		02-24		65-14
	44-15		16-08	630455	68-11
629076	39-17		17-08	630474	56-27
	40-19		18-07	630519	34-17
629077	39-18		19-07		35-19
	40-21		51-02		36-20
629104	08-06		52-13		37-13
	09-07		53-51	630533	43-17
629111	75-01		54-07	630591	18-10
629117	18-14		73-		19-10
	19-14	629518-3H	01-26	630626	52-41
629138	52-30		01-27	630627	55-27
	54-20		02-26		56-14
	55-02	629518-4H	23-16	630628	52-41
	55-04	629595	55-13		56-14
	56-02		56-13	630686	34-04
	56-04	629597	55-13	630693-10.44	03-16
	57-02	629599	54-02	630826	08-14
629163	54-13	629601	54-06		09-15
629176	32-01	629675	07-09	630863	41-12
629202	05-09	629703-2	74-	630886	09-01
	06-09	629703-2A4	65-12	630927	09-01
629267	71-15	629825	35-14	630932	09-01
629324A1	68-10	629837	42-28	630977	09-01
629325	52-30		44-37	630985	37-03
	54-19	629847	01-31	630988	37-10
	55-03	629848	09-13	630989	37-05
	56-03	629871	69-01	631000	37-04
	57-03	629882	09-01	631094	37-02
629326	75-02	629885	07-01	631111	37-01
629329	69-01	629887	02-01	631200	37-06
629330	65-17	629904-2A1	66-14	631237	41-01
629338	65-22	630039	35-20		43-01
629338A1	65-	630065	70-	631252	31-20
629351	75-01	630069A1	66-13		32-15
629353	56-29		68-	631261	31-01
629354	56-30	630074A1	66-		32-01
629364	65-15	630089	71-15	631266-1	05-50
629364A1	65-	630093	41-31		06-47
629397A1	65-11		43-34	631275-1	06-48
	68-	630119	74-	631277	42-06
629399A9	65-	630124	68-01	631330	72-04
629417	35-04	630184	72-06	631351	73-
	36-04	630261-35	08-05	631351-10A3	66-30
629418	69-02		09-05		72-
629494	44-34	630261-36	08-05	631427	73-
629495	44-33	630261-37	08-05	631427-3A1	72-
629496	44-32		09-05	631427-3A2	63-26
629498	44-31	630261-39	08-05	631427A1	72-
629502	50-10	630261-40	08-05	631427A11	72-
629504	50-13		09-05	631427A15	60-26

PART NUMBER	FIG. & INDEX	PART NUMBER	FIG. & INDEX	PART NUMBER	FIG. & INDEX
631427A15	62-26	631818	69-02	632556	68-05
	66-30	631819	68-01	632557	60-17
	67-28	631845	10-03		61-17
631427A16	64-26		11-04		62-17
631427A17	61-26	631867	01-19		63-17
	65-28		02-20		64-17
631427A19	62-26	631915	06-45		66-19
631427A2	72-	631927	01-30		67-17
631427A3	72-	631928	05-47	632557-1	65-17
631478	27-28		06-44	632558	60-15
	29-28	631972	52-24		61-15
631481	13-01		53-15		62-15
631496	16-06		55-08		63-15
	17-06		56-08		64-15
	18-08		57-07		66-17
	19-08	631995	27-30		67-15
631544	18-42		29-30	632558A1	60-
	19-42	632017	70-		61-
631638	27-27		71-12		62-
	29-27	632077	40-13		63-
631650	28-08	632085	28-10		64-
	30-05		30-06		66-
631653	27-10	632105	42-27		67-
	29-10		44-38	632563	27-05
631658	73-	632106	44-35		29-05
631683	59-11	632149	05-51	632563A16	27-
	60-03	632151	05-48		29-
	61-03	632280	55-26	632563A17	29-
	62-03	632312	37-07	632563A2	27-
	63-03	632319	09-12	632563A20	29-
	64-03	632323	52-28	632563A29	29-
	65-03	632330	39-13	632563A31	27-
	66-03	632357	05-04	632563A4	27-
	67-03	632372	22-06	632563A7	27-
631684	59-09	632443-4	09-19		29-
	60-01	632478	27-09	632653A1	39-12
	61-01	632553-2	75-02	632762	27-16
	62-01	632554-1	68-25		29-16
	63-01		74-	632816	59-02
	64-01	632554-2	68-06	632837	17-34
	65-01		74-	632859	61-22
	66-01	632555-23	68-05		63-22
	67-01	632555-24	74-		64-22
631685	66-04	632555-25	68-24	632859A1	61-
631720	73-	632555-27	74-		64-
631739	44-36	632555-28	74-	632885-2A1	66-
631764	60-09	632555-31	68-24	632904-2	74-
	61-09	632555-32	68-24	632916-2	74-
	62-09	632555-33	68-24	632916-2A2	66-14
	63-09	632555-44	68-05	632932	13-01
	64-09	632555-46	74-	633009	44-30
	65-09	632555-47	68-24	633012	50-11
	66-09	632555-48	68-24	633027	52-18
	67-09	632555-5	74-	633062	37-11

PART NUMBER	FIG. & INDEX	PART NUMBER	FIG. & INDEX	PART NUMBER	FIG. & INDEX
633096	50-12	633589	42-39	635360	44-40
633099	50-15		47-11	635363	44-39
633113	41-13	633590	42-41	635623	08-06
	46-		47-13		09-06
633114	41-14	633591	42-43	635993	24-01
	46-		47-15	636675	47-02
633136	08-12	633592	42-42		48-02
633143A1	66-13		47-14		48-12
	68-	633593	42-38		49-02
633189	08-08		47-10		49-10
	09-09	633845	31-28		50-02
633195	66-24		32-23	636676	47-03
633198	66-25	633925	42-37		48-03
633219	08-01	633926	42-36		49-03
633225	08-01	633927	42-32		49-11
633227	08-01	634150	27-09		50-03
633246	09-01		29-09	636677	47-04
633254	08-09	634195	74-		48-04
	09-08	634505	16-01		49-04
633256	08-01		17-01		49-12
633258	08-01		18-01		50-04
	09-01		19-01	636678	47-05
633311	42-07	634511	03-27		48-05
633343	74-		04-29		48-14
633412	25-07	634592	31-01		49-05
633435	57-15	634673	37-04		49-13
633579	42-10	634675	42-06		50-05
	42-11		43-17	636679	50-06
	42-12		44-16	636687	42-31
	42-13	634805	55-33	636692	42-26
	42-14	634807	55-34	636922	42-29
	42-15	635050A1	31-15	636954	44-17
	42-16		32-10	637286	70-
	46-	635050A4	31-		71-13
633579	47-09		32-	637409	50-09
633580	42-08	635134	05-36	637409-48	44-18
	42-09		06-30		44-19
	42-17	635158-13.00	67-30		44-20
	42-18	635158-15.00	66-31		44-21
	42-19		67-29		44-22
	46-	635158-16.00	61-28		44-23
	47-09		64-28		44-25
633581	42-25		66-31		44-28
633582	42-24	635158-17.00	63-28		44-29
633583	42-23		66-32	637579	08-11
	42-40		67-30		09-11
	47-12	635158-18.00	65-31	637781	18-20
633584	42-22		66-32		19-20
633585	42-21	635158-32.00	65-32	637836	16-14
	42-45		67-31		17-14
	47-17	635158-40.00	66-33		18-17
633586	42-20		67-31		19-17
	42-44	635158-44.00	61-30	637847	32-01
	47-16	635158-8.50	61-29	638152	61-32

PART NUMBER	FIG. & INDEX	PART NUMBER	FIG. & INDEX	PART NUMBER	FIG. & INDEX
638153	61-32	639567	14-02	641250	08-15
638154	61-32	639568	12-03		09-22
	70-		13-03	641306	08-16
638154-12A1	62-08		14-03		09-23
638154-3A2	66-08	639573	18-28	641361	05-27
638154-9A1	60-08		19-28		06-22
	62-08	639629	18-23	641368	31-17
638154-9A12	63-08		18-26		32-12
638154-9A2	67-08		19-23	641643	55-30
638154-9A20	66-08		19-26	641651	05-14
638154-9A4	64-08	639660-13	51-09		06-14
638154-9A6	65-08		52-27	641682	18-25
638154-9A8	61-08		52-29		19-25
638156	71-08		53-12	641701	65-29
638172	39-20		53-13		66-36
	40-23		54-12	641860	52-18
638440	60-32		54-16	641862	10-11
639152	24-01		55-11		11-11
639185A2	66-		56-11	641905	08-01
639193	08-04		57-10	641930-9.81	03-07
	09-04	639663	13-04		04-07
639195	08-03	639766A1	61-11	641931-10.75	03-08
	09-03		68-		04-08
639196	09-03	639768	12-04	641952A1	18-12
639197	08-03		13-04		19-12
639234A3	62-		14-04	641960	18-09
639246A3	60-		15-04		19-09
639247A3	62-	639997	05-15	641962	18-03
639248A3	60-		06-15	641962A1	18-
639255A4	63-	640027	66-09	642003-2	59-01
639257A5	67-	640107A3	61-	642064	72-01
639258A3	67-	640120A1	61-	642068	18-03
639260A3	64-	640299	12-02		19-03
639261A3	66-		13-02	642068A1	18-
639264A2	65-		14-02	642068A3	18-
639266	67-09	640300	12-04		19-
639268	71-27		14-04	642068CP	18-03
639292	20-05		15-04		19-03
639304	05-25	640301	12-02	642068CP-A1	18-
	06-20		13-02		19-
639305	24-14		15-02	642086	13-04
639418-1	01-20	640302	13-05	642159A1	01-01
	02-21		14-05	642166A1	02-01
639418-2	01-19		15-05	642167A1	02-01
	02-20	640380	28-26	642168A1	02-01
639437	68-10		30-23	642169A1	02-01
639479	68-16		39-01	642170A1	02-01
639565	13-02		40-01	642172A1	02-01
	15-02	640518	13-01	642173A1	02-01
639566	12-02	640620-4	05-35	642177A1	02-01
	13-03	640620-5	06-29	642178A1	01-01
	15-03	640620-8	05-35		02-01
	12-02		06-29	642179A1	02-01
639567	13-02	641139	52-18	642182A1	01-01

PART NUMBER	FIG. & INDEX	PART NUMBER	FIG. & INDEX	PART NUMBER	FIG. & INDEX
642183A1	01-01	642283	65-15	642720	08-13
642189A1	02-01	642283A1	65-		09-14
642193A1	01-01	642335	27-11	642914	05-10
642194A1	01-01		29-11		06-10
64224	27-13	642336	27-08	647409-48	44-24
	29-13		29-08		44-26
642249	09-21	642515	59-03		44-27
642250	03-03	642714	28-12	6577-2	63-62
	04-03		30-08		

SECTION VI

CUSTOMER SPECIFICATIONS

This section contains a parts listing of customer specifications for the basic engines of each model. There is a Figure and Index column which refers to an illustrated view of the parts or assembly differences. Figures 76 thru 82 are located on pages 6-25 thru 6-29 in the rear of this section. The other Figures referenced in this section are located throughout Section II.

MODEL SPEC	PART NUMBER	12345	DESCRIPTION	QTY	FIGURE INDEX
O-470-G7	639250A3		Fuel Injection Assembly, Complete	1	***
	638154-9A1		. Fuel Pump Assembly, Complete	1	60-8
	625487A1		. Throttle and Control Assembly, Complete	1	60-
	631427A15		. Manifold Valve	1	60-26
O-470-J6	537487		Regulator, Voltage, 12 Volt, 35 Amp	1	76-1
O-470-J8	627272		Generator, 12 Volt, 50 Amp	1	33-4
O-470-J11	642162A1	①	Crankcase Studding Assembly	1	***
	401808		. Stud, 1/4 x 1-5/16 Inch Long	5	1-10
	626189		Oil Cooler Assembly & Associated Parts		24-
			(See O-470-B)		
	24873		Screw, 1/4 x 1.00 Inch Long	12	24-2
	632823		Bracket, O/C (Rocker Cov. No. 5 Cyl.)	1	***
	632824		Bracket, Oil Cooler	1	***
	629806		Bolt, 1/4 - 28	1	***
	536779		Washer	1	***
	2437		Nut	1	***
	627272		Generator, 12 Volt, 50 Amp	1	33-4
O-470-K3	537298A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		. O-Ring	1	5-46
	627322		Regulator, Voltage, 12 Volt, 35 Amp	1	76-1
O-470-K5	534470		Bracket, Engine Mounting	4	5-1
	626295A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		. O-Ring	1	5-46
	641139		Carburetor, Model MA4-5	1	52-18
	535262		Fuel Pump Assy. & Associated Parts		77-
	536486		Priming System Assembly	1	38-1
	627322		Regulator, Voltage, 12 Volt, 35 Amp	1	76-1
O-470-K9	537298A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		. O-Ring	1	5-46
O-470-K14	401801		Stud, 1/4 x 1-1/4 Inch Long	2	78-1
	627392		Oil Cooler Assy. & Associated Parts		22-
O-470-K15	401801		Stud, 1/4 x 1-1/4 Inch Long	2	78-1
	537298A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		. O-Ring	1	5-46
O-470-K17	642162A1	①	Crankcase Studding Assembly	1	***
	401808		. Stud, 1/4 x 1-5/16 Inch Long	5	1-10
	537298A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		. O-Ring	1	5-46
	627272		Generator, 12 Volt, 50 Amp	1	33-4
O-470-L2	539792A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		. O-Ring	1	5-46

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
O-470-L9	627272		Generator, 12 Volt, 50 Amp	1	33-4
O-470-L10	627272		Generator, 12 Volt, 50 Amp	1	33-4
	632563A7		Oil Pump Housing & Associated Parts		27-
			(See O-470-R)		
	628472		Magneto Assembly, Left Hand	1	44-1
	628473		Magneto Assembly, Right Hand	1	44-1
O-470-L12	632563A7		Oil Pump Housing & Associated Parts		27-
			(See O-470-R)		
	629176		Starter, 12 Volt	1	32-1
	628472		Magneto Assembly, Left Hand	1	44-1
	628473		Magneto Assembly, Right Hand	1	44-1
O-470-L13	632563A7		Oil Pump Housing & Associated Parts		27-
			(See O-470-R)		
	629176		Starter, 12 Volt	1	32-1
	627272		Generator, 12 Volt, 50 Amp	1	33-4
	628472		Magneto Assembly, Left Hand	1	44-1
	628473		Magneto Assembly, Right Hand	1	44-1
O-470-L16	642162A1	①	Crankcase Studding Assembly	1	***
	401808		. Stud, 1/4 x 1-5/16 Inch Long	5	1-10
	539792A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		. O-Ring	1	5-46
	626189		Oil Cooler Assy. & Associated Parts		24-
			(See O-470-B)		
	24835		Screw, 1/4 x 7/8 Inch Long	12	24-2
	632823		Bracket, O/C (Rocker Cov. No. 5 Cyl.)	1	***
	632824		Bracket, Oil Cooler	1	***
	629806		Bolt, 1/4 - 20	1	***
	536779		Washer	1	***
	2437		Nut	1	***
	627272		Generator, 12 Volt, 50 Amp	1	33-4
O-470-M1	629518-1H		Plug, Pipe (Between Cyl. 1 & 3)	1	***
	637261A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		. O-Ring	1	5-46
	627274		Generator, 24 Volt, 25 Amp and		
			Associated Parts		79-
	627320		Regulator, Voltage, 24 Volt, 25 Amp	1	76-1
O-470-M8	637261A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		. O-Ring	1	5-46
O-470-M10	637261A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		. O-Ring	1	5-46
	627274		Generator, 24 Volt, 25 Amp and		
			Associated Parts		79-
	627320		Regulator, Voltage, 24 Volt, 25 Amp	1	76-1

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
O-470-M11	637261A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		. O-Ring	1	5-46
	627320		Regulator, Voltage, 24 Volt, 25 Amp	1	76-1
O-470-M12	637261A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		. O-Ring	1	5-46
O-470-M22	642192A1	①	Crankcase Studding Assembly	1	***
	402042		. Stud, 5/16 x 1 Inch Long	1	1-3
	539914		Bracket, Engine Mounting	3	5-3
	628008		Bracket, Engine Mounting	1	6-3
	628319		Sheave, Starter Drive	1	32-1
	629417		Generator, 24 Volt, 50 Amp and Associated Parts (See IO-470-R)	1	36-
	632563A1		Adapter Assembly, Mag	1	39-12
	627450		Plug, Spark	12	43-17
O-470-M23	637261A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		. O-Ring	1	5-46
	627450		Plug, Spark	12	43-17
O-470-M26	626334		Plug, Special	1	1-32
	625966		Gasket	1	1-33
	AN123866		Seal, O-Ring	1	1-34
	637261A1		Rod Assembly, Oil Gauge	1	5-45
	AN123860		O-Ring	1	5-46
	639152		Cooler Assembly, Oil and Associated Parts (See O-470-M)	1	24-
	639305		Valve, Oil Temperature Control	1	24-14
	627496		. Gasket	1	24-15
	632653A1		Adapter Assembly, Mag	1	39-12
O-470-R1	627272		Generator, 12 Volt, 50 Amp	1	33-4
	629176		Starter, 12 Volt	1	32-1
	628472		Magneto, Left Hand	1	44-1
	628473		Magneto, Right Hand	1	44-1
O-470-R2	627272		Generator, 12 Volt, 50 Amp	1	33-4
	629176		Starter, 12 Volt	1	32-1
O-470-R3	627272		Generator, 12 Volt, 50 Amp	1	33-4
	636954		Harness Assembly	1	44-17
	635150		Spark Plug	12	43-17
O-470-R4	627272		Generator, 12 Volt, 50 Amp	1	33-4
	629176		Starter, 12 Volt	1	32-1
O-470-R5	627272		Generator, 12 Volt, 50 Amp	1	33-4
	628472		Magneto, Left Hand	1	44-1
	628473		Magneto, Right Hand	1	44-1

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
O-470-R6	642164A1 ①		Crankcase Studding Assembly	1	***
	401808		. Stud, 1/4 x 1-5/16 Inch Long	5	1-10
	631927		. Guide, Oil Gauge Rod	1	1-30
	626189		Oil Cooler & Associated Parts (See O-470-B)	1	24-
	24835		Screw, 1/4 x 7/8 Inch Long	12	24-2
	626823		Bracket, O/C (Rocker Cov. No. 5 Cyl.)	1	***
	626824		Bracket, Oil Cooler	1	***
	629806		Bolt, 1/4 - 28	1	***
	536779		Washer	1	***
	2437		Nut	1	***
	627272		Generator, 12 Volt, 50 Amp	1	33-2
	636954		Harness Assembly	1	44-17
	635150		Spark Plug	12	***
O-470-R9	629176		Starter, 12 Volt	1	32-1
	636954		Harness Assembly	1	44-17
	631277		Plug, Spark	12	42-6
O-470-R11	631277		Plug, Spark	12	42-6
O-470-R13	642161A1 ①		Crankcase Studding Assembly	1	***
	401806		. Stud, 1/4 x 1-1/4 Inch Long	3	1-10
	626334		Plug, Special	1	1-32
	625966		Gasket	1	1-33
	AN123866		Seal, O-Ring	1	1-34
	639151		Oil Cooler & Associated Parts		80-
	627272		Generator, 12 Volt, 50 Amp	1	33-4
	636954		Harness Assembly, Complete	1	44-17
	631277		Plug, Spark	12	42-6
O-470-R14	642162A1 ①		Crankcase Studding Assembly	1	***
	401801		. Stud, 1/4 x 1-5/16 Inch Long	5	1-10
	626189		Oil Cooler & Associated Parts (See O-470-B)		24-
	24835		Screw, 1/4 x 7/8 Inch Long	12	24-2
	626823		Bracket, O/C (Rocker Cov. No. 5 Cyl.)	1	***
	626824		Bracket, Oil Cooler	1	***
	629806		Bolt, 1/4 - 28	1	***
	536779		Washer	1	***
	2437		Nut	1	***
	627272		Generator, 12 Volt, 50 Amp	1	33-4
	628472		Magneto Assembly, Left Hand	1	43-1
	628473		Magneto Assembly, Right Hand	1	43-1
	633113		Harness Assembly, Left Hand	1	41-13
	633114		Harness Assembly, Right Hand	1	41-14
	621277		Plug, Spark	12	42-6

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
O-470-R15	539518		Bracket, Engine Mounting	3	5-2
	628257		Bracket, Engine Mounting (Cyl. No. 2)	1	5-2
	632357		Spacer, Mounting Bracket	1	5-4
	636954		Harness Assembly	1	44-17
	631277		Plug, Spark	1	42-6
	536038		Nut, Exhaust	24	18-41
O-470-R17	642161A1	①	Crankcase Studding Assembly	1	***
	401806		. Stud, 1/4 x 1-1/4 Inch Long	3	1-10
	626334		Plug, Special	1	1-32
	625966		Gasket	1	1-33
	AN123866		Seal, O-Ring	1	1-34
	639151		Oil Cooler & Associated Parts		80-
	627272		Generator, 12 Volt, 50 Amp	1	33-4
	636954		Harness Assembly, Complete	1	44-17
	631277		Plug, Spark	12	42-6
	627321		Regulator, Voltage, 12 Volt, 50 Amp	1	77-1
O-470-R20	625765		Magneto, Assembly	2	42-1
	633311		Harness Assembly	1	42-7
	635150		Spark Plug	12	***
	536038		Nut, Exhaust Flange	24	18-41
O-470-R23	627433		Bolt	5	3-12
	2473		Washer, Plain	5	3-13
	628257		Bracket, Eng. Mounting, Cyl. No. 2	1	5-2
	632357		Spacer	1	5-4
	625765		Magneto Assembly	2	42-1
	633311		Harness Assembly	1	42-7
O-470-R25	627433		Bolt	5	3-12
	2473		Washer, Plain	5	3-13
	630693-10.44		Bolt, 3/8 x 10-7/17 Inch Long	1	3-16
	628257		Bracket, Eng. Mounting, Cyl. No. 2	1	5-2
	628357		Spacer	1	5-4
	625765		Magneto Assembly	2	42-1
	633311		Harness Assembly	1	42-7
	631277		Plug, Spark	12	42-6
O-470-R32	642163A1	①	Crankcase Studding Assembly	1	***
	401814		. Stud, 5/16 x 1-7/8 Inch Long	4	1-17
	627433		Bolt	5	3-12
	2473		Washer, Plain	5	3-13
	628257		Bracket, Eng. Mounting, Cyl. No. 2	1	5-2
	632357		Spacer	1	5-4
	535662		Gear, Cam Cluster	1	10-6
	535666		Screw, Cam-to-Gear	4	10-7
	535262		Pump Assembly, Fuel	1	77-

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
J-470-R32	625765		Magneto Assembly	2	42-1
	633311		Harness Assembly	1	42-7
	631277		Plug, Spark	12	42-6
O-470-R35	642161A1 ①		Crankcase Studding Assembly	1	***
	401806		. Stud, 1/4 x 1-1/4 Inch Long	3	1-10
	626334		Plug, Special	1	1-32
	625966		Gasket	1	1-33
	AN123866		Seal, O-Ring	1	1-34
	627433		Bolt	5	3-12
	2473		Washer, Plain	5	3-13
	630693-10.44		Bolt, 3/8 x 10-7/16 Inch Long	1	3-16
	628257		Bracket, Eng. Mounting (Cyl. No. 2)	1	5-2
	632357		Spacer	1	5-4
	639171		Cooler Assembly, Oil and Associated Parts		81-
	625765		Magneto Assembly	2	42-1
	633311		Harness Assembly	1	42-7
	631277		Plug, Spark	1	42-6
O-470-R37	630693-10.44		Bolt, 3/8 x 10-7/16 Inch Long	1	3-16
	634592		Starter, 12 Volt	1	31-1
	627377		Sheave, Generator Drive	1	33-3
	627274		Generator, 24 Volt, 25 Amp	1	33-4
	536213		Spacer	1	33-2
	539580		Bracket, Generator Support	1	***
	538283		Bracket, Generator Support	1	***
	538346		Arm, Generator Belt, Adjusting	1	***
	636954		Harness Assembly	1	44-17
	627320		Regulator	1	77-1
O-470-S2	642195A1 ①		Crankcase Studding Assembly	1	***
	401852		. Stud, 1/4 x 1-13/32 Inch Long	5	1-10
	626334		Plug, Special	1	1-32
	625966		Gasket	1	1-33
	AN123866		Seal, O-Ring	1	1-34
	639171		Cooler Assembly, Oil & Assoc. Parts		81-
O-470-U2	642195A1 ①		Crankcase Studding Assembly	1	***
	401852		. Stud, 1/4 x 1-13/32 Inch Long	5	1-10
	626334		Plug, Special	1	1-32
	625966		Gasket	1	1-33
	AN123866		Seal, O-Ring	1	1-34
	639171		Cooler Assembly Oil and Associated Parts		81-
J-470-U3	642266		Bracket, Eng. Mounting, Cyl. No. 2	1	***
	637847		Starter, 24 Volts	1	32-1

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
O-470-U4	642195A1 ①		Crankcase Studding Assembly	1	***
	401852		. Stud, 1/4 x 1-13/32 Inch Long	5	1-10
	626334		Plug, Special	1	1-32
	625966		Gasket	1	1-33
	AN123866		Seal, O-Ring	1	1-34
	642266		Bracket, Eng. Mounting, Cyl. No. 2	1	***
	639171		Cooler Assembly, Oil and Associated Parts		81-
	637847		Starter, 24 Volt	1	32-1

IO-470 SPECIFICATIONS

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-C7	628481		Switch, Magnetic	1	82-
IO-470-D1	641701		Bracket, Fuel Discharge Tubes, 1-3-5 Side	1	66-36
	628295		Bracket, Fuel Discharge Tubes, 2-4-6 Side	1	66-37
IO-470-D2	632563A7		Housing Assembly, Oil Pump	1	29-
	628482		Starter, 12 Volt	1	32-1
	627272		Generator, 12 Volt, 50 Amp	1	34-4
	538517		Sump Assembly, Oil Pump	1	***
	639257A6		Fuel Injection Assembly, Complete	1	***
	638154-9A2		. Fuel Pump Assembly, Complete	1	67-8
	627315A8		. Throttle and Control Assembly	1	***
	631427A15		. Manifold Valve Assembly	1	67-28
IO-470-D12	639152		Oil Cooler and Associated Parts (see IO-470-U)		24-
	641701		Bracket, Fuel Discharge Tubes, 1-3-5 Side	1	66-36
	628295		Bracket, Fuel Discharge Tubes, 2-4-6 Side	1	66-37
IO-470-D15	639152		Oil Cooler and Associated Parts (see IO-470-U)	1	24-
	628472		Magneto Assembly, L.H.	1	44-1
	628473		Magneto Assembly, R.H.	1	44-1
	636954		Harness Assembly	1	44-17
	641701		Bracket, Fuel Discharge Tubes, 1-3-5 Side	1	66-36
	628295		Bracket, Fuel Discharge Tubes, 2-4-6 Side	1	66-37

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-D19	626334	Plug, Special		1	2-30
	625966	Gasket		1	2-31
	AN123866	Seal, O-Ring		1	2-32
	539914	Bracket, Engine Mounting		3	6-3
	628008	Bracket, Engine Mounting		1	6-3
	628319	Sheave, Generator Drive		1	32-40
	629417	Generator, 24 Volt, 50 Amp and Associated Parts (See IO-470-U)			36-
	639152	Oil Cooler and Associated Parts (See IO-470-U)			24-
	628472	Magneto Assembly, Left Hand		1	44-1
	628473	Magneto Assembly, Right Hand		1	44-1
	636954	Harness Assembly		1	44-17
	639262A3	Fuel Injection Assembly, Complete		1	***
	638154-9A20	Fuel Pump Assembly, Complete		1	66-8
	627315A1	Throttle and Control Assembly		1	67-
	631427A15	Manifold Valve		1	66-30
	628260	Gasket, Exhaust Flange		6	19-42
IO-470-D27	539914	Bracket, Engine Mounting		3	6-2
	628008	Bracket, Engine Mounting		1	6-3
	639152	Oil Cooler and Associated Parts (See IO-470-U)			24-
	628319	Sheave, Starter Adapter		1	32-40
	629417	Generator, 24 Volt, 50 Amp and Associated Parts (See IO-470-U)			36-
	628472	Magneto Assembly, L.H.		1	44-1
	628473	Magneto Assembly, R.H.		1	44-1
	636954	Harness Assembly		1	44-17
	641701	Bracket, Fuel Discharge Tubes, 1-3-5 Side		1	66-36
	628295	Bracket, Fuel Discharge Tubes, 2-4-6 Side		1	66-37
	639263A3	Fuel Injection Assembly, Complete		1	***
	638154-9A20	Fuel Pump Assembly, Complete		1	66-8
	630074A2	Throttle and Control Assembly		1	***
	631427A15	Manifold Valve Assembly		1	66-30
IO-470-D30	626334	Plug, Special		1	2-30
	625966	Gasket		1	2-31
	AN123866	Seal, O-Ring		1	2-31
	539914	Bracket, Engine Mounting		3	6-3
	628008	Bracket, Engine Mounting		1	6-3
	628319	Sheave, Generator Drive		1	32-40
	629417	Generator, 24 Volt, 50 Amp and Associated Parts (See IO-470-U)			36-
	639152	Oil Cooler and Associated Parts (See IO-470-U)			24-
	639262A3	Fuel Injection Assembly, Complete		1	***
	638154-9A20	Fuel Pump Assembly, Complete		1	66-8
	627315A1	Throttle and Control Assembly		1	67-
	631427A15	Manifold Valve		1	66-30
	628260	Gasket, Exhaust Flange		6	19-42

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-D42	626334	Plug, Special	.....	1	2-30
	625966	Gasket	.....	1	2-31
	AN123866	Seal, O-Ring	.....	1	2-32
	539766	Rod Assembly, Oil Gauge	.....	1	6-42
	AN123860	. O-Ring	.....	1	6-43
	539910	Starter, 12 Volt	.....	1	***
	534316	Gasket, Starter-to-Adapter	.....	1	31-5
	627272	Generator, 12 Volt, 50 Amp	.....	1	34-4
	627690	Bracket, Generator Mounting	.....	1	34-19
	639152	Oil Cooler and Associated Parts (See IO-470-U)	.....		24-
	626745	Tube Assembly, Elbow, 1-3-5 Side	.....	1	***
	537873	Tube, Intake Manifold, Cylinder 1-5 & 6	.....	3	53-2
	537874	Tube, Intake Manifold, Cylinder No. 2	.....	1	53-4
	537875	Tube, Intake Manifold, Cylinder Nos. 3 & 4	.....	2	53-3
IO-470-D44	626334	Plug, Special	.....	1	2-30
	625966	Gasket	.....	1	2-31
	AN123866	Seal, O-Ring	.....	1	2-32
	631481	Piston, 8:1 Compression Ratio	.....	6	13-1
	639565	Ring, Piston, Top Groove	.....	6	13-2
	639566	Ring, Piston, 2nd Groove	.....	6	13-3
	639663	Ring, Piston, Third Groove	.....	6	13-4
	627480	Ring, Piston, Fourth Groove	.....	6	13-5
	639152	Cooler Assembly, Oil and Associated Parts (See IO-470-U)	.....	1	24-
	628472	Magneto, Left Hand	.....	1	44-1
	628473	Magneto, Right Hand	.....	1	44-1
	636954	Harness Assembly	.....	1	44-17
	628295	Bracket, Fuel Lines, 2-4-6 Side	.....	1	65-30
	641701	Bracket, Fuel Lines, 1-3-5 Side	.....	1	65-29
	628260	Gasket, Exhaust Flange	.....	6	19-42
IO-470-D50	626334	Plug, Special	.....	1	2-30
	625966	Gasket	.....	1	2-31
	AN123866	Seal, O-Ring	.....	1	2-32
	539914	Bracket, Engine Mounting	.....	3	6-3
	628008	Bracket, Engine Mounting	.....	1	6-3
	628319	Sheave, Generator Drive	.....	1	32-40
	629417	Generator, 24 Volt, 50 Amp and Associated Parts (See IO-470-U)	.....		36-
	639152	Cooler Assembly, Oil and Associated Parts (See IO-470-U)	.....		24-
	628472	Magneto Assembly, Left Hand	.....	1	44-1
	628473	Magneto Assembly, Right Hand	.....	1	44-1
	636954	Harness Assembly	.....	1	44-17
	639263A3	Fuel Injection Assembly, Complete	.....	1	***
	638154-9A20	. Fuel Pump Assy., Complete	.....	1	66-8
	630074A3	. Throttle and Control Assy.	.....	1	***
	631427A15	. Manifold Valve Assembly	.....	1	66-30
	628260	Gasket, Exhaust Flange	.....	1	19-42

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-D52	639152		Oil Cooler and Associated Parts (See IO-470-U)		24-
	628472		Magneto Assembly, L.H.	1	44-1
	628473		Magneto Assembly, R.H.	1	44-1
	636954		Harness Assembly	1	44-17
	641701		Bracket, Fuel Discharge Tubes, 1-3-5 Side	1	66-36
	628295		Bracket, Fuel Discharge Tubes, 2-4-6 Side	1	66-37
IO-470-E6	534445		Valve, Oil Temperature Control	1	***
	534316		Gasket, Starter-to-Adapter	1	31-5
	627272		Generator, 12 Volt, 50 Amp	1	34-4
	632563A7		Housing Assembly, Oil Pump and Associated Parts (See IO-470-F)	1	29-
	628472		Magneto Assembly, Left Hand	1	44-1
	628473		Magneto Assembly, Right Hand	1	44-1
	636954		Harness Assembly	1	44-17
	641701		Bracket, Fuel Line, 1-3-5 Side	1	65-29
	628295		Bracket, Fuel Line, 2-4-6 Side	1	65-30
IO-470-E8	534445		Valve, Oil Temperature Control	1	***
	539910		Starter, 12 Volt	1	***
	534316		Gasket, Starter-to-Adapter	1	31-5
	632563A7		Housing Assembly, Oil Pump and Associated Parts (See IO-470-F)		29-
	641701		Bracket, Fuel Line, 1-3-5 Side		65-29
	628295		Bracket, Fuel Line, 2-4-6 Side		65-30
IO-470-E13	534445		Valve, Oil Temperature Control	1	***
	539910		Starter, 12 Volt	1	***
	534316		Gasket, Starter-to-Adapter	1	31-5
	627272		Generator, 12 Volt, 50 Amp	1	34-4
	632563A7		Housing Assembly, Oil Pump and Associated Parts (See IO-470-F)		29-
	641701		Bracket, Fuel Line, 1-3-5 Side	1	65-29
	628295		Bracket, Fuel Line, 2-4-6 Side	1	65-30
IO-470-F1	539374		Washer (CC-to-CC at O-Ring)		4-15
	539518		Bracket, Engine Mounting	4	6-2
	632965A1		Rod Assembly, Oil Gauge	1	6-42
	AN123860		O-Ring	1	6-43
	539910		Starter, 12 Volt	1	***
IO-470-F3	539518		Bracket, Engine Mounting	4	6-2
	629409		Rod, Oil Gauge	1	6-42
	AN123860		O-Ring	1	6-43
	626189		Oil Cooler and Associated Parts (See IO-470-M)		24-
	632823		Bracket, O/C (Secure to Rocker Cover)	1	***
	632824		Bracket, Oil Cooler	1	***
	629806		Bolt, Special, 1/4-28	1	***
	536779		Washer	1	***
	2437		Nut	1	***

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-F3 (Continued)	628472		Magneto Assembly, L.H.	1	44-1
	628473		Magneto Assembly, R.H.	1	44-1
	634675		Spark Plug	12	44-16
	636954		Harness Assembly	1	44-17
	641701		Bracket, Fuel Discharge Tubes, 1-3-5 Side	1	66-36
	628295		Bracket, Fuel Discharge Tubes, 2-4-6 Side	1	66-37
	640106A11		Fuel Injection Assembly, Complete	1	***
	638154-9A3		Fuel Pump Assembly, Complete	1	***
	640118A5		Throttle and Control Assembly	1	***
	631427A17		Manifold Valve Assembly	1	61-26
IO-470-F4	642175A1 ①		Crankcase Studding Assembly	1	***
	401804		Stud, 1/4 x 1-1/16 Inch Long (Cam Hole Cover)	2	***
	531661		Stud, 1/4 x 2-7/8 Inch Long	2	2-6
	401808		Stud, 1/4 x 1-5/16 Inch Long	5	2-10
	535956		Stud, No. 10 x 5/8 Inch Long (Oil Seal Retainer)	2	***
	401837		Stud, 5/16 x 2-1/8 Inch Long	4	2-18
	539374		Washer, C/C-to-C/C at O-Ring	1	4-15
	539518		Bracket, Engine Mounting	3	5-2
	628257		Bracket, Engine Mounting, Cyl. No. 2	1	5-3
	629409		Rod Assembly, Oil Gauge	1	6-42
	626189		Oil Cooler and Associated Parts (See IO-470-M)		24-
	632823		Bracket, O/C (Secure to Rocker Cover)	1	***
	632824		Bracket, Oil Cooler	1	***
	629806		Bolt, Special, 1/4 - 28	1	***
	536779		Washer	1	***
	2437		Nut	1	***
	637847		Starter, 24 Volts	1	32-1
	628319		Sheave, Generator Drive	1	32-40
	629417		Generator, 24 Volt, 50 Amp and Associated Parts (See IO-470-U)		36-
	628472		Magneto Assembly, Left Hand	1	44-1
	628473		Magneto Assembly, Right Hand	1	44-1
	636954		Harness Assembly	1	44-17
	640106A9		Fuel Injection Assembly, Complete	1	***
	638154-9A18		Fuel Pump Assy., Complete	1	***
	640118A2		Throttle and Control Assembly	1	***
	631427A17		Manifold Valve Assembly	1	61-26
	628873		Regulator, Voltage	1	76-1
IO-470-F5	642175A1 ①		Crankcase Studding Assembly	1	***
	401804		Stud, 1/4 x 1-1/16 Inch Long (Cam Hole Cover)	2	***
	531661		Stud, 1/4 x 2-7/8 Inch Long	2	2-6
	401808		Stud, 1/4 x 1-5/16 Inch Long	5	2-10
	535956		Stud, No. 10 x 5/8 Inch Long (Oil Seal Retainer)	2	***
	401837		Stud, 5/16 x 2-1/8 Inch Long	4	2-18
	539374		Washer, C/C-to-C/C at O-Ring	1	4-15

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-F5 (Continued)	539518		Bracket, Engine Mounting	4	6-2
	629409		Rod Assembly, Oil Gauge	1	6-42
	626189		Oil Cooler and Associated Parts (See IO-470-M)		24-
	632823		Bracket, O/C (Secure to Rocker Cover)	1	***
	632824		Bracket, Oil Cooler	1	***
	629806		Bolt, Special, 1/4 - 28	1	***
	536779		Washer	1	***
	2437		Nut	1	***
	628472		Magneto Assembly, Left Hand	1	44-1
	628473		Magneto Assembly, Right Hand	1	44-1
	636954		Harness Assembly	1	44-17
	640106A8		Fuel Injection Assembly, Complete	1	***
	638154-9A3		Fuel Pump Assembly, Complete	1	***
	640118A2		Throttle and Control Assembly	1	***
	631427A17		Manifold Valve Assembly	1	61-26
	627321		Regulator, Voltage	1	76-1
IO-470-F7	642174A1 ①		Crankcase Studding Assembly	1	***
	401804		Stud, 1/4 x 1-1/16 Inch Long (Cam Hole Cover)	2	***
	531661		Stud, 1/4 x 2-7/8 Inch Long	2	2-6
	401808		Stud, 1/4 x 1-5/16 Inch Long	5	2-10
	535956		Stud, No. 10 x 5/8 Inch Long (Oil Seal Retainer)	2	***
	401837		Stud, 5/16 x 2-1/8 Inch Long	4	2-18
	631927		Guide, Oil Gauge Rod	1	2-29
	632062-4A1		Rod Assembly, Oil Gauge	1	6-42
	25328		O-Ring	1	6-43
	631928		Hose	1	5-47
	632151		Housing	1	5-48
	36151R		Clamp	2	5-49
	631266-1		Clamp	1	5-50
	632149		Bracket	1	5-51
	22904		Screw	1	5-52
	2471		Washer	1	5-53
	22910		Washer	1	5-54
	13XX1896		Nut	1	5-55
	539374		Washer, C/C-to-C/C at O-Ring	1	4-15
	539518		Bracket, Engine Mounting	3	5-2
	628257		Bracket, Engine Mounting, Cyl. No. 2	1	5-3
	632357		Spacer, Cylinder No. 2	1	5-4
	626189		Oil Cooler & Associated Parts (See IO-470-M)		24-
	632823		Bracket, O/C (Secure to Rocker Cover)	1	***
	632824		Bracket, Oil Cooler	1	***
	629806		Bolt, Special, 1/4 - 28	1	***
	536779		Washer	1	***
	2437		Nut	1	***
	625765		Magneto Assembly	2	42-1
	633311		Harness Assembly	1	42-7

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-F7 (Continued)	640106A5		Fuel Injection Assembly, Complete	1	***
	638154-9A3		. Fuel Pump Assy., Complete	1	***
	640118A2		. Throttle and Control Assembly	1	***
	631427A17		. Manifold Valve Assembly	1	61-26
	627321		Regulator, Voltage	1	76-1
IO-470-F18	626334		Plug Special	1	2-30
	625966		Gasket	1	2-31
	AN123866		Seal, O-Ring	1	2-32
	539518		Bracket, Engine Mounting	3	6-2
	628257		Bracket, Engine Mounting	1	6-2
	637847		Starter, 24 Volt	1	32-1
	628319		Sheave, Starter Adapter	1	32-40
	625765		Magneto Assembly	2	42-1
	634675		Spark Plug	1	42-6
	633311		Harness Assembly	1	42-7
	641701		Bracket, Fuel Discharge Tubes, 1-3-5 Side	1	66-1
	628295		Bracket, Fuel Discharge Tubes, 2-4-6 Side	1	66-2
	640106A10		Fuel Injection Assembly, Complete	1	***
	638154-9A18		. Fuel Pump Assembly	1	***
	640118A5		. Throttle and Control Assembly	1	***
	631427A17		. Manifold Valve Assembly	1	61-26
	639151		Oil Cooler and Associated Parts		80-
IO-470-F19	642175A1	①	Crankcase Studding Assembly	1	***
	401804		. Stud, 1/4 x 1-1/16 Inch Long (Cam Hole Cover)	2	***
	531661		. Stud, 1/4 x 2-7/8 Inch Long	2	2-6
	401808		. Stud, 1/4 x 1-5/16 Inch Long	5	2-10
	535956		. Stud, No. 10 x 5/8 Inch Long (Oil Seal Retainer)	2	***
	401837		. Stud, 5/16 x 2- 1/8 Inch Long	4	2-18
	639518		Bracket, Engine Mounting	4	6-2
	629409		Rod, Oil Gauge	1	6-42
	AN123860		O-Ring	1	6-43
	626189		Oil Cooler and Associated Parts		24-
	641701		Bracket, Fuel Discharge Tubes, 1-3-5 Side	1	66-36
	628295		Bracket, Fuel Discharge Tubes, 2-4-6 Side	1	66-37
	640106A11		Fuel Injection Assembly, Complete	1	***
	638154-9A3		. Fuel Pump Assembly, Complete	1	***
	640118A5		. Throttle and Control Assembly	1	***
	631427A17		. Manifold Valve Assembly	1	61-26
IO-470-F23	642174A1	①	Crankcase Studding Assembly	1	***
	401804		. Stud, 1/4 x 1-1/16 Inch Long (Cam Hole Cover)	2	***
	531661		. Stud, 1/4 x 2-7/8 Inch Long	2	2-6
	401808		. Stud, 1/4 x 1-5/16 Inch Long	5	2-10
	535956		. Stud, No. 10 x 5/8 Inch Long (Oil Seal Retainer)	2	***
	401837		. Stud, 5/16 x 2-1/8 Inch Long	4	2-18
	631927		. Guide, Oil Gauge Rod	1	2-29

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-F23 (Continued)	632062-4A1		Rod Assembly, Oil Gauge	1	6-42
	25328		. O-Ring	1	6-43
	631928		Hose	1	5-47
	632151		Housing	1	5-48
	36151R		Clamp	2	5-49
	631266-1		Clamp	1	5-50
	632149		Bracket	1	5-51
	22904		Screw	1	5-52
	2471		Washer	1	5-53
	22910		Washer	1	5-54
	13XX1896		Nut	1	5-55
	539374		Washer, C/C-to-C/C at O-Ring	1	4-15
	539518		Bracket, Engine Mounting	3	5-2
	628257		Bracket, Engine Mounting, Cyl. No. 2	1	5-3
	632357		Spacer	1	5-4
	626189		Oil Cooler & Associated Parts (See IO-470-M)		24-
	632823		Bracket, O/C (Secure to Rocker Cover)	1	***
	632824		Bracket, Oil Cooler	1	***
	629806		Bolt, Special, 1/4 - 28	1	***
	536779		Washer	1	***
	2437		Nut	1	***
	625765		Magneto Assembly	2	42-1
	633311		Harness Assembly	1	42-7
	640106A8		Fuel Injection Assembly, Complete	1	***
	638154-9A3		. Fuel Pump Assembly, Complete	1	***
	640118A2		. Throttle and Control Assembly	1	***
	631427A17		. Manifold Valve Assembly	1	61-26
IO-470-F26	642174A1 ①		Crankcase Studding Assembly	1	***
	401804		. Stud, 1/4 x 1-1/16 Inch Long (Cam Hole Cover)	2	***
	531661		. Stud, 1/4 x 2-7/8 Inch Long	2	2-6
	401808		. Stud, 1/4 x 1-5/16 Inch Long	5	2-10
	535956		. Stud, No. 10 x 5/8 Inch Long (Oil Seal Retainer)	2	***
	401837		. Stud, 5/16 x 2-1/8 Inch Long	4	2-18
	631927		. Guide, Oil Gauge Rod	1	2-29
	626334		Plug, Special	1	2-30
	625966		Gasket	1	2-31
	AN123866		Seal, O-Ring	1	2-32
	539518		Bracket, Engine Mounting	3	5-2
	628257		Bracket, Engine Mounting, Cylinder No. 2	1	5-2
	632357		Spacer	1	5-4
	637847		Starter, 24 Volt	1	32-1
	625765		Magneto Assembly	2	42-1
	633311		Harness Assembly	1	42-7
	641701		Bracket, Fuel Discharge Tubes, 1-3-5 Side	1	66-36
	628295		Bracket, Fuel Discharge Tubes, 2-4-6 Side	1	66-37
	639151		Oil Cooler and Associated Parts		80-

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-F26 (Continued)	640106A11		Fuel Injection Assembly, Complete	1	***
	638154-9A3		. Fuel Pump Assembly, Complete	1	***
	640118A5		. Throttle and Control Assembly	1	***
	631427A17		. Magneto Valve Assembly	1	61-26
IO-470-J6	538773		Neck Assembly, Oil Filler	1	6-27
	640620-5		Cap Assembly, Oil Filler	1	6-29
	632563A16		Housing Assembly, Oil Pump	1	29-2
	628272		Generator, 12 Volt, 50 Amp.	1	34-4
	639248A4		Fuel Injection Assembly, Complete	1	***
	638154-9A1		. Fuel Pump Assembly, Complete	1	60-8
	625487A3		. Throttle and Control Assembly	1	***
	631427A15		. Manifold Valve Assembly	1	60-26
IO-470-K3	629141		Thermo Unit, (Install in No. 4 Cyl.)	1	***
	AN936A4		Washer, Lock, Thermo-Cyl. Head	1	***
	MS35649-242		Nut, Thermo-to-Cyl. Head	1	***
IO-470-K6	627272		Generator, 12 Volt, 50 Amp	1	34-4
	629141		Thermo Unit, (Install in No. 4 Cyl.)	1	***
	AN936A4		Washer, Lock, Thermo-to-Cyl. Head	1	***
	MS35649-242		Nut, Thermo-to-Cyl. Head	1	***
IO-470-K11	632563A33		Housing Assembly, Oil Pump	1	***
	21208A2		. Housing Assembly, Tach Drive	1	30-7
	636141		Magneto Assembly	2	***
	633311		Harness Assembly	1	42-7
	629141		Thermo Unit (Install in No. 4 Cyl.)	1	***
	AN936A4		Washer, Lock, Thermo-to-Cylinder Head	1	***
	MS35649-242		Nut, Thermo-to-Cylinder Head	1	***
IO-470-K12	632077		Adapter Assy., Mag. & Accy. Drive (2-4-6 Side)	1	40-13
	534861		Adapter Assy., Mag. & Accy. Drive	1	40-13
	628472		Magneto Assembly, Left Hand	1	44-1
	628473		Magneto Assembly, Right Hand	1	44-1
	636954		Harness Assembly	1	44-17
	629141		Thermo Unit (Install in No. 4 Cyl.)	1	***
	AN936A4		Washer, Lock, Thermo-to-Cyl. Head	1	***
	MS35649-242		Nut, Thermo-to-Cyl. Head	1	***
IO-470-L3	539518		Bracket, Engine Mounting	3	6-2
	628257		Bracket, Engine Mounting	1	6-2
	629416		Generator, 24 Volt 40 Amp	1	***
			(For Associated Parts See IO-470-M Figure 35)		
	636954		Harness Assembly	1	44-17
	639254A6		Fuel Injection Assembly, Complete	1	***
	638154-9A16		. Fuel Pump Assembly, Complete	1	***
	629770A7		. Throttle and Control Assembly	1	***
	631427-3A2		. Manifold Valve Assembly	1	63-26

MODEL SPEC	PART NUMBER	12345	DESCRIPTION	QTY	FIGURE INDEX
IO-470-L5	642176A1 ①		Crankcase Studding Assembly	1	***
			(642176A1 same as 642177A1 except omit 2-3)		
	539518		Bracket, Engine Mounting	3	5-2
	628257		Bracket, Engine Mounting (No. 2 Cyl.)	1	5-3
	629416		Generator, 24 Volt, 40 Amp	1	***
			(See IO-470-M 35-1 thru 35-21 for Assoc. Parts)		
	636954		Harness Assembly	1	44-17
	639254A5		Fuel Injection Assembly, Complete	1	***
	638154-9A16		. Fuel Pump Assy., Complete	1	***
	629770A4		. Throttle and Control Assembly	1	***
IO-470-L8	631427-3A2		. Manifold Valve Assembly	1	63-26
	539518		Bracket, Engine Mounting	3	6-2
	628257		Bracket, Engine Mounting	1	6-2
	636954		Harness Assembly	1	44-17
	639253A12		Fuel Injection Assembly, Complete	1	***
	638154-9A15		. Fuel Pump Assembly, Complete	1	***
	629770A8		. Throttle and Control Assembly	1	***
IO-470-L9	631427-3A2		. Manifold Valve Assembly	1	63-26
	639518		Bracket, Engine Mounting	3	6-2
	628257		Bracket, Engine Mounting	1	6-2
	631111		Alternator and Associated Parts	1	37-
	632958		Magneto Assembly, L.H.	1	***
	632959		Magneto Assembly, R.H.	1	***
	636952		Harness Assembly	1	***
	639253A12		Fuel Injection Assembly, Complete	1	***
	638154-9A15		. Fuel Pump Assembly, Complete	1	***
	629770A8		. Throttle and Control Assembly	1	***
IO-470-L11	631427-3A2		. Manifold Valve Assembly	1	63-26
	642176A1 ①		Crankcase Studding Assembly	1	***
			(642176A1 is the same as 642177A1 except omit 2-3)		
	539518		Bracket, Engine Mounting	3	5-2
	628257		Bracket, Engine Mounting (Cyl. No. 2)	1	5-3
	631111		Alternator and Associated Parts	1	37-
	639253A9		Fuel Injection Assembly, Complete	1	***
	638154-9A15		. Fuel Pump Assy., Complete	1	***
	629770A3		. Throttle and Control Assembly	1	***
	631427-3A2		. Manifold Valve Assembly	1	63-26
IO-470-L12	642176A1 ①		Crankcase Studding Assembly	1	***
			(642176A1 is the same as 642177A1 except omit 2-3)		
	539518		Bracket, Engine Mounting	3	5-2
	628257		Bracket, Engine Mounting, Cyl. No. 2	1	5-3
	639254A5		Fuel Injection Assembly, Complete	1	***
	638154-9A16		. Fuel Pump Assy., Complete	1	***
	629770A4		. Throttle and Control Assembly	1	***
	631427-3A2		. Manifold Valve Assembly	1	63-26

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-L13	539518		Bracket, Engine Mounting	3	6-2
	628257		Bracket, Engine Mounting	1	6-2
	636954		Harness Assembly	1	44-17
	639254A6		Fuel Injection Assembly, Complete	1	***
	638154-9A16		Fuel Pump Assembly, Complete	1	***
	629770A7		Throttle and Control Assembly	1	***
	631427-3A2		Manifold Valve Assembly	1	63-26
IO-470-L15	642176A1	①	Crankcase Studding Assembly	1	***
			(642176A1 is the same as 642177A1 except omit 2-3)		
	539518		Bracket, Engine Mounting	1	6-2
	634673		Bracket, Engine & Alt. Mounting	1	37-4
	641658		Alternator	1	***
	640261		Sheave, Alternator Driven	1	***
	634617		Bracket, Adjusting Arm	1	***
	530346		Screw, 5/16 x 7/8, Alternator-to-Arm	1	***
	13XX202B		Washer, Lock, Alternator-to-Arm	1	***
	537539		Washer, Alternator-to-Arm	2	***
	537750		Screw, 5/16 x 1-1/8 Arm-to-Starter Adpt.	1	***
	501868		Washer, Tab, Arm-to-Starter Adapter	1	***
	634657		Bolt, 3/8 x 4-39/64 Alt-to-Bracket	1	***
	22786		Washer, Alternator-to-Bracket	2	***
	2441		Nut, Alternator-to-Bracket	1	***
	539547-32.00		Belt	1	***
	635169		Sheave, Starter	1	32-40
	632958		Magneto Assembly, Left Hand	1	***
	632959		Magneto Assembly, Right Hand	1	***
	636952		Harness Assembly	1	***
	639253A9		Fuel Injection Assembly, Complete	1	***
	638154-9A15		Fuel Pump Assy., Complete	1	***
	629770A3		Throttle and Control Assembly	1	***
	631427-3A2		Manifold Valve Assembly	1	63-26
IO-470-L16	642176A1	①	Crankshaft Studding Assembly	1	***
			(642176A1 same as 642177A1 except omit 2-3)		
	539518		Bracket, Engine Mounting	3	5-2
	628257		Bracket, Engine Mounting, Cyl. No. 2	1	5-3
	631111		Alternator and Associated Parts		37-
	639151		Oil Cooler and Associated Parts		81-
	632958		Magneto Assembly, Left Hand	1	***
	632959		Magneto Assembly, Right Hand	1	***
	636952		Harness Assembly	1	***
	639253A9		Fuel Injection Assembly, Complete	1	***
	638154-9A15		Fuel Pump Assy., Complete	1	***
	629770A3		Throttle and Control Assembly	1	***
	631427-3A2		Manifold Valve Assembly	1	63-26
IO-470-L18	642176A1	①	Crankcase Studding Assembly	1	***
			(642176A1 same as 642177A1 except omit 2-3)		

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-L18 (Continued)	539518		Bracket, Engine Mounting	3	5-2
	628257		Bracket, Engine Mounting, Cylinder No. 2	1	5-3
	631111		Alternator and Associated Parts		37-
	632958		Magneto Assembly, Left Hand	1	***
	632959		Magneto Assembly, Right Hand	1	***
	636952		Harness Assembly	1	***
	639253A9		Fuel Injection Assembly, Complete	1	***
	638154-9A15		. Fuel Pump Assy., Complete	1	***
	629770A3		. Throttle and Control Assembly	1	***
	631427-3A2		. Manifold Valve Assembly	1	63-26
IO-470-L19	642525		Crankcase Studding Assembly	1	***
	635169		Sheave, Starter Adapter	1	32-40
	634673		Bracket, Engine & Alternator Mounting	1	37-4
	641658		Alternator	1	***
	640261		Sheave, Alternator Driven	1	***
	629825		Bracket, Adjusting Arm	1	***
	530346		Screw, 5/16 x 7/8, Alt.-to-Arm	1	***
	13XX202B		Washer, Lock, Alternator-to-Arm	1	***
	537539		Washer, Alternator-to-Arm	2	***
	537750		Screw, 5/16 x 1-1/8, Arm-to-Str. Adpt.	1	***
	501868		Washer, Tab, Arm-to-Starter-Adpt.	1	***
	634657		Bolt, 3/8 x 4-39/64, Alt-to-Bracket	1	***
	22786		Washer, Alternator-to-Bracket	2	***
	2441		Nut, Alternator-to-Bracket	1	***
	539547-31.19		Belt	1	***
	636141		Magneto Assembly	2	***
	636140		Harness Assembly	1	***
	639151		Oil Cooler and Associated Parts	1	80-
	639253A9		Fuel Injection Assembly, Complete	1	***
	638154-9A15		. Fuel Pump Assy., Complete	1	***
	629770A3		. Throttle and Control Assembly	1	***
	631427-3A2		. Manifold Valve Assembly	1	63-26
IO-470-L20	642176A1	①	Crankcase Studding Assembly	1	***
			(642176A1 same as 642177A except omit 2-3)		
	539518		Bracket, Engine Mounting	3	5-2
	628257		Bracket, Engine Mounting, Cyl. No. 2	1	5-3
	629416		Generator 24 Volt, 40 Amp	1	***
			(See IO-470-M 35-1 thru 35-21 for Associated Parts)		
	632958		Magneto Assembly, Left Hand	1	***
	632959		Magneto Assembly, Right Hand	1	***
	636952		Harness Assembly	1	***
	639253A11		Fuel Injection Assembly, Complete	1	***
	638154-9A19		. Fuel Pump Assy., Complete	1	***
	629770A3		. Throttle and Control Assembly	1	***
	631427-3A2		. Manifold Valve Assembly	1	63-26

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-L21	642525		Crankcase Studding Assembly	1	***
	635169		Sheave, Starter Adapter	1	32-40
	634673		Bracket, Engine & Alt. Mounting	1	37-4
	641658		Alternator	1	***
	640261		Sheave, Alternator Driven	1	***
	629825		Bracket, Adjusting Arm	1	***
	530346		Screw, 5/16 x 7/8, Alternator-to-Arm	1	***
	13XX202B		Washer, Lock, Alternator-to-Arm	1	***
	537539		Washer, Alternator-to-Arm	2	***
	537750		Screw, 5/16 x 1-1/8, Arm-to-Starter Adpt.	1	***
	501868		Washer, Tab, Arm-to-Starter Adapter	1	***
	634657		Bolt, 3/8 x 4-39/64, Alt-to-Bracket	1	***
	22786		Washer, Alternator-to-Bracket	2	***
	2441		Nut, Alternator-to-Bracket	1	***
	539547-31.19		Belt	1	***
	640030		Magneto Assembly	2	***
	640031		Harness Assembly	1	***
	639253A9		Fuel Injection Assembly Complete	1	***
	638154-9A15		Fuel Pump Assembly, Complete	1	***
	629770A3		Throttle and Control Assembly	1	***
	631427-3A2		Magneto Valve Assembly	1	63-26
IO-470-N3	642181A1	①	Crankcase Studding Assembly	1	***
	401861		Stud, 3/8 x 1-3/4 Inch Long	1	2-3
	637847		Starter, 24 Volts	1	32-1
	629417		Generator, 24 Volt, 50 Amp, and Associated Parts (See IO-470-M 35-1 thru 35-20)		
	630907		Bracket, Generator Mounting	1	35-21
	629204		Plate, Generator Bracket	1	***
	639265A3		Fuel Injection Assembly, Complete	1	***
	638154-9A7		Fuel Pump Assembly	1	***
	627119		Elbow, 90 Degree, F/P Outlet	1	70-B
	628438		Fitting, Connector, F/P Outlet	1	70-B
	627119		Elbow, 90 Degree, Vapor Return	1	70-D
	628438		Fitting, Connector, Vapor Return	1	70-D
IO-470-N7	636954		Harness Assembly	1	44-17
IO-470-N10	632663		Bracket, Engine Mounting	4	***
	638152A1		Rod Assembly, Oil Gauge	1	6-42
	AN123860		O-Ring	1	6-43
	636141		Magneto Assembly	2	***
	633311		Harness Assembly	1	42-7
	536038		Nut, Exhaust Flange	24	19-41
	639355A4		Fuel Injection Assembly, Complete	1	***
	638154-9A1		Fuel Pump Assembly, Complete	1	62-8
	639123A2		Throttle and Control Assembly	1	***
	631427A20		Manifold Valve Assembly	1	***

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-N11	632663		Bracket, Engine Mounting	4	***
	638152A1		Rod Assembly, Oil Gauge	1	6-42
	AN123860		. O-Ring	1	6-43
	536038		Nut, Exhaust Flange	24	19-41
	640030		Magneto Assembly	2	***
	636603		Harness Assembly	1	***
	639355A4		Fuel Injection Assembly, Complete	1	87-
	638154-9A1		. Fuel Pump Assembly, Complete	1	62-8
	639123A2		. Throttle and Control Assembly	1	***
	631427A20		. Manifold Valve Assembly	1	***
IO-470-N12	642180A1 ①		Crankcase Studding Assembly	1	***
	402066		. Stud, 3/8 x 1-7/8 (Alternator Bracket)	2	2-3
	401945		. Stud, 3/8 x 1-5/8 (Alternator Bracket)	2	2-3
	632663		Bracket, Engine Mounting	4	***
	538801		Neck Assembly, Oil Filler	1	6-27
	638152A1		Rod Assembly, Oil Gauge	1	6-42
	AN123860		. O-Ring	1	6-43
	637847		Starter, 24 Volts	1	32-40
	641658		Alternator	1	***
	640261		Sheave, Alternator	1	***
	634649		Bracket, Engine & Alternator Mounting	1	***
	AN960-616L		Washer, Alt. Bracket-to-Crankcase	4	***
	2441		Nut, Alt. Bracket-to-Crankcase	4	***
	634657		Bolt, 3/8 x 4-39/64, Alt.-to-Bracket	1	***
	22786		Washer, Alternator-to-Bracket	2	***
	2441		Nut, Alternator-to-Bracket	1	***
	634617		Bracket, Adjusting Arm	1	***
	530346		Screw, 5/16 x 7/8, Adj. Arm-to-Alternator	1	***
	537539		Washer, Adj. Arm-to-Alternator	2	***
	539547-32.00		Belt	1	***
	632563A34		Housing Assembly, Oil Pump	1	***
	538516		. Gear Assy, Oil Pump & Tach Drive	1	29-37
	535634		. . Dowel	1	29-38
	535900		. Gear, Bevel, Tach Drive	1	29-40
	640525		. Screen Assembly, Oil	1	29-50
	AN123866		. Gasket, O-Ring	1	29-51
	538789A1		. Cover Assembly, Oil Pump and Associated Parts (See IO-470-L)		30-9
	640030		Magneto Assembly	2	***
	636603		Harness Assembly	1	***
	536038		Nut, Exhaust Flange	24	19-41
	639355A4		Fuel Injection Assembly	1	***
	638154-9A1		. Fuel Pump Assembly, Complete	1	62-8
	639123A2		. Throttle and Control Assembly	1	***
	631427A20		. Manifold Valve Assembly	1	***
IO-470-S2	642168A1 ①		Crankcase Studding Assembly	1	***
	401893		. Stud, 1/4 x 1-1/4 Inch Long	5	2-10

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-S2	626189		Oil Cooler and Associated Parts (See IO-470-M)		24-
(Continued)	625765		Magneto Assembly	2	42-1
	633311		Harness Assembly	1	42-7
IO-470-S3	626765		Magneto Assembly	2	42-1
	633311		Harness Assembly	2	42-7
IO-470-S8	642168A1	①	Crankcase Studding Assembly	1	***
	401893		. Stud, 1/4 x 1-1/4 Inch Long	5	2-10
	626189		Oil Cooler and Associated Parts (See IO-470-M)		24-
	632823		Bracket, O/C (Secure to Rocker Cover)	1	***
	632824		Bracket, Oil Cooler	1	***
	629806		Bolt, Special, 1/4 - 28	1	***
	536779		Washer	1	***
	2437		Nut	1	***
	625765		Magneto Assembly	1	42-1
	633311		Harness Assembly	1	42-7
IO-470-U3	628136		Washer, Thrust	4	9-11
IO-470-V2	633942		Bracket, Engine Mounting	1	***
	631111		Alternator	1	37-1
	631094		Fan, Alternator	1	37-2
	633953		Sheave, Alternator	1	37-3
	633917		Bracket, Alternator Adjustment Arm	1	***
	628730		Screw, 5/16 X 1, Alternator-to-Adjustment Arm	1	***
	537539		Washer, Alternator-to-Adjustment Arm	1	***
	AN75A10		Bolt, 5/16 X 1/16, Arm-to-Str. Adapter	1	***
	633948		Bolt, 3/8 X 7-9/16, Alternator-to-Bracket	1	***
	401507		Washer, Alternator-to-Bracket	2	***
	2441		Nut, Alternator-to-Bracket	1	***
	539547-31.19		Belt	1	37-19
IO-470-V6	642171A1	①	Crankcase Studding Assembly	1	***
	629847		. Nozzle, Squirt	6	1-31
	627995A2		Rod Assembly, Oil Gauge	1	6-42
	AN123860		. O-Ring	1	6-43
	631481		Piston, 8:1 Compression Ratio	6	13-1
	639565		Ring, Piston, Top Groove	6	13-2
	639566		Ring, Piston, Second Groove	6	13-3
	639563		Ring, Piston, Third Groove	6	13-4
	627480		Ring, Piston, Fourth Groove	6	13-5
	635169		Sheave, Starter Adapter	1	32-40
	634649		Bracket, Engine & Alternator Mounting	1	***
	641658		Alternator	1	***
	640261		Sheave, Alternator Driven	1	***
	634617		Bracket, Adjustment Arm	1	***
	530346		Screw, 5/16 x 7/8, Alt.-to-Adjusting Arm	1	***
	13XX202B		Washer, Lock, Alternator-to-Adjusting Arm	1	***
	537539		Washer, Alternator-to-Adjusting Arm	1	***

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-V6	537750		Screw, 5/16 x 1-1/8, Arm-to-Starter Adpt.	1	***
(Continued)	501868		Washer, Tab, Arm-to-Starter Adpt.	1	***
	634657		Bolt, 3/8 x 4-39/64, Alt.-to-Mtg. Bracket	1	***
	22786		Washer, Alternator-to-Mtg. Bracket	2	***
	2441		Nut, Alternator-to-Mounting Bracket	1	***
	536038		Nut, Exhaust Flange	24	19-41
	639808		Regulator, Voltage	1	76-1
IO-470-V8	642171A1	①	Crankcase Studding Assembly	1	***
	629847		. Nozzle, Squirt	6	1-31
	633942		Bracket, Engine Mounting	1	***
	631111		Alternator	1	37-1
	631094		Fan, Alternator	1	37-2
	633953		Sheave, Alternator	1	37-3
	633917		Bracket, Alternator Adjustment Arm	1	***
	628730		Screw, 5/16 X 1, Alternator-to-Adjustment Arm	1	***
	537539		Washer, Alternator-to-Adjustment Arm	1	***
	AN75A10		Bolt, 5/16 X 1/16, Arm-to-Str. Adapter	1	***
	633948		Bolt, 3/8 X 7-9/16, Alternator-to-Bracket	1	***
	401507		Washer, Alternator-to-Bracket	2	***
	2441		Nut, Alternator-to-Bracket	1	***
	539547-31.19		Belt	1	37-19
IO-470-V9	642171A1	①	Crankcase Studding Assembly	1	***
	629847		. Nozzle, Squirt	6	1-31
	639589-1A1		Rod Assembly, Oil Gauge (Left Hand)	1	6-42
	639589-2A1		Rod Assembly, Oil Gauge (Right Hand)	1	6-42
	AN123860		. O-Ring	1	6-43
	631481		Piston, 8:1 Compression Ratio	6	13-1
	639565		Ring, Piston, Top Groove	6	13-2
	639566		Ring, Piston, Second Groove	6	13-3
	639563		Ring, Piston, Third Groove	6	13-4
	639480		Ring, Piston, Fourth Groove	6	13-5
	634649		Bracket, Engine and Alternator Mounting	1	***
	539058		Washer, Bracket-to-Crankcase	4	***
	2441		Nut, Bracket-to-Crankcase	4	***
	636415		Harness Assembly	1	***
	641638		Bracket, Throttle Body Support	1	***
	536038		Nut, Exhaust Flange	24	19-41
IO-470-V10	642171A1	①	Crankcase Studding Assembly	1	***
	629847		. Nozzle, Squirt	6	1-31
	627995A2		Rod Assembly, Oil Gauge	1	6-42
	AN123860		. O-Ring	1	6-43
	631481		Piston, 8:1 Compression Ratio	6	13-1
	639565		Ring, Piston, Top Groove	6	13-2
	639566		Ring, Piston, Second Groove	6	13-3
	639563		Ring, Piston, Third Groove	6	13-4
	627480		Ring, Piston, Fourth Groove	6	13-5
	634000		Sheave, Starter Adapter	1	32-40

MODEL SPEC	PART NUMBER	1 2 3 4 5	DESCRIPTION	QTY	FIGURE INDEX
IO-470-V10 (Continued)	633942		Bracket, Engine & Alt. Mounting	1	***
	539058		Washer, Mounting Bracket-to-C/C	4	***
	2441		Nut, Mounting Bracket-to-C/C	4	***
	631111		Alternator	1	37-1
	631094		Fan, Alternator	1	37-2
	633953		Sheave, Alternator Driven	1	37-3
	633917		Bracket, Alt. Adjustment Arm	1	***
	628730		Screw, 5/16 x 1, Alt.-to-Adj. Arm	1	***
	537539		Washer, Alternator-to-Adj. Arm	1	***
	AN75A10		Bolt, 5/16 x 1-1/16, Arm-to-Starter Adpt.	1	***
	633948		Bolt, 3/8 x 7-9/16, Alt.-to-Bracket	1	***
	401507		Washer, Alternator-to-Bracket	2	***
	2441		Nut, Alternator-to-Bracket	1	***
	539547-31.19		Belt	1	37-19
	641638		Bracket, Throttle Body Support	1	***
	536038		Nut, Exhaust Flange	24	19-41
	631656		Regulator, Voltage	1	76-1

NOTES:

*** Not Illustrated.

① These are Phase 3 style crankcases. For earlier style, Phase 1 & 2, see Service Bulletin M78-9.

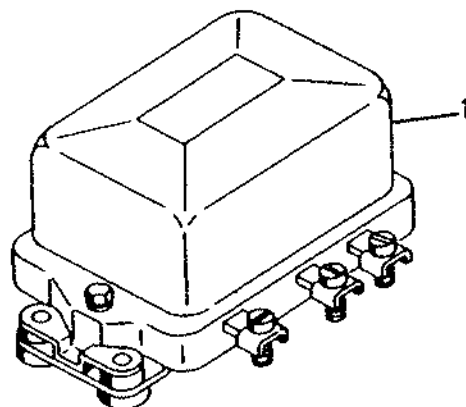


FIGURE 76

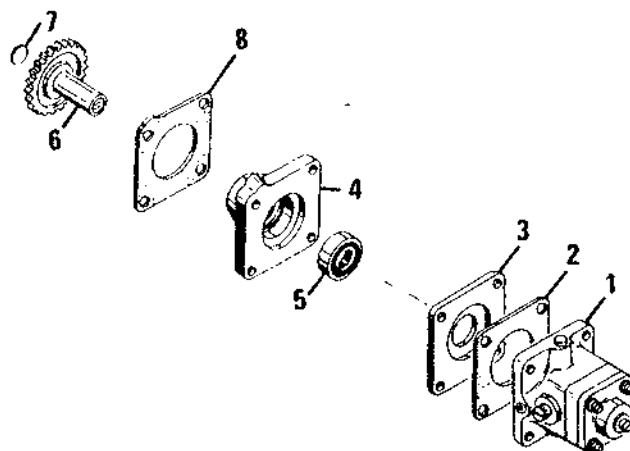


FIGURE 77

FIG. & INDEX	PART NUMBER	DESCRIPTION	QTY.
77-1	535262	Pump Assembly, Fuel	1
-2	AN4059-1	Gasket, Fuel Pump-to-Adapter	2
-3	537682	Insulator, Fuel Pump	1
-4	627518	Adapter Assembly, Fuel Pump	1
-5	534956	. Seal, Oil	1
-6	534995	Gear Assembly, Fuel Pump Drive	1
-7	539634	. Plug, Oil	1
-8	534941	& Gasket, Adapter-to-Crankcase	1

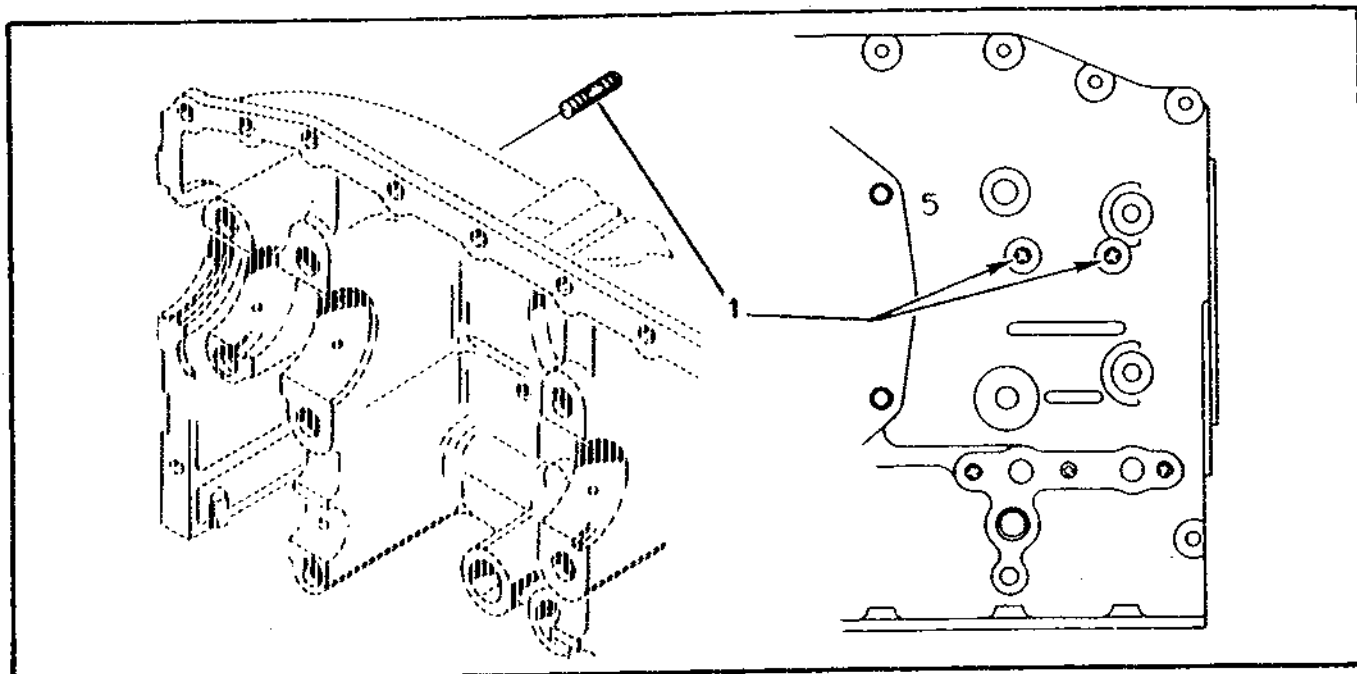


FIGURE 78

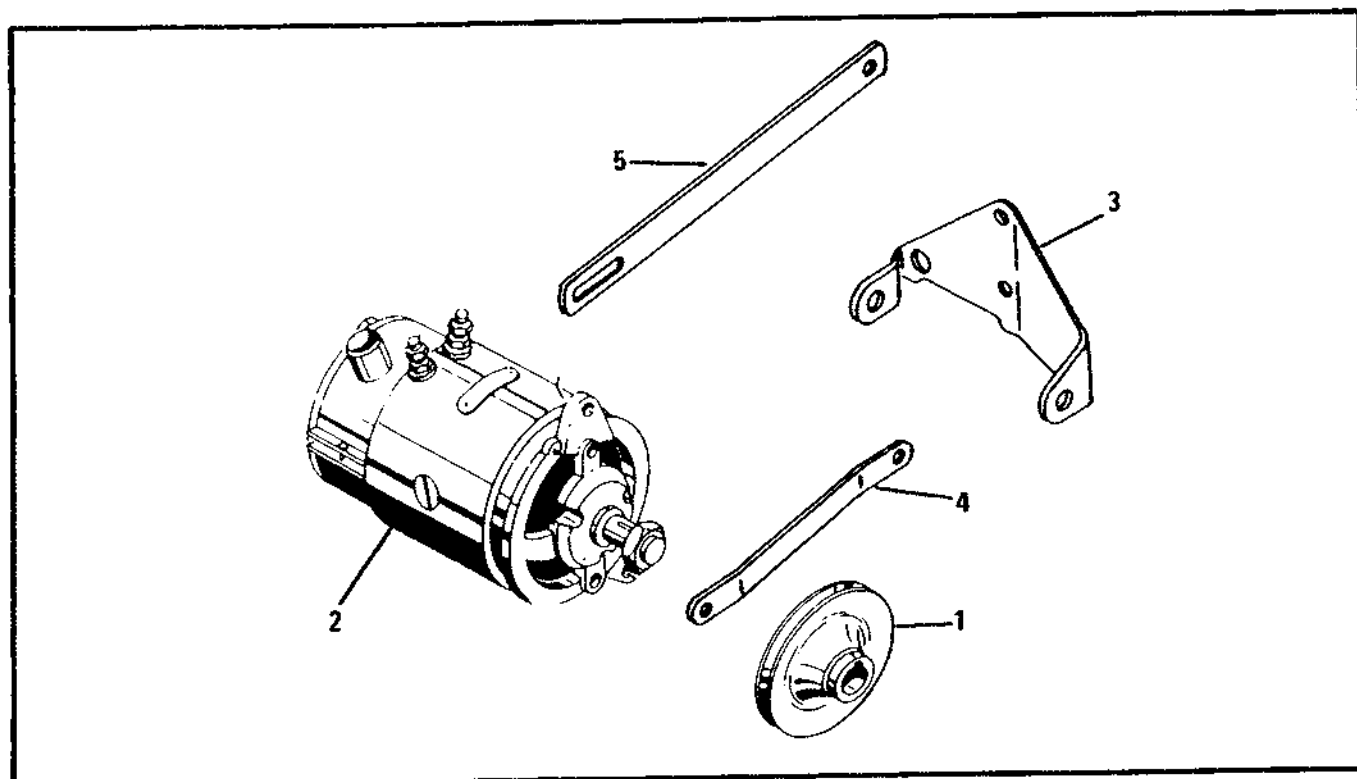


FIGURE 79

FIG. & INDEX	PART NUMBER	DESCRIPTION	QTY.
79-1	627377	Sheave, Generator Drive	1
-2	627274	Generator, 24 Volt, 25 Amp	1
-3	539580	Bracket, Generator Support	1
-4	538283	Bracket, Generator Support	1
-5	538346	Arm, Generator Belt Adjusting	1

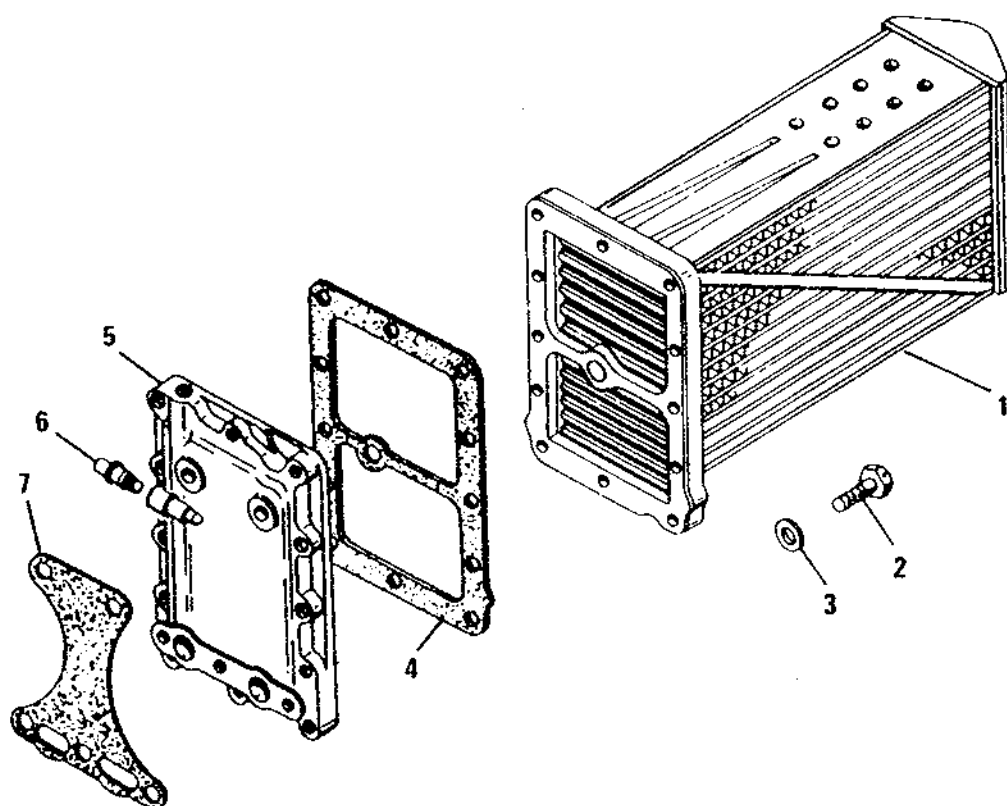


FIGURE 80

FIG. & INDEX	PART NUMBER	DESCRIPTION	QTY.
80-1	639151	Cooler, Oil	1
ATTACHING PARTS			
-2	535668	Screw	12
-3	MS35338-44	Washer, Lock	12
-4	20522	Washer	12
* * * *			
-5	626342	Gasket, Oil Cooler-to-Plate	1
-6	626332	Plate, Oil Cooler	1
-7	639305	Valve, Oil Temperature Control	1
-8	627496	Gasket	1
-9	626341	Gasket, Plate-to-Crankcase	1
-10	2026	Plug	1

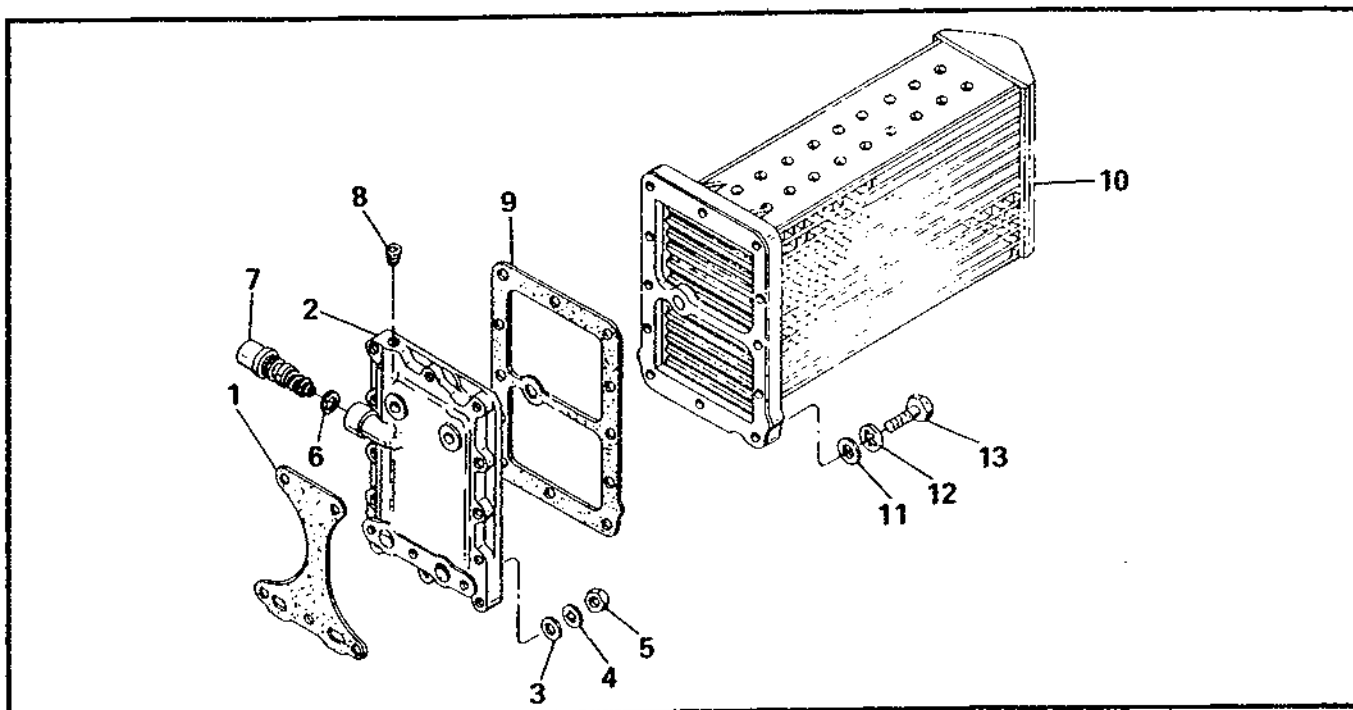


FIGURE 81

FIG. & INDEX	PART NUMBER	DESCRIPTION	QTY.
81-1	626341	Gasket, Crankcase-to-Plate	1
-2	626332	Plate Oil Cooler Adapter	2
ATTACHING PARTS			
-3	20522	Washer, Plain	5
-4	MS35338-44	Washer, Lock	5
-5	2437	Nut, Plain, Hex	5
* * * * *			
-6	639305	Oil Temperature Control Valve	1
-7	627496	Gasket, Oil Temperature Control Valve	1
-8	2026	Plug, Pipe, 1/4 - 18	1
-9	626342	Gasket, Oil Cooler-to-Adapter	1
-10	639171	Cooler Assembly, Oil	1
ATTACHING PARTS			
-11	20522	Washer, Plain	12
-12	MS35338-44	Washer, Lock	12
-13	535668	Screw, 1/4 - 20 x 3/8 Inch Long	12

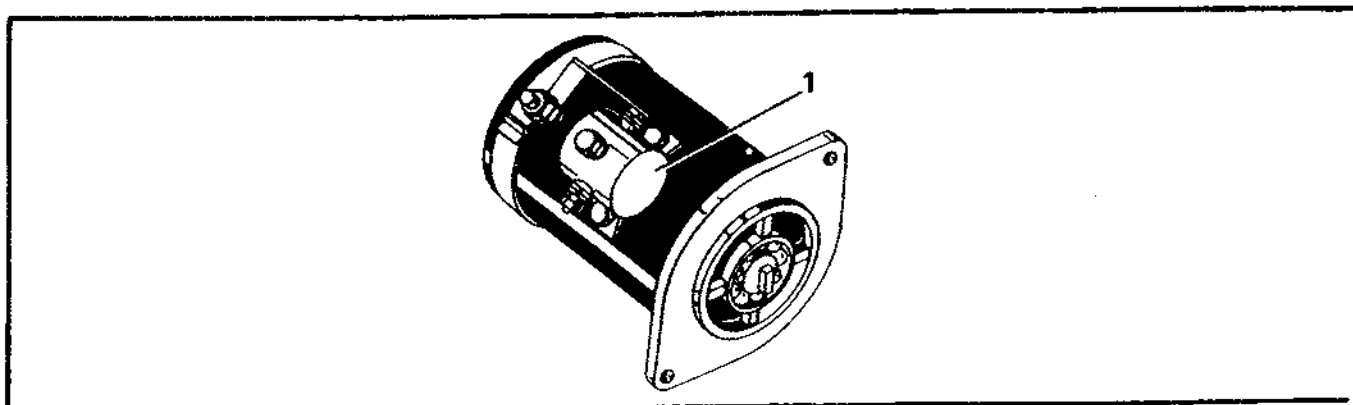


FIGURE 82