

IO-520-B,BA,BB, C,CB, M & MB PERMOLD SERIES PARTS CATALOG

Form X30624A

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APRIL 1995

CFC WARNING* STATEMENTS

The United States Environmental Protection Agency has adopted regulations under the Clean Air Act which require that warning statements accompany all products which are "manufactured with" or contain a Class 1 ozone depleting substance as defined in EPA regulations 58 Fed. Reg. 8136 (February 11, 1993). Teledyne Continental Motors is currently pursuing alternatives to these substances and plans to eliminate their use as soon as possible.

WARNING: Manufactured with 1,1,1 trichloroethane and/or CFC-113, substances which harm public health and the environment by destroying ozone in the upper atmosphere.

This warning applies to all Teledyne Continental Motors fuel injection assemblies, manifold valve assemblies, regulator assemblies, magneto assemblies, starter adapters, oil pumps, oil coolers, accessory cases, crankcases, cylinder and valve assemblies, cylinder kits, bearings, turbochargers, turbocharger bearings and thrust collars, tubes, hoses, and exhaust systems and components.

WARNING: Manufactured with 1,1,1 trichloroethane, CFC-12 and/or CFC-113, substances which harm public health and environment by destroying ozone in the upper atmosphere.

This warning applies to all Teledyne Continental Motors new and rebuilt aircraft engines.

*The "WARNING" contained in the above statements is specific to CFC usage and is not intended to fall within the general definition of "WARNING" as defined on page v of this manual.

CURRENT STATUS OF PAGES

AS OF: APRIL 1995

See Section 1-3 for information concerning revision distribution

THE ORIGINAL DATE OF THIS PUBLICATION IS APRIL 1995
INSERT LATEST PAGES DESTROY SUPERSEDED PAGES

WARNING

If, for any reason, the user of this manual is uncertain as to whether all current revisions have been incorporated into the manual, contact Teledyne Continental Motors or a TCM Distributor to confirm that the manual is the most current revision. Do not use this manual IN CONJUNCTION WITH PARTS REPLACEMENT, MAINTENANCE, OVERHAUL OR OTHER OPERATIONS UPON THE ENGINE OR ACCESSORIES UNTIL THE MANUAL HAS BEEN CONFIRMED TO BE CURRENT.

MODELS: IO-520-B, BA, BB, C, CB, M & MB

FORM X30624A

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ALL ORIGINAL							

WARNING

(Please note the following statements from FAA Advisory Circular 20-62C entitled "ELIGIBILITY, QUALITY, AND IDENTIFICATION OF APPROVED REPLACEMENT PARTS"):

BACKGROUND. An increasing amount of replacement parts (including standard parts), materials, appliances, and instruments are offered for sale as being of aircraft quality when actually the quality and origin of these units are unknown. Users of such units are usually not aware of the potential hazards involved with replacement parts that are **not** eligible for use on certificated aircraft. Frequently such units are deceptively advertised or presented as "**unused**," "**like new**," or "**remanufactured**." This implies that the quality of such units is equal to an original or appropriately repaired or overhauled unit.

The performance rules for replacement of parts and materials used in the maintenance and alteration of U.S. certificated aircraft are specified in Federal Aviation Regulations (FAR) 43.13 and FAR 145.57. The responsibility for the continued airworthiness of the aircraft, which includes the replacement of parts, is the **responsibility** of the owner/operator as outlined in FAR 91.403, FAR 121.363, FAR 123.45, FAR 127.131 and FAR 135.143 (a).

IDENTIFICATION OF THE APPROVED PARTS. Approved serviceable replacement parts are identified as follows:

- a. By an FAA Form 8130-3 (Formerly FAA Form 186) Airworthiness Approval Tag. An Airworthiness Approval Tag identifies a part or group of parts that have been approved by authorized FAA representatives.
- b. By an FAA Technical Standard Order (TSO) number and identification mark that indicates the part or appliance has been manufactured under the requirements of FAR 21 Subpart O.
- c. By an FAA/PMA symbol, together with the manufacturer's name, trademark or symbol, part number, and the make and model of the type certificated product on which the part is eligible for installation, stamped on the part. An FAA Parts Manufacturer Approval (FAA/PMA) is issued under FAR 21.305. The make and model information may be on a tag attached to the part.
- d. By shipping ticket, invoice or other document which provides evidence that the part was produced by a manufacturer holding an FAA Approved Production Inspection System issued under FAR 21, Subpart F, or by a manufacturer holding an FAA Production Certificate issued under FAR 21 Subpart G.
- e. By a certificate of airworthiness for export issued by a foreign government under the provisions of FAR 21 Subpart N.

KNOW YOUR SUPPLIER. It has come to our attention that many reproduced parts and components particularly instruments which have been manufactured by persons other than the original manufacturer, are available for purchase and installation on U.S. certificated aircraft. Often, an original part is used as a sample to produce duplicates. The reproduced parts appear to be as good as the original part. However, there are many unknown factors to be considered that may not be readily apparent to the purchaser, i.e., heat treating, plating, inspections, tests and calibrations. All too often the faulty part is not discovered until a malfunction or an accident occurs.

SUMMARY. In accordance with Federal Aviation Regulations, certification of materials, parts, and appliances for return to service, for use on aircraft, is the responsibility of the person or agency who signs the approval. The owner/operator, as denoted in paragraph 3 of this advisory circular, is responsible for the continued airworthiness of the aircraft. To assure continued safety in aircraft operation, it is essential that great care be used when inspecting, testing, and determining the acceptability of all parts and materials. Particular caution must be exercised when the identity of materials, parts, and appliances cannot be established or when their origin is in doubt..

NOTICE TO ALL USERS

This catalog contains no warranties, either expressed or implied. The information contained herein is to provide maintenance personnel with technical information required to obtain replacement parts for the aircraft engine.

WARNING

New information or changes to this Catalog may be contained in Teledyne Continental Motors Service documents. The Service Documents applicable to the engines or accessories within the scope of this Catalog must be consulted and complied with prior to the performance of any maintenance or other procedures.

The Service Documents, the Maintenance Manual, the Overhaul Manual and the Operators Manual constitute the instructions for Continued Airworthiness prepared by Teledyne Continental Motors as approved by the Federal Aviation Administration, pursuant to Federal Aviation Regulation Part 33. As required by Federal Aviation Regulation § 43.13, each person performing maintenance, alteration, or preventive maintenance on the engine or accessories must use the methods, techniques and practices prescribed in the Instructions for Continued Airworthiness. Failure to comply with the Instructions for Continued Airworthiness may result in injury to personnel or subsequent engine malfunction or failure.

In producing this publication, considerable effort has been put forth to provide grammatically clear and accurate information. This Catalog is current and correct to the best of Teledyne Continental Motors knowledge at the time of publication. Teledyne Continental Motors solicits and encourages users comments regarding suggested changes to this Catalog (a post card is provided at the front of the Catalog for this purpose). Routine recommended changes or questions should be sent to:

**Technical Publications Department
Teledyne Continental Motors
P.O. Box 90
Mobile, Alabama 36601**

If the user observes incorrect information or mistakes in this publication that may affect safety in any manner, IMMEDIATELY call the Technical Publications Department of Teledyne Continental Motors at (334) 438-3411, or contact a Teledyne Continental Motors Distributor, or the Federal Aviation Administration.

DEFINITIONS OF NOTES, CAUTIONS AND WARNINGS

NOTES, *CAUTIONS* and **WARNINGS** are included throughout this manual. Application is as follows:

NOTE...Special interest information which may facilitate the performance of a procedure or the operation of equipment.

CAUTION...*Used to emphasize certain information or instructions which, if disregarded, may result in damage to engine or accessories.*

WARNING

Used to provide warning with respect to information and/or instructions which, if disregarded or not correctly followed, will immediately endanger personnel and/or severely damage the engine resulting in subsequent engine malfunction or failure.

Notes, *cautions* and warnings regarding maintenance of these engines are not intended to impose undue restrictions. They are inserted to obtain maximum performance from the engine in accordance with safety and efficiency. Abuse, misuse or neglect of any piece of equipment can cause eventual engine malfunction or failure. Failure to observe the instructions contained in this manual constitutes unauthorized operation in areas unexplored during development of the engine, or in areas in which experience has proved to be undesirable or detrimental.

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CHAPTER 1

INTRODUCTION

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INTRODUCTION

For a list of Chapters contained in this manual refer to the Chapter Index on page vi.

For a list of parts and figures contained in each Chapter, see the first page of each Chapter.

The chapters, pages and figures contained in this publication are numbered consecutively.

In this edition, currently available parts are listed for IO-520 Permold Series 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 airframe manufacturer before placing an order with a Teledyne Continental Authorized Distributor.

The group assembly parts list contains Figures for each system followed, as required, by Figures for assemblies that compose the particular system. The Figures are illustrated in exploded form. Each figure has a figure index and parts listing of the components contained appearing on the same or adjacent page.

NOTE...The Figures depicted in this publication are for illustration purposes only. They are not intended to be accurate detailed illustrations of any specific engine model, part or equipment.

Index numbers that correspond with the numbers contained in the related figure are assigned to each part number.

In the parts listings, the first column of each system or component contains the figure number, not repeated on all lines, and following a dash, the index number of the parts in numerical order. **DO NOT ORDER PARTS BY INDEX NUMBERS.** Use the part number which appears in the second column, and use the part name which appears in the column under the title "Description." Do not order a part that has "No Number" shown with the description, or that has "NS" (not sold) shown in the "Quantity" column. To replace a part "not sold," order the sub-assemblies and parts listed below it that are in need of replacement. Pay particular attention to the quantity of parts required per engine or per assembly. Example: 6 cylinders per engine, 12 pushrods per engine, 2 pushrods per cylinder.

Some customer specification model engines have certain part differences from the basic engine. These part differences are shown in the customer specification section starting on page 1-9. Be sure to check the engine data plate model designation and specification number before ordering parts for the engine.

When ordering parts use the description and model designation shown with the part number to ensure correct part to assembly or assembly to engine application.

Oversize and undersize parts must be ordered by the numbers listed herein, with correct descriptions, to avoid errors. Corresponding standard size part numbers in the Group Assembly Parts List are preceded by a symbol (†) to indicate the availability of the non-standard size. (Refer to list of abbreviations and symbols).

Repair Parts Sets are usually requested in such groups for overhaul work and should be ordered by set part numbers. See Repair Parts Sets and Materials Section 1-6.

A Numerical Parts List starting on page 1-43 is provided. Part numbers are arranged in numerical order along with a figure and index number. If the number of any desired part is known, the description may be located by referring to the Group Assembly Parts List.

NOTE. . . The airframe manufacturer occasionally changes certain accessories in accordance with customer request.

SCOPE

This publication contains the information necessary to order factory new replacement parts for the IO-520-B, BA, BB, C, CB, M & MB model engines.

CATALOG REVISIONS

Teledyne Continental Motors Parts Catalogs are revised as necessary. Revisions to this Catalog will be furnished to purchasers who fill out and return the registration post card located in the front of this Catalog.

The "Current Status Of Pages" on Page iii contains a record of revisions to this Catalog. Each issued change to this Catalog includes an updated "Current Status Of Pages." Upon receipt of a revision, remove the old "Current Status Of Pages" and insert the new one.

Each individual revised page contains the date of the change to that page. Accordingly, if the "Current Status Of Pages" indicates that a page has been changed, that page in the catalog must be dated in agreement with the status page. Original pages in this catalog are not individually dated.

LIST OF ABBREVIATIONS AND SYMBOLS

SYMBOL	DEFINITION	SYMBOL	DEFINITION
AR (ar)	As Required	NS	Not Sold
dia.	Diameter	\$	Parts included in a set
hd	Head	PD	Pitch diameter (thread)
hex	Hexagon(al)	RF (rf)	Reference
ID	Inside Diameter	NPT	National Pipe Tap (or thread)
in.	Inches	US	Undersize
lg.	Long	No.	Number
mm	Millimeters	†	Oversize parts available
OD	Outside diameter	†	Undersize parts available
OP	Optional	****	End of group of attaching parts
OS	Oversize		

RELATED PUBLICATIONS

The following is a listing of related manuals:

1. Overhaul Manual for IO-520 Permold Series Aircraft Engine, Form X30626A.
2. Maintenance Manual for IO-520 Permold Series Aircraft Engine, Form X30625A.
3. Illustrated Parts Catalog for IO-520 Permold Series Aircraft Engine, Form X30624A.
4. Operator and Installation Manual for IO-520 Permold Series Aircraft Engine, Form X30618.
5. Teledyne Continental Motors Aircraft Engine Service Documents (including service bulletins.)
6. Fuel Injection Manual, Form X30593A.
7. Starter Service Instructions, Form X30592.
8. TCM Ignition Systems Master Service Manual, Form X40000.
9. Alternator Service Instructions, Form X30531-3.

The above publications may be ordered through your Teledyne Continental Motors Distributor or ordered directly, if prepaid, from:

Teledyne Continental Motors
P. O. Box 90
Mobile, AL 36601
Attn: Publications Sales Department

For price information on the above publications see TCM Publications Index Form X-2-94, Current Publications and Form X-3-94, Optional Publications.

10. Slick Ignition Systems Master Service Manual Index And Order Form No. F-1100
order through:

Slick Aircraft Products
Unison Industries.
530 Blackhawk Park Avenue
Rockford, Illinois 61104
ATTN: Subscription Department
Telephone:(815)965-4700.

PART NO.	DESCRIPTION	SIZE	MODEL
646550A1	Gasket Set - Complete Overhaul	Standard	ALL
646563A1	① Gasket Set - Single Cylinder	Standard	ALL
652148	Ring Set - Single Cylinder	Standard	ALL
652148P005	Ring Set - Single Cylinder	.005" OS on OD	ALL
652148P010	Ring Set - Single Cylinder	.010" OS on OD	ALL
652148P015	Ring Set - Single Cylinder	.015" OS on OD	ALL
649227CP	② Ring Set - Single Cylinder	Standard	ALL
646591A1M010	Bearing Set - Crankshaft	.010" US on ID	ALL
646593A1	Bearing Set - Crankshaft	Standard	B, C, M,
646593A1M010	Bearing Set - Crankshaft	.010" US on ID	B, C, M
646592A1	Bearing Set - Crankshaft	Standard	BB, CB, MB
646592A1M010	Bearing Set - Crankshaft	.010" US on ID	BB, CB, MB
626531-1	Enamel-Gold, Engine	1 Quart	ALL
626531-2	Enamel-Gold, Engine	1 Gallon	ALL
535011S	Lockwire-0.040 In. Dia. Steel	Order by 1 Lb. Roll	ALL
641543	Silk Thread	1 Spool (260 Yd.)	ALL
642188-1	Gasket Sealant	4.0 Oz. Can	ALL
646940	F/I Sealant (50 cc bottle)	1.69 Oz.	ALL
646941	Adhesive/Sealant (50 cc bottle)	1.69 Oz.	ALL
646942	Gasket Maker (50 cc tube)	1.69 Oz.	ALL
646943	Anti-Seize Lubricant	1/4 Lb.	ALL
653693	Primer	6 Oz. (Aerosol Can)	ALL

NOTES:

- ① This set does not contain intake hoses.
- ② For use with chrome cylinder.

OVERSIZE AND UNDERSIZE PARTS

PART NO.	NAME	DESCRIPTION
35967P005	Insert	.005" OS on OD
35967P010	Insert	.010" OS on OD
35967P015	Insert	.015" OS on OD
35967P020	Insert	.020" OS on OD
35967P030	Insert	.030" OS on OD
350998P003	Bushing-C/Shaft	.003" OS on OD
350998P005	Bushing-C/Shaft	.005" OS on OD
350998P0015	Bushing-C/Shaft	.0015" OS on OD
401800P003	Stud	.003" OS on PD
401800P007	Stud	.007" OS on PD
401800P012	Stud	.012" OS on PD
401801P003	Stud	.003" OS on PD
401801P007	Stud	.007" OS on PD
401801P012	Stud	.012" OS on PD
401804P003	Stud	.003" OS on PD
401804P007	Stud	.007" OS on PD
401804P012	Stud	.012" OS on PD
401808P003	Stud	.003" OS on PD
401808P007	Stud	.007" OS on PD
401808P012	Stud	.012" OS on PD
401814P003	Stud	.003" OS on PD
401814P007	Stud	.007" OS on PD
401814P012	Stud	.012" OS on PD
401816P003	Stud	.003" OS on PD
401816P007	Stud	.007" OS on PD
401816P012	Stud	.012" OS on PD
401832P003	Stud	.003" OS on PD
401832P007	Stud	.007" OS on PD
401832P012	Stud	.012" OS on PD
401842P003	Stud	.003" OS on PD
401842P007	Stud	.007" OS on PD
401842P012	Stud	.012" OS on PD
401852P003	Stud	.003" OS on PD
401852P007	Stud	.007" OS on PD
401852P012	Stud	.012" OS on PD
401860P003	Stud	.003" OS on PD
401860P007	Stud	.007" OS on PD
401860P012	Stud	.012" OS on PD

PART NO.	NAME	DESCRIPTION
401863P003	Stud	.003" OS on PD
401863P007	Stud	.007" OS on PD
401863P012	Stud	.012" OS on PD
401870P003	Stud	.003" OS on PD
401870P007	Stud	.007" OS on PD
401870P012	Stud	.012" OS on PD
401873P003	Stud	.003" OS on PD
401873P007	Stud	.007" OS on PD
401873P012	Stud	.012" OS on PD
401881P003	Stud	.003" OS on PD
401881P007	Stud	.007" OS on PD
401881P012	Stud	.012" OS on PD
401885P003	Stud	.003" OS on PD
401885P007	Stud	.007" OS on PD
401885P012	Stud	.012" OS on PD
401893P003	Stud	.003" OS on PD
401893P007	Stud	.007" OS on PD
401893P012	Stud	.012" OS on PD
401895P003	Stud	.003" OS on PD
401895P007	Stud	.007" OS on PD
401895P012	Stud	.012" OS on PD
401899P003	Stud	.003" OS on PD
401899P007	Stud	.007" OS on PD
401899P012	Stud	.012" OS on PD
401927P003	Stud	.003" OS on PD
401927P007	Stud	.007" OS on PD
401927P012	Stud	.012" OS on PD
401932P003	Stud	.003" OS on PD
401932P007	Stud	.007" OS on PD
401932P012	Stud	.012" OS on PD
401936P003	Stud	.003" OS on PD
401936P007	Stud	.007" OS on PD
401936P012	Stud	.012" OS on PD
401944P003	Stud	.003" OS on PD
401944P007	Stud	.007" OS on PD
401944P012	Stud	.012" OS on PD

1-7 OVERSIZE AND UNDERSIZE PARTS LIST (cont'd)

PART NO.	NAME	DESCRIPTION	PART NO.	NAME	DESCRIPTION
401950P003	Stud	.003" OS on PD	402158P003	Stud	.003" OS on PD
401950P007	Stud	.007" OS on PD	402158P007	Stud	.007" OS on PD
401950P012	Stud	.012" OS on PD	402158P012	Stud	.012" OS on PD
401962P003	Stud	.003" OS on PD	402159P003	Stud	.003" OS on PD
401962P007	Stud	.007" OS on PD	402159P007	Stud	.007" OS on PD
401962P012	Stud	.012" OS on PD	402159P012	Stud	.012" OS on PD
401963P003	Stud	.003" OS on PD	402359P003	Stud	.003" OS on PD
401963P007	Stud	.007" OS on PD	402359P007	Stud	.007" OS on PD
401963P012	Stud	.012" OS on PD	402359P012	Stud	.012" OS on PD
401965P003	Stud	.003" OS on PD	402711P003	Stud	.003" OS on PD
401965P007	Stud	.007" OS on PD	402711P007	Stud	.007" OS on PD
401965P012	Stud	.012" OS on PD	402711P012	Stud	.012" OS on PD
401971P003	Stud	.003" OS on PD	524183P003	Stud	.003" OS on PD
401971P007	Stud	.007" OS on PD	524183P007	Stud	.007" OS on PD
401971P012	Stud	.012" OS on PD	524183P012	Stud	.012" OS on PD
401977P003	Stud	.003" OS on PD	536563P005	Dowel	.005" OS on OD
401977P007	Stud	.007" OS on PD	539800M015	Spring, Clutch	.015 US on ID
401977P012	Stud	.012" OS on PD	629680M001	Collar, Oil Control	.001 US on ID
402034P003	Stud	.003" OS on PD	629680M010	Collar, Oil Control	.010 US on ID
402034P007	Stud	.007" OS on PD	629680M011	Collar, Oil Control	.011 US on ID
402034P012	Stud	.012" OS on PD	630046P005	Pin, Piston	.005" OS on OD
402066P003	Stud	.001" US on PD	630591P005	Insert	.005" PS on OD
402066P007	Stud	.010" US on PD	630591P010	Insert	.010" OS on OD
402066P012	Stud	.011" US on PD	630591P015	Insert	.015" OS on OD
402127P003	Stud	.003" OS on PD	630591P020	Insert	.020" OS on OD
402127P007	Stud	.007" OS on PD	630591P030	Insert	.030" OS on OD
402127P012	Stud	.012" OS on PD	630826M010	Bearing-C/Rod	.010" US on ID
402129P003	Stud	.003" OS on PD	634503M010	Bearing-C/Shaft	.010" US on ID
402129P007	Stud	.007" OS on PD	642398M010	Bearing-C/Rod	.010" US on ID
402129P012	Stud	.012" OS on PD	642720M010	Bearing-C/Shaft	.010" US on ID
402151P003	Stud	.003" OS on PD	642839M010	Bearing-C/Shaft	.010" US on ID
402151P007	Stud	.007" OS on PD	643766P005	Guide, Valve	.005" OS on OD
402151P012	Stud	.012" OS on PD	643766P010	Guide, Valve	.010" OS on OD
402153P003	Stud	.003" OS on PD			
402153P007	Stud	.007" OS on PD			
402158P012	Stud	.012" OS on PD			

1-7 OVERSIZE AND UNDERSIZE PARTS (cont'd)

PART NO.	NAME	DESCRIPTION
643766P015	Guide, Valve	.015" OS on OD
643766P020	Guide, Valve	.020" OS on OD
643766P030	Guide, Valve	.030" OS on OD
646288P001	Washer, Thrust	.010" OS on OD
646288P002	Washer, Thrust	.020" OS on OD
646288P003	Washer, Thrust	.030" OS on OD
648005P005	Ring, Piston	.005" OS on OD
648005P010	Ring, Piston	.010" OS on OD
648005P015	Ring, Piston	.015" OS on OD
648006P005	Ring, Piston	.005" OS on OD
648006P010	Ring, Piston	.010" OS on OD
648006P015	Ring, Piston	.015" OS on OD
648050P005	Ring, Piston	.005" OS on OD

PART NO.	NAME	DESCRIPTION
648050P010	Ring, Piston	.010" OS on OD
648050P015	Ring, Piston	.015" OS on OD
648008P005	Ring, Piston	.005" OS on OD
648008P010	Ring, Piston	.010" OS on OD
648008P015	Ring, Piston	.015" OS on OD
648045P010	Piston	.010" OS on OD
648045P015	Piston	.015" OS on OD
646767P005	Guide Valve	.005" OS on OD
646767P010	Guide Valve	.010" OS on OD
646767P015	Guide Valve	.015" OS on OD
646767P020	Guide Valve	.020" OS on OD
646767P030	Guide Valve	.030" OS on OD
653058A1P020	Camshaft	.020" OS on OD

CUSTOMER SPECIFICATIONS

The customer specification section notes the differences between the basic engine model in the Basic Group Assembly Parts List and the individual engine model specification. The engine model specification must be known when ordering parts to ensure that the correct parts are being ordered. The specification number is located after the engine model number on the engine identification plate. Example: IO-520-BA2. In this case "2" is the model specification number. If illustrated, the Figure number of the illustration will be shown in the figure and index column. These illustrations are located throughout the Basic Group Assembly Parts List.

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BA2B	646981	Magneto , L/H, TCM (10-349220-5)	1	3-2-2
	646983	Magneto , R/H, TCM (10-349260-6)	1	3-2-2
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BA6B	646981	Magneto, L/H, TCM (10-349220-5)	1	3-2-2
	646983	Magneto, R/H, TCM (10-349260-6)	1	3-2-2
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BA8B	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BAIOB	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BA11B	646275-1	Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	N/I
	632970	Pump, Oil	1	9-1-1
	653549	Magneto, TCM (10-500556-1)	2	N/I
IO-520-BA12B	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	401752	Plug, Pipe	1	11-4-23
	642087A35	Adapter, Starter	1	N/I
	653290	Magneto , R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto , L/H, TCM (10-349350-4)	1	N/I
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BA14B	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BA14M	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	N/I
	653267	Magneto, Slick 6310	2	N/I
(continued)	649052A1	Injection Assembly, Fuel	1	N/I

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BA14M (cont'd)	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-BA17B	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
IO-520-BA20B	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
IO-520-BA21B	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	N/I
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	653304	Magneto Assembly, Slick 6380	2	N/I
	649467	Harness Assembly	1	3-2-8
	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8
	652540-5	Studding Assembly, Crankcase	1	N/I
IO-520-BA24B	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	653304	Magneto Assembly, Slick 6380	2	N/I
	649467	Harness Assembly	1	3-2-8
	653267	Magneto, Slick 6310	2	N/I

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BA25B	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	N/I
	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
IO-520-BA26B	653304	Magneto Assembly, Slick 6380	2	N/I
	653131	Harness Assembly	1	3-2-8
IO-520-BA27B	653267	Magneto, Slick 6310	2	N/I
	653131	Harness Assembly	1	3-2-8
IO-520-BA28B	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	653267	Magneto, Slick 6310	2	N/I
	653131	Harness Assembly	1	3-2-8
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
IO-520-BA29B	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	N/I
	653267	Magneto, Slick 6310	2	N/I
	653131	Harness Assembly	1	3-2-8
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
IO-520-BA30B	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 Amp	1	N/I
	646655	Hub, Alternator	1	N/I
	632970	Pump, Oil	1	9-1-1
	653549	Magneto, TCM (10-500556-1)	2	N/I
IO-520-BA31B	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
(continued)	646843	Alternator, 60 Amp	1	N/I

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BA31B (cont'd)	646655	Hub, Alternator	1	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BA32B	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 Amp	1	N/I
	646655	Hub, Alternator	1	N/I
	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	652540-5	Studding Assembly, Crankcase	1	N/I
IO-520-BA33B	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 Amp	1	N/I
	646655	Hub, Alternator	1	N/I
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
IO-520-BA34B	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 Amp	1	N/I
	646655	Hub, Alternator	1	N/I
	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
IO-520-BA35B	646843	Alternator, 60 Amp	1	N/I
	646655	Hub, Alternator	1	N/I
	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 Amp	1	N/I
	646655	Hub, Alternator	1	N/I
	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	652540-5	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
(continued)	642087A35	Adapter, Starter	1	N/I

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BA35B (cont'd)	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 Amp	1	N/I
	646655	Hub, Alternator	1	N/I
	653267	Magneto, Slick 6310	2	N/I
	653131	Harness Assembly	1	3-2-8
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	652540-5	Studding Assembly, Crankcase	1	N/I
IO-520-BA36B	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	N/I
	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
IO-520-BA37B	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
	653549	Magneto, TCM (10-500556-1)	2	N/I
	652540-5	Studding Assembly, Crankcase	1	N/I
IO-520-BA38B IO-520-BA39B	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 Amp	1	N/I
	646655	Hub, Alternator	1	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A1	Injection Assembly, Fuel	1	N/I
	646212-2A3	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
IO-520-BA39B	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
	641670	Alternator Assembly, 12 Volt	1	N/I
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assémbly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB6B	641670	Alternator Assembly, 12 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	646981	Magneto, L/H, TCM (10-349220-5)	1	3-2-2
	646983	Magneto, R/H, TCM (10-349260-6)	1	3-2-2
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB7B	641670	Alternator Assembly, 12 Volt	1	N/I
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	646981	Magneto, L/H, TCM (10-349220-5)	1	3-2-2
	646983	Magneto, R/H, TCM (10-349260-6)	1	3-2-2
	652997	Harness, Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB8B,	641670	Alternator, 12 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB10B	641670	Alternator, 12 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB11	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	N/I
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	(continued)			
	632970	Pump, Oil	1	9-1-1

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB11 (cont'd)	653549	Magneto, TCM (10-500556-1)	2	N/I
IO-520-BB12B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	641670	Alternator, 12 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB12M	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	641670	Alternator, 12 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653549	Magneto, TCM (10-500556-1)	2	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
IO-520-BB14B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	N/I
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
(continued)	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB14B (cont'd)	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB15B	652540-6	Studding Assembly	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	N/I
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB16B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3&4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter	1	8-1-31
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB17B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC To CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter	1	8-1-31
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator Drive	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB18B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator Drive	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	652171-4	Rod, Oil Gage & Cap Assembly	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-BB18U	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
(continued)	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB18U (cont'd)	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	N/I
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	632970	Pump, Oil	1	9-1-1
	652171-4	Rod, Oil Gage & Cap Assembly	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
IO-520-BB19B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC To CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter	1	8-1-31
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator Drive	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB20B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through-Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31

(continued)

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB20B (cont'd)	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB21B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	653267	Magneto, Slick 6310	2	N/I
	652171-4	Rod, Oil Gage & Cap Assembly	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
	649467	Harness Assembly	1	3-2-8
	IO-520-BB22B 641670	Alternator, 12 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
IO-520-BB22B	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653304	Magneto Assembly, Slick 6380	2	N/I
	653131	Harness Assembly	1	3-2-8
	IO-520-BB23B 641670	Alternator, 12 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
IO-520-BB23B	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	653131	Harness Assembly	1	3-2-8
	IO-520-BB24B 652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	(continued) 640826	Spacer, Through Bolt	1	N/I

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB24B (cont'd)	642087A35	Adapter, Starter	1	N/I
	641670	Alternator, 12 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	653131	Harness Assembly	1	3-2-8
IO-520-BB25B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	653131	Harness Assembly	1	3-2-8
IO-520-BB26B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
(continued)	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB26B	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
(cont'd)	653131	Harness Assembly	1	3-2-8
IO-520-BB27B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	.. Elbow, 45° (Fuel Inlet)	1	N/I
	629518	.. Plug (Fuel Pressure Connection)	1	N/I
	653131	Harness Assembly	1	3-2-8
IO-520-BB28B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	652171-4	Rod, Oil Gage & Cap Assembly	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	.. Elbow, 45° (Fuel Inlet)	1	N/I
	629518	.. Plug (Fuel Pressure Connection)	1	N/I
	653131	Harness Assembly	1	3-2-8
IO-520-BB29B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
(continued)	AN5-13A	Bolt, CC to CC	5	11-3-1

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB29B (cont'd)	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator Drive	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
	653131	Harness Assembly	1	3-2-8
	IO-520-BB30B	641670 Alternator, 12 Volt	1	7-1-2
		640934 Hub, Alternator	1	N/I
		630505 . Hub, assembly		
		630655 . Spring, Clutch	1	7-1-10
		640932 . Gear, Alternator	1	7-1-11
		630691 Washer, Alternator, Drive Hub	1	7-1-13
		MS24665-302 Pin, Cotter	1	7-1-14
		653304 Magneto Assembly, Slick 6380	2	N/I
		649467 Harness Assembly	1	3-2-8
		IO-520-BB31B		
		641670 Alternator, 12 Volt		
		640934 Hub, Alternator		
		630505 . Hub, assembly		
		630655 . Spring, Clutch		
		640932 . Gear, Alternator		
		630691 Washer, Alternator, Drive Hub		
		MS24665-302 Pin, Cotter		
		653267 Magneto, Slick 6310		
		649467 Harness Assembly		
	IO-520-BB32B	652540-6 Studding Assembly, Crankcase	1	N/I
		630693-11.67 Bolt, Through	1	N/I
		640826 Spacer, Through Bolt	1	N/I
		642087A35 Adapter, Starter	1	N/I
		641670 Alternator, 12 Volt	1	7-1-2
		640934 Hub, Alternator	1	N/I
		630505 . Hub, assembly		N/I
		630655 . Spring, Clutch	1	7-1-10
		640932 . Gear, Alternator	1	7-1-11
		630691 Washer, Alternator, Drive Hub	1	7-1-13
		MS24665-302 Pin, Cotter	1	7-1-14
		653267 Magneto, Slick 6310	2	N/I
		649052A2 Injection Assembly, Fuel	1	N/I
(continued)	646212-16A2	. Fuel Pump And Fittings	1	N/I

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB32B (cont'd)	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-BB33B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	641668	Alternator, 24 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-BB34B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-BB35B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 AMP	1	N/I
	(continued) 646655	Hub, Alternator	1	N/I

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB35B (cont'd)	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	.. Elbow, 45° (Fuel Inlet)	1	N/I
	629518	.. Plug (Fuel Pressure Connection)	1	N/I
IO-520-BB36B	649467	Harness Assembly	1	3-2-8
	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 AMP	1	N/I
IO-520-BB37B	646655	Hub, Alternator	1	N/I
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	652171-4	Rod, Oil Gage & Cap Assembly	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
(continued)	628436	.. Elbow, 45° (Fuel Inlet)	1	N/I
	629518	.. Plug (Fuel Pressure Connection)	1	N/I
	649467	Harness Assembly	1	3-2-8
	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
(continued)	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator Drive	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
(continued)	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB37B (cont'd)	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	.. Fuel Manifold Valve Assembly	1	N/I
	628436	.. Elbow, 45° (Fuel Inlet)	1	N/I
	629518	.. Plug (Fuel Pressure Connection)	1	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-BB38B	646981	Magneto, , L/H, TCM (10-349220-5)	1	3-2-2
	646983	Magneto, R/H, TCM (10-349260-6)	1	3-2-2
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB39B	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB40B	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB41B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	.. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
IO-520-BB42B	653549	Magneto, TCM (10-500556-1)	2	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	.. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	646275-1	Starter, 24 Volt	1	8-1-31
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
IO-520-BB43B	632970	Pump, Oil	1	9-1-1
	653549	Magneto, TCM (10-500556-1)	2	N/I
	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
IO-520-BB44B	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter	1	8-1-31
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
(continued)				

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB44B (cont'd)	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
IO-520-BB45B	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter	1	8-1-31
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator Drive	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB46B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	632970	Pump, Oil	1	9-1-1
	653267	Magneto, Slick 6310	2	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-BB47B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	(continued)			

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB47B (cont'd)	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	632970	Pump, Oil	1	9-1-1
	652171-4	Rod, Oil Gage & Cap Assembly	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
IO-520-BB48B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter	1	8-1-31
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB49B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	632970	Pump, Oil	1	9-1-1
	(continued) 653267	Magneto, Slick 6310	2	N/I

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB49B (cont'd)	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-BB50B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	641668	Alternator, 24 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		N/I
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	632970	Pump, Oil	1	9-1-1
	653267	Magneto, Slick 6310	2	N/I
	652171-4	Rod, Oil Gage & Cap Assembly	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
	653131	Harness Assembly	1	3-2-8
IO-520-BB51B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter	1	8-1-31
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator Drive	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	(continued) 649052A2-2	Injection Assembly, Fuel	1	N/I

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB51B (cont'd)	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB52B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator Drive	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	652171-4	Rod, Oil Gage & Cap Assembly	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
	649467	Harness Assembly	1	3-2-8
	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
IO-520-BB53B	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	632970	Pump, Oil	1	9-1-1
	653267	Magneto, Slick 6310	2	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
(continued)				

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB53B	629518	.. Plug (Fuel Pressure Connection)	1	N/I
(cont'd)	653131	Harness Assembly	1	3-2-8
IO-520-BB54B	652540-6	Studding Assembly, Crankcase	1	N/I
	630693-11.67	Bolt, Through	1	N/I
	640826	Spacer, Through Bolt	1	N/I
	642087A35	Adapter, Starter	1	N/I
	646275-1	Motor, Starter	1	8-1-31
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator Drive	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB55B	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	.. Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	.. Elbow, 45° (Fuel Inlet)	1	N/I
	629518	.. Plug (Fuel Pressure Connection)	1	N/I
	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB56B	641670	Alternator, 12 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		N/I
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	.. Elbow, Swivel (Fuel Pump Outlet)	1	N/I
(continued)	641502	.. Elbow, Swivel (Mixture Return)	1	N/I

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-BB56B (cont'd)	652997	Harness Assembly, TCM (10-823684-1)	1	3-2-8
IO-520-BB57B	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	652171-4	Rod, Oil Gage & Cap Assembly	1	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
IO-520-BB58B	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #3 & 4 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	646275-1	Motor, Starter, 24 Volt	1	8-1-31
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	630691	Washer, Alternator Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653267	Magneto, Slick 6310	2	N/I
	649052A2-2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
	631427-2A14	. Fuel Manifold Valve Assembly	1	N/I
	628436	. . Elbow, 45° (Fuel Inlet)	1	N/I
	629518	. . Plug (Fuel Pressure Connection)	1	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-BB59B	641670	Alternator, 12 Volt	1	7-1-2
	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		N/I
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	653549	Magneto, TCM (10-500556-1)	2	N/I
	649052A2	Injection Assembly, Fuel	1	N/I
	646212-16A2	. Fuel Pump And Fittings	1	N/I
	641502	. . Elbow, Swivel (Fuel Pump Outlet)	1	N/I
	641502	. . Elbow, Swivel (Mixture Return)	1	N/I
IO-520-C5B (continued)	652538-4	Studding Assembly, Crankcase	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-C5B (cont'd)	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	24851	Washer, Engine Mount	2	N/I
IO-520-C6B	646238-2	Motor, Starter, 12 Volt	1	8-1-31
	641670	Alternator, 12 Volt	1	7-1-2
	632977A6	Pump, Oil & Tach Drive Assembly	1	9-1-1
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	627681	Bracket, Throttle Body Support	1	N/I
	535666	Screw, Bracket to Bracket	1	N/I
	2473	Washer, Bracket to Bracket	1	N/I
	MS35338-45	Washer, Lock, Bracket to Bracket	1	N/I
	2439	Nut, Plain, Bracket to Bracket	1	N/I
IO-520-C7B	652538-4	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt	1	N/I
	538944-6.96	Bolt	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
IO-520-C8B	652538-4	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt	1	N/I
	538944-6.96	Bolt	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653304	Magneto Assembly, Slick 6380	2	N/I
	649467	Harness Assembly	1	3-2-8
	24851	Washer, Engine Mount	2	N/I
	646238-2	Motor, Starter, 12 Volt	1	8-1-31
	641670	Alternator, 12 Volt	1	7-1-2
IO-520-C9B	632977A6	Pump, Oil & Tach Drive Assembly	1	9-1-1
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
	627681	Bracket, Throttle Body Support	1	N/I
	535666	Screw, Bracket to Bracket	1	N/I
	2473	Washer, Bracket to Bracket	1	N/I
	MS35338-45	Washer, Lock, Bracket to Bracket	1	N/I
	2439	Nut, Plain, Bracket to Bracket	1	N/I
	649467	Harness Assembly	1	3-2-8
	652538-4	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt	1	N/I
IO-520-C10B	538944-6.96	Bolt	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	(continued)			

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-C10B	653267	Magneto, Slick 6310	2	N/I
(cont'd)	649467	Harness Assembly	1	3-2-8
IO-520-C11B	652538-4	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt	1	N/I
	538944-6.96	Bolt	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653304	Magneto Assembly, Slick 6380	2	N/I
	653131	Harness Assembly	1	3-2-8
	24851	Washer, Engine Mount	2	N/I
IO-520-C12B	646238-2	Motor, Starter, 12 Volt	1	8-1-31
	641670	Alternator, 12 Volt	1	7-1-2
	632977A6	Pump, Oil & Tach Drive Assembly	1	9-1-1
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
	627681	Bracket, Throttle Body Support	1	N/I
	535666	Screw, Bracket to Bracket	1	N/I
	2473	Washer, Bracket to Bracket	1	N/I
	MS35338-45	Washer, Lock, Bracket to Bracket	1	N/I
	2439	Nut, Plain, Bracket to Bracket	1	N/I
	653131	Harness Assembly	1	3-2-8
IO-520-C13B	652538-4	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt	1	N/I
	538944-6.96	Bolt	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
	653131	Harness Assembly	1	3-2-8
IO-520-C14B	646238-2	Motor, Starter, 12 Volt	1	8-1-31
	641670	Alternator, 12 Volt	1	7-1-2
IO-520-C15B		Alternator (Customer Furnished)	1	N/I
IO-520-CB6B	646238-2	Motor, Starter, 12 Volt	1	8-1-31
	641670	Alternator, 12 Volt	1	7-1-2
	632977A6	Pump, Oil & Tach Drive Assembly	1	9-1-1
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	530346	Screw, Oil Sump	28	9-4-14
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	652171-18	Oil Gauge	1	11-1-9
	627670	Bracket, Throttle	1	N/I
	627681	Bracket, Throttle Body Support	1	N/I
	646483	Screw, Bracket to Bracket	1	N/I
	2473	Washer, Bracket to Bracket	1	N/I
	MS35338-45	Washer, Lock, Bracket to Bracket	1	N/I
	2439	Nut, Plain, Bracket to Bracket	1	N/I

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-CB7B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
IO-520-CB8B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
IO-520-CB8F	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator Drive	1	N/I
IO-520-CB8W	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
IO-520-CB9B	653445A6	Cylinder & Valve Assembly	6	N/I
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator Drive	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
(continued)	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #5 & 6 Holes From Nose	2	11-3-2
	538650	Eye, Lifting, #8 & 9 Holes From Nose, 1-3-5 Side	1	11-1-1
	653445A6	Cylinder & Valve Assembly	6	N/I
	635996	Cooler, Oil	1	9-2-4
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I

N/I=Not Illustrated

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-CB9B (cont'd)	649052A4	Injection Assembly, Fuel	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	631427-2A15	. Fuel Manifold Valve Assembly	1	N/I
	629518-1	. . Plug (Fuel Pressure Connection)	1	N/I
	653377A4	. Throttle And Fuel Control Assembly	1	N/I
	635158S4S43.00	. . Hose, Fuel	1	N/I
IO-520-CB9F	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #5 & 6 Holes From Nose	2	11-3-2
	538650	Eye, Lifting, #8 & 9 Holes From Nose, 1-3-5 Side	1	11-3-7
	653445A6	Cylinder & Valve Assembly	6	N/I
	635996	Cooler, Oil	1	9-2-4
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	631427-2A15	. Fuel Manifold Valve Assembly	1	N/I
	629518-1	. . Plug (Fuel Pressure Connection)	1	N/I
	653377A4	. Throttle And Fuel Control Assembly	1	N/I
	635158S4S43.00	. . Hose, Fuel	1	N/I
IO-520-CB10B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	641668	Alternator	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
IO-520-CB11B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose Upper	1	N/I
	538944-6.96	Bolt, CC To CC, Nose Lower	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
IO-520-CB12B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #5 & 6 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
(continued)	641668	Alternator, 24 Volt	1	7-1-2

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-CB12B (cont'd)	640934	Hub, Alternator	1	N/I
	630505	. Hub, assembly		N/I
	630655	. Spring, Clutch	1	7-1-10
	640932	. Gear, Alternator	1	7-1-11
	630691	Washer, Alternator, Drive Hub	1	7-1-13
	MS24665-302	Pin, Cotter	1	7-1-14
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	631427-2A15	. Fuel Manifold Valve Assembly	1	N/I
	629518-1	. Plug (Fuel Pressure Connection)	1	N/I
	653377A4	. Throttle And Fuel Control Assembly	1	N/I
	635158S4S43.00	. Hose, Fuel	1	N/I
IO-520-CB13B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #5 & 6 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	631427-2A15	. Fuel Manifold Valve Assembly	1	N/I
	629518-1	. Plug (Fuel Pressure Connection)	1	N/I
	653377A4	. Throttle And Fuel Control Assembly	1	N/I
	635158S4S43.00	. Hose, Fuel	1	N/I
IO-520-CB14B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	AN5-13A	Bolt, CC to CC	6	11-3-1
	AN5-14A	Bolt, CC to CC, #5 & 6 Holes From Nose	2	11-3-2
	653445A6	Cylinder & Valve Assembly	6	N/I
	646843	Alternator, 60 AMP	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	631427-2A15	. Fuel Manifold Valve Assembly	1	N/I
	629518-1	. Plug (Fuel Pressure Connection)	1	N/I
(continued)				

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-CB14B	653377A4	. Throttle And Fuel Control Assembly	1	N/I
(cont'd)	635158S4S43.00	.. Hose, Fuel	1	N/I
IO-520-CB15B	652538-2	Studding Asembly,Crankcase	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653304	Magneto Assembly, Slick 6380	2	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-CB17F	652538-2	Studding Asembly,Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-CB18B	652538-2	Studding Asembly,Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator Drive	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-CB19B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator Drive	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-CB20B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #5 & 6 Holes From Nose	2	11-3-2
	538650	Eye, Lifting, #8 & 9 Holes From Nose, 1-3-5 Side	1	11-3-7
	653445A6	Cylinder & Valve Assembly	6	N/I
	635996	Cooler, Oil	1	9-2-4
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
(continued)	649467	Harness Assembly	1	3-2-8

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-CB20B (cont'd)	649052A4	Injection Assembly, Fuel	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	631427-2A15	. Fuel Manifold Valve Assembly	1	N/I
	629518-1	. . Plug (Fuel Pressure Connection)	1	N/I
	653377A4	. Throttle And Fuel Control Assembly	1	N/I
	635158S4S43.00	. . Hose, Fuel	1	N/I
IO-520-CB21B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #5 & 6 Holes From Nose	2	11-3-2
	538650	Eye, Lifting, #8 & 9 Holes From Nose, 1-3-5 Side	1	11-3-7
	653445A6	Cylinder & Valve Assembly	6	N/I
	635996	Cooler, Oil	1	9-2-4
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8
	649052A4	Injection Assembly, Fuel	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	631427-2A15	. Fuel Manifold Valve Assembly	1	N/I
	629518-1	. . Plug (Fuel Pressure Connection)	1	N/I
	653377A4	. Throttle And Fuel Control Assembly	1	N/I
	635158S4S43.00	. . Hose, Fuel	1	N/I
IO-520-CB22B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8
IO-520-CB23B	652538-2	Studding Assembly, Crankcase	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653304	Magneto Assembly, Slick 6380	2	N/I
	653131	Harness Assembly	1	3-2-8
IO-520-CB25B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
IO-520-CB26B	653131	Harness Assembly	1	3-2-8
	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
(continued)	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-CB26B (cont'd)	653445A6	Cylinder & Valve Assembly	6	N/I
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
	653131	Harness Assembly	1	3-2-8
IO-520-CB27B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
	653131	Harness Assembly	1	3-2-8
IO-520-CB28B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #5 & 6 Holes From Nose	2	11-3-2
	538650	Eye, Lifting, #8 & 9 Holes From Nose, 1-3-5 Side	1	11-3-7
	653445A6	Cylinder & Valve Assembly	6	N/I
	635996	Cooler, Oil	1	9-2-4
	646843	Alternator, 60 AMP	1	N/I
	646655	Hub, Alternator	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
	653131	Harness Assembly	1	3-2-8
	649052A4	Injection Assembly, Fuel	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	631427-2A15	. Fuel Manifold Valve Assembly	1	N/I
	629518-1	. . Plug (Fuel Pressure Connection)	1	N/I
	653377A4	. Throttle And Fuel Control Assembly	1	N/I
	635158S4S43.00	. . Hose, Fuel	1	N/I
IO-520-CB29B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #5 & 6 Holes From Nose	2	11-3-2
	538650	Eye, Lifting, #8 & 9 Holes From Nose, 1-3-5 Side	1	11-3-7
	653445A6	Cylinder & Valve Assembly	6	N/I
	635996	Cooler, Oil	1	9-2-4
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
	646655	Hub, Alternator	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	(continued)			
	537750	Screw, Balance Tube Bracket	2	N/I

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-CB29B (cont'd)	653267	Magneto, Slick 6310	2	N/I
	653131	Harness Assembly	1	3-2-8
	649052A4	Injection Assembly, Fuel	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	631427-2A15	. Fuel Manifold Valve Assembly	1	N/I
	629518-1	. . Plug (Fuel Pressure Connection)	1	N/I
	653377A4	. Throttle And Fuel Control Assembly	1	N/I
	635158S4S43.00	. . Hose, Fuel	1	N/I
IO-520-CB30B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653267	Magneto, Slick 6310	2	N/I
	653131	Harness Assembly	1	3-2-8
	652538-2	Studding Assembly, Crankcase	1	N/I
IO-520-CB31B	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	652538-2	Studding Assembly, Crankcase	1	N/I
IO-520-CB33B	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #5 & 6 Holes From Nose	2	11-3-2
	538650	Eye, Lifting, #8 & 9 Holes From Nose, 1-3-5 Side	1	11-3-7
	653445A6	Cylinder & Valve Assembly	6	N/I
	635996	Cooler, Oil	1	9-2-4
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	631427-2A15	. Fuel Manifold Valve Assembly	1	N/I
	629518-1	. . Plug (Fuel Pressure Connection)	1	N/I
	653377A4	. Throttle And Fuel Control Assembly	1	N/I
	635158S4S43.00	. . Hose, Fuel	1	N/I
	649304	Alternator, 100 AMP, 24 Volt	1	N/I
IO-520-CB34B	646655	Hub, Alternator	1	N/I
IO-520-CB35B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	653445A6	Cylinder & Valve Assembly	6	N/I
	22535	Washer, Balance Tube Bracket	2	N/I
(continued)	537750	Screw, Balance Tube Bracket	2	N/I

1-8 CUSTOMER SPECIFICATIONS (cont'd)

MODEL SPEC	PART NUMBER	1 2 3 DESCRIPTION	QTY	FIGURE & INDEX
IO-520-CB35B	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
(cont'd)	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
IO-520-CB36B	652538-2	Studding Assembly, Crankcase	1	N/I
	538944-6.74	Bolt, CC to CC, Nose, Upper	1	N/I
	538944-6.96	Bolt, CC to CC, Nose, Lower	1	N/I
	AN5-13A	Bolt, CC to CC	5	11-3-1
	AN5-14A	Bolt, CC to CC, #5 & 6 Holes From Nose	2	11-3-2
	538650	Eye, Lifting, #8 & 9 Holes From Nose, 1-3-5 Side . .	1	11-3-7
	653445A6	Cylinder & Valve Assembly	6	N/I
	635996	Cooler, Oil	1	9-2-4
	22535	Washer, Balance Tube Bracket	2	N/I
	537750	Screw, Balance Tube Bracket	2	N/I
	653290	Magneto, R/H, TCM (10-349350-5)	1	N/I
	653291	Magneto, L/H, TCM (10-349350-4)	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	649052A4	Injection Assembly, Fuel	1	N/I
	631427-2A15	. Fuel Manifold Valve Assembly	1	N/I
	629518-1	. . Plug (Fuel Pressure Connection)	1	N/I
	653377A4	. Throttle And Fuel Control Assembly	1	N/I
	635158S4S43.00	. . Hose, Fuel	1	N/I
IO-520-CB37B	646238-2	Motor, Starter, 12 Volt	1	8-1-31
	641670	Alternator, 12 Volt	1	7-1-2
IO-520-M2B	653267	Magneto, Slick 6310	2	N/I
	649467	Harness Assembly	1	3-2-8

1-9 NUMERICAL PARTS LIST

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6-1-8	AN101319	11-6-5	MS122163	4-1-23	MS35337-44
4-1-43	AN121501	9-1-12	MS124657	5-3-24	MS35337-45
4-2-43	AN121501	6-1-4	MS16631-1165	9-1-29	MS35337-43
4-3-12	AN121501	5-2-27	MS20364-428	9-2-11	MS35337-45
4-4-11	AN121501	6-1-13	MS20364-624C	8-2-37	MS35337-45
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6-1-11	AN316-6R	12-2-19	MS21042-4	9-3-12	MS35337-45
5-2-26	AN4-26A	12-1-18	MS21042-4	11-2-16	MS35337-45
9-4-3	AN4-17A	4-2-16	MS21044N3	3-1-19	MS35338-43
11-3-2	AN5-14A	4-1-16	MS21044N3	4-5-3	MS35338-43
11-6-37	AN5-13A	4-4-14	MS21044N3	3-3-9	MS35338-46
11-3-1	AN5-13A	4-3-15	MS21044N3	3-2-6	MS35338-43
11-3-3	AN5-15A	10-1-11	MS21209C4-15	11-1-7	MS35338-45
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11-4-31	AN5-13A	12-4-5	MS24665-229	10-2-32	MS35338-44
4-5-2	AN500-10-5	12-5-5	MS24665-229	9-1-43	MS35338-44
4-5-10	AN500A8-10	11-5-22	MS27769-C2	10-1-32	MS35338-44
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5-2-14	AN737TW46	9-4-14	MS35303-40	9-3-9	MS35769-11
4-6-1	AN780-2	5-3-22	MS35303-40	9-3-3	MS35769-15
4-6-1	AN816-2B	3-3-19	MS35337-44	9-1-45	MS35769-12
4-8-1	AN914-2	5-3-5	MS35337-44	9-4-6	MS35769-12
11-1-6	AN960-516L	3-3-8	MS35337-45	9-1-10	MS35769-26
9-3-16	AN960-616L	4-2-36	MS35337-45	9-1-10	MS35769-18
6-1-1	EQ6576	4-3-32	MS35337-45	9-4-5	MS35769-15
10-2-8	MS122121	3-1-4	MS35337-45	9-3-5	MS35769-12
10-1-8	MS122121	4-4-24	MS35337-45	9-4-10	MS35769-11
11-5-6	MS122122	3-2-4	MS35337-45	11-5-30	MS35769-11
11-4-6	MS122122	4-3-22	MS35337-44	11-6-34	MS35769-11
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11-6-4	MS122162	5-2-5	MS35337-44	8-2-47	MS9021-038
11-5-5	MS122162	5-2-16	MS35337-45	11-1-2	MS9021-210
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1-9 NUMERICAL PARTS LIST (cont'd)

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3-1-21	10-400051-2	9-1-42	20522	3-3-18	2472
3-2-15	10-400401-48	9-1-22	20522	9-1-33	2472
3-2-22	10-400053-2	10-1-31	20522	5-3-26	2472
3-2-20	10-400401-48	11-1-13	20522	5-2-23	2473
3-2-19	10-400401-48	11-3-27	20522	5-1-21	2473
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3-2-13	10-400401-48	10-1-24	21007	9-3-11	2473
3-2-14	10-400401-48	10-2-24	21007	8-2-36	2473
3-2-10	10-400401-48	10-2-21	21007	9-4-12	2473
3-2-9	10-400401-48	9-1-32	21208A2	8-2-2	2473
3-2-18	10-400401-48	5-3-18	22535	8-1-27	2473
3-2-17	10-400401-78	5-2-22	22535	5-3-23	2473
3-2-16	10-400401-48	9-3-11	22535	9-2-10	2473
3-2-24	10-400056-1	11-2-14	22535	8-1-2	2473
3-1-22	10-400053-2	9-1-5	23024	8-2-28	2473
3-1-10	10-400401-48	6-1-17	24239	11-3-4	2473
3-1-11	10-400401-48	11-3-11	24239	11-2-10	2473
3-1-13	10-400401-48	4-1-37	2439	11-2-15	2473
3-1-9	10-400401-48	3-3-10	2439	9-1-39	2474
3-1-8	10-400401-48	4-4-25	2439	6-1-14	2474
3-1-18	10-400401-48	4-3-33	2439	9-2-6	2474
3-1-17	10-400401-48	3-2-5	2439	11-2-21	24764
3-1-7	10-400401-48	4-2-37	2439	10-2-18	24802
3-1-12	10-400401-48	3-1-5	2439	10-1-18	24802
3-2-26	10-400060-7	8-2-38	2439	5-2-6	24835
3-1-16	10-400401-48	8-2-4	2439	5-3-6	24835
3-1-14	10-400401-48	7-1-5	2439	5-1-6	24835
3-1-15	10-400401-78	9-2-12	2439	11-3-26	24878
5-4-10	13XX18130	8-1-4	2439	4-2-19	2500
5-5-13	13XX18130	8-2-29	2439	4-1-19	2500
3-2-7	13XX1896	8-1-29	2439	4-4-17	2500

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PART NUMBER	FIG. & INDEX	PART NUMBER	FIG. & INDEX	PART NUMBER	FIG. & INDEX
4-3-18	2500	12-1-17	401893	8-2-21	501867
3-3-5	25008	8-2-31	401899	8-2-17	502287-3
3-3-4	25102	11-6-14	401927	8-1-24	502287-3
12-2-2	350998	11-5-11	401927	8-2-25	502293
12-1-2	350998	11-4-11	401927	10-2-3	520112-3
8-2-6	352655	11-6-17	401932	10-1-3	520112-3
8-2-32	352655	11-6-16	401932	8-1-18	521649-3
10-2-10	35967	11-5-12	401932	11-5-19	524183
10-1-10	35967	11-4-12	401932	12-3-2	524818
10-2-17	35971	11-5-13	401936	9-4-14	530346
10-1-17	35971	11-6-18	401936	12-5-2	530658
5-1-7	36151L	11-4-13	401936	12-4-2	530658
5-3-7	36151L	11-5-14	401944	9-2-9	531003
5-2-8	36151L	11-5-15	401962	3-3-14	531178
3-3-7	401507	11-6-15	401962	9-1-19	531378
8-2-49	401507	11-4-15	401962	9-1-46	532432
8-2-40	401752	11-6-21	401963	9-3-4	532432
11-4-23	401752	11-5-16	401963	9-4-7	532432
11-5-25	401752	11-4-16	401963	9-4-11	532432
11-6-29	401752	11-4-19	401965	9-3-10	532432
9-1-3	401801	11-6-24	401965	11-5-29	532432
11-5-7	401804	11-5-21	401965	11-6-33	532432
11-6-7	401804	11-6-20	401965	11-4-27	532432
11-4-7	401804	11-4-14	401965	11-1-10	533355
8-2-30	401813	8-1-9	401971	10-2-37	534609
8-1-8	401814	8-2-10	401971	10-1-37	534609
8-2-7	401814	11-5-18	401977	10-1-38	534610
11-5-8	401814	11-6-22	401977	10-2-38	534610
11-4-8	401814	11-4-17	402034	9-3-14	534625
11-6-8	401814	11-6-10	402034	8-1-17	534685
11-5-9	401842	8-1-7	402127	3-3-1	534863
5-3-14	401852	8-2-9	402127	9-1-17	535008
9-3-8	401860	11-4-9	402127	9-1-16	535634
11-6-9	401860	8-1-6	402151	3-2-3	535847
11-5-17	401863	11-6-23	402151	4-4-23	535847
11-6-27	401873	11-5-20	402151	4-2-35	535847
11-6-19	401873	11-4-18	402151	4-1-35	535847
8-2-8	401881	9-1-21	402711	4-3-31	535847
11-6-13	401885	11-5-27	402941	3-1-3	535847
11-4-10	401885	11-6-31	402941	9-1-27	535887
11-6-11	401885	11-4-25	402941	9-1-17	535900
11-5-10	401885	4-3-8	501867	9-1-25	535908
11-6-12	401885	4-2-10	501867	12-1-23	536379
9-1-20	401893	4-1-10	501867	12-2-24	536379
10-1-7	401893	4-4-8	501867	8-1-20	536552
12-2-18	401893	8-1-15	501867	8-2-13	536552

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12-2-21	536563	5-5-5	625457	4-3-34	628306
12-1-20	536563	5-4-5	625457	11-2-19	628321-38
10-1-36	537296	5-5-16	625601	4-2-20	628371
10-2-36	537296	5-4-15	625601	4-1-20	628371
4-3-10	537629	10-1-30	625615	4-3-19	628371
4-4-9	537629	10-2-30	625615	4-9-1	628437
9-4-9	537650	4-9-1	625952	4-8-1	628437
4-1-18	537690	4-9-1	625952	4-6-1	628437
4-2-18	537690	10-2-39	626147	4-8-1	628438
4-3-17	537690	10-1-39	626147	4-8-1	628476
4-4-16	537690	4-1-33	626486	4-9-1	628476
11-1-8	537742-1	4-4-21	626486	4-9-1	628478
5-3-19	537750	4-2-33	626486	12-3-9	628488
9-3-13	537750	4-5-6	626557	5-1-20	628730
9-4-14	537750	4-3-13	626634	3-1-29	628739
11-3-30	537750	4-1-14	626634	3-1-28	628740
5-2-17	537961	4-2-14	626634	3-3-13	629077
9-4-14	537961	4-4-12	626634	12-1-12	629104
5-2-30	538100	5-4-8	626634	12-2-12	629104
5-2-24	538468	5-5-11	626634	5-1-2	629138
11-3-7	538650	5-4-3	626813	5-3-2	629138
5-3-25	538996	5-5-3	626813	5-2-2	629138
5-1-11	539023	4-7-2	626879-1	5-2-9	629163-5
8-1-32	539058	12-2-17	626889	5-1-9	629163
11-2-8	539058	12-1-16	626889	5-3-8	629163-5
5-2-25	539114	4-6-1	627331	5-1-8	629163-5
11-5-32	539374	4-4-20	627335D12	11-1-12	629201
11-6-36	539374	4-2-31	627335D13	5-2-3	629325
11-4-30	539374	4-1-31	627335D13	5-1-3	629325
8-2-19	539800	4-3-28	627335D13	5-3-3	629325
8-1-14	539800	4-5-8	627378	12-4-3	629340
8-1-22	539805	9-2-17	627496	12-5-3	629340
8-2-12	539805	12-5-4	628109	12-2-30	629360
5-5-17	539942	12-4-4	628109	8-1-13	629435
5-4-16	539942	4-3-27	628152	5-3-12	629518-1
5-4-2	625238	4-1-30	628152	5-1-13	629518-1H
5-5-2	625238	4-2-30	628152	8-2-39	629518-4
4-1-17	625327-2	4-1-29	628153	5-3-20	629518-2
4-4-15	625327-2	4-3-27	628153	9-2-15	629518-3H
4-2-17	625327-2	4-2-29	628153	9-2-14	629518-1H
4-3-16	625327-2	4-3-27	628154	11-6-38	629518-1H
5-5-4	625327-1	4-2-28	628154	11-6-28	629518-1H
5-4-4	625327-1	4-1-28	628154	11-4-32	629518-1H
10-2-16	625393	4-4-26	628306	11-5-34	629518-1H
10-1-16	625393	4-1-44	628306	5-1-12	629601
5-4-5	625457-1	4-2-44	628306	7-1-12	629638

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12-1-15	629680	9-1-18	631056A1	10-1-34	631544
12-2-16	629680	9-1-15	631075	10-2-34	631544
12-3-8	629747	12-3-5	631088.44	9-1-25	631650
12-3-7	629748	11-2-6	631152	9-1-8	631653
3-2-23	629837	5-1-16	631220	4-6-1	631658A1
3-1-23	629837	4-1-32	631246	9-2-13	631658A1
11-5-31	629847	4-2-32	631246	5-2-19	631832
11-4-29	629847	4-3-29	631246	12-3-4	631845
4-9-1	629904-2	8-1-19	631252	5-2-7	631972
4-1-5	629904-2A11	8-2-14	631252	5-2-21	632015
4-2-5	629904-2A11	4-2-40	631266-1	5-2-20	632016
4-3-5	629904-2A6	4-1-40	631266-1	4-8-1	632017
4-9-1	629952	4-1-39	631273-1	12-1-24	632018
10-3-6	630046	4-2-39	631273-1	12-2-25	632018
4-9-1	630119	4-1-38	631275-1	9-1-31	632085
5-4-14	630124	4-2-38	631275-1	12-3-3	632092-4
4-5-8	630184	5-2-18	631287A2	3-1-25	632105
4-1-11	630387	5-5-1	631287A2	3-2-25	632105
4-3-9	630387	4-8-1	631293	4-8-1	632115
4-2-11	630387	4-8-1	631308	11-3-16	632120
5-4-1	630455	4-5-4	631329	9-2-5	632224
5-5-1	630455	4-5-5	631330	9-2-5	632276
7-1-9	630505	11-2-4	631393	5-2-13	632280
8-1-11	630568	11-2-5	631394	3-3-3	632330
8-2-20	630568	5-1-14	631406	4-5-7	632425
10-1-9	630591	5-1-19	631408A1	7-1-6	632437
7-1-10	630655	5-4-1	631408A1	9-4-4	632443-4
8-2-23	630680	5-1-19	631408A2	11-3-25	632443-6
8-1-12	630680	4-2-4	631408A2	11-3-28	632443-4
7-1-13	630691	4-1-4	631408A2	5-1-15	632444-2
11-3-9	630693-10.44	5-4-1	631408A2	4-3-7	632554-1
12-4-6	630826	4-2-4	631415A8	4-1-7	632554-1
11-1-18	630870	4-1-4	631415A8	4-9-1	632554-1
11-1-16	630871	4-2-25	631427-2A9	4-9-1	632554-2
11-4-3	630873	4-3-24	631427-2A18	4-2-9	632554-24
11-6-3	630873	4-3-24	631427-A10	4-4-7	632554-2
11-5-3	630873	4-1-25	631427-2A9	4-2-7	632554-3
11-5-2	630899	4-5-1	631427-2A9	5-5-10	632554-2
11-6-2	630899	4-5-1	631427-2A18	5-5-7	632554-1
11-4-2	630899	4-6-1	631427	5-4-7	632554-2
11-3-23	630943-6.19	11-3-6	631427-2A9	4-9-1	632555-56
11-3-19	630943-5.31	11-3-6	631427-2A11	4-9-1	632555-24
9-3-2	630966-.56	4-1-25	631427A6	4-9-1	632555-35
11-3-13	630966-4.00	10-1-14	631521	4-4-6	632555-24
9-1-15	631014	10-2-14	631521	4-2-6	632555-56

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4-3-6	632555-35	11-6-35	633874	12-2-4	639196
4-1-9	632555-24	4-5-1	634011	9-2-16	639305
5-4-12	632555-56	3-2-27	634060	5-5-12	639479
5-5-6	632555-35	9-1-7	634150	5-4-9	639479
5-5-9	632556	5-3-16	634209	11-2-13	639997
5-4-6	632556	4-5-9	634325	3-3-17	640380
4-4-13	632557	12-2-14	634503	9-1-32	640380
4-3-14	632557	11-3-17	634511	8-2-24	640731
4-2-15	632557	9-2-13	634628	8-2-44	640733
4-1-15	632557	3-1-6	634675	8-2-27	640749
4-1-12	632558	4-3-25	635158S4S12.00	6-1-1	640767
4-2-12	632558	4-1-27	635158S4S32.00	6-1-10	640774
4-4-10	632558	4-2-27	635158S4S32.00	6-1-12	640777
4-3-11	632558	4-1-26	635158S4S38.00	6-1-5	640781
4-4-9	632558A1	4-2-26	635158S4S38.00	8-2-34	640808
4-3-10	632558A1	4-3-26	635158S4S40.00	7-1-11	640932
4-1-11	632558A1	11-3-8	635363	7-1-8	640934
4-2-11	632558A1	9-2-4	635996	6-1-9	640947
3-3-2	632653A1	8-2-41	637817	4-4-4	641027
9-3-15	632663	10-1-15	637837	5-4-1	641027
9-1-14	632762	10-2-15	637837	4-5-4	641030
4-2-21	632859	10-1-7	638125	4-4-18	641032-12A1
4-1-21	632859	10-2-7	638125	4-5-1	641032-12A2
4-1-20	632859A1	4-7-1	638154-2A8	4-4-18	641032-12A2
4-2-20	632859A1	4-1-3	638154-2A7	4-6-1	641032
9-4-9	632876	4-8-1	638154-17	11-3-6	641032-12A2
12-2-22	632892	4-8-1	638154-16	10-1-1	641066
12-1-21	632892	4-3-3	638154-16A6	10-2-1	641066
12-2-23	632893	4-8-1	638154-2	4-4-19	641153
12-1-22	632893	4-7-1	638154-16A6	4-4-19	641154
4-9-1	632916-2	4-3-3	638154-2A8	4-4-19	641155
4-4-5	632916-2A3	4-2-3	638154-16A4	4-4-19	641156
11-1-5	632964-2	4-7-1	638154-17A1	4-4-19	641157
11-1-5	632964-1	4-4-3	638154-5A1	4-4-19	641158
9-1-1	632970	4-4-3	638154-17A1	5-3-13	641162A1
9-1-2	632977	4-7-1	638154-16A4	5-3-21	641245
9-1-1	632977A6	4-7-1	638154-2A7	12-1-27	641250
4-8-1	633121	4-7-1	638154-5A1	12-2-28	641250
12-1-3	633189	3-3-15	638172	12-1-28	641306
12-2-3	633189	12-2-7	639193	12-2-29	641306
11-1-10	633240	12-1-7	639193	11-2-18	641361
9-2-3	633287	12-1-5	639193	8-2-11	641368
9-2-3	633288	12-2-5	639193	8-1-10	641368
5-5-15	633379	12-2-6	639195	5-3-15	641393
8-1-16	633845	12-1-6	639195	5-3-17	641394

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7-1-2	641668	10-1-5	643767	6-1-2	646391
7-1-2	641670	6-1-22	643956-20	6-1-1	646392
3-3-12	641728	6-1-7	643957	12-5-1	646476
12-3-10	641862	10-1-35	643967	11-3-18	646599
12-2-27	641909	10-2-35	643967	7-1-15	646600
12-1-26	641909	6-1-21	646064-20	11-3-29	646600
11-3-14	641931-10.75	11-5-24	646140-2	5-2-31	646605
4-5-1	642064	11-4-21	646140-1	4-2-24	646605
4-6-1	642070	11-6-26	646140-2	3-3-20	646605
4-5-11	642070	11-4-22	646140-2	4-3-23	646605
8-1-5	642083	11-5-23	646140-1	4-1-24	646605
8-1-1	642083A5	11-6-25	646140-1	9-1-44	646605
8-2-5	642087	4-4-3	646212-17A1	9-1-24	646605
8-2-1	642087A35	4-3-3	646212-2A2	5-3-27	646605
9-1-11	642224	4-8-1	646212-2	9-1-35	646605
9-3-7	642273A3	4-4-3	646212-5A1	11-1-15	646605
10-2-9	642318	4-8-1	646212-17	11-1-20	646605
9-1-9	642335	4-8-1	646212-16	7-1-8	646655
9-1-6	642336	4-1-3	646212-2A1	10-1-1	646657CE-A7
12-5-6	642398	4-3-3	646212-16A3	10-1-2	646657CE
7-1-7	642589	4-7-1	646212-16A3	4-3-20	646673
9-1-19	642714	4-7-1	646212-2A2	3-2-8	646675
12-2-13	642720	4-7-1	646212-2A1	12-4-1	646778
4-7-1	642796	4-7-1	646212-16A1	5-2-12	646907
12-1-13	642839	4-2-3	646212-16A1	5-2-11	646908
11-1-10	642892	4-7-1	646212-5A1	5-2-15	646912
5-3-9	642917-1	4-7-1	646212-17A1	3-2-2	646981
5-2-10	642917-1	9-1-18	646237	3-2-2	646983
5-1-10	642917-1	8-1-31	646238-2	10-1-6	646985
3-1-27	643060	11-3-21	646256	10-2-6	646985
6-1-3	643368	8-1-31	646275-1	10-3-2	648005
5-3-10	643379	8-2-48	646275	10-3-2	648005CP
5-3-11	643380	12-3-9	646277	10-3-3	648006
6-1-6	643556	10-1-12	646283	10-3-3	648006CP
12-2-10	643626-105	10-2-12	646283	10-3-4	648007CP
12-2-9	643626-104	10-2-13	646286	10-3-5	648008
12-2-8	643626-103	10-1-13	646286	10-3-1	648045
12-1-8	643626-103	12-1-14	646288	10-3-4	648050
12-1-9	643626-101	12-2-15	646288	10-1-5	648051
12-1-10	643626-101	6-1-18	646293-34.00	10-2-5	648051
12-1-8	643626-104	10-1-44	646297	4-1-2	649052A1-1
12-2-11	643629	10-2-44	646297	4-1-2	649052A1-1R
12-1-11	643629	10-2-45	646298	4-4-2	649052A10
10-2-4	643766	10-1-45	646298	4-4-2	649052A10R
10-1-4	643766	10-2-43	646312	4-2-2	649052A2-1

1-9 NUMERICAL PARTS LIST (cont'd)

FIG. & INDEX	PART NUMBER	FIG. & INDEX	PART NUMBER	FIG. & INDEX	PART NUMBER
4-2-2	649052A2-1R	4-1-1	649962	11-6-1	652539-6
4-3-2	649052A3	11-1-4	649965	11-4-1	652540-2
4-3-2	649052A3R	7-1-1	649978	11-4-1	652540-1
4-3-2	649052A4-1R	11-2-12	649981	10-1-42	652541
4-3-2	649052A4-1	4-4-1	649982	3-1-6	652974
4-4-2	649052A9	4-3-1	649982	10-1-26	652984
4-4-2	649052A9R	4-2-1	649982	10-2-26	652984
12-2-26	649205	9-2-2	649989	3-2-8	652997
12-1-25	649205	9-1-36	649991	8-2-51	653014
5-1-18	649206	8-2-35	652019A1	9-1-26	653023
9-3-13	649206	10-2-17	652112	12-3-1	653058
11-3-31	649206	10-1-17	652112	8-2-43	653171
5-2-29	649290	10-1-20	652129	10-2-25	653188
7-1-2	649304	10-2-23	652129	10-1-25	653188
10-1-2	649317CE	10-1-23	652129	10-1-29	653191
10-1-1	649317CE-A7	10-2-20	652129	10-2-29	653191
6-1-19	649342	10-2-22	652130	11-2-7	653226
8-2-45	649351	10-1-22	652130	11-2-2	653305
10-2-33	649353-.75	10-2-19	652131	11-2-3	653306
10-1-33	649353-.75	10-1-19	652131	10-2-27	653309
11-1-5	649406-3	5-2-32	652163	10-1-27	653309
11-1-5	649406-1	11-1-9	652171-2	4-1-2	653359
11-1-3	649407	11-1-9	652171-16	4-3-2	653359
11-1-9	649608-32	11-1-9	652171-18	4-4-2	653359
11-1-9	649608-4	11-1-9	652171-19	4-2-2	653359
11-1-9	649608-31	11-1-9	652171-14	4-3-4	653376A1
9-3-1	649812	11-1-9	652171-1	4-3-4	653377A2
9-4-1	649813	11-1-9	652171-15	11-1-11	653415
8-2-42	649865	11-1-17	652189	10-2--2	653445
8-2-18	649886	5-2-28	652314	10-2-1	653445A6
12-1-1	649895	10-2-42	652421	10-1-2	653446
12-1-1	649896	10-1-41	652422	10-1-1	653446A5
12-2-1	649898	10-2-41	652422	10-1-1	653446A6
9-1-37	649923	11-3-22	652422	8-1-1	653470
6-1-20	649924	4-3-30	652436-1	8-2-1	653470
8-2-46	649924	4-2-34	652436-1	3-3-16	653487
9-1-1	649949	4-4-22	652436-1	9-1-31	653487
3-2-1	649954	4-1-34	652436-1	9-1-47	653490
3-1-1	649954	10-1-40	652451-8	9-1-38	653491
5-3-1	649959	10-2-40	652451-8	9-3-6	653528
5-2-1	649959	10-1-34	652458	9-4-8	653528
5-1-1	649959	10-2-34	652458	3-1-2	653540
9-2-1	649961	11-5-1	652538-4	3-1-2	653544
4-4-1	649962	11-5-1	652538-1		
4-3-1	649962	11-6-1	652539-5		

CHAPTER 2

EXHAUST SYSTEM

2-1 EXHAUST

Exhaust Systems for the IO-520 Permold Series engines are supplied by the airframe manufacturer. For exhaust system and component detail parts listings refer to the appropriate airframe manufacturer's parts catalog.

INTENTIONALLY
LEFT
BLANK

CHAPTER 3

IGNITION SYSTEM

FIGURE		PAGE
3-1	Ignition System (IO-520-BA, BB,M & MB)	3-2
3-2	Ignition System (IO-520-B, C & CB)	3-4
3-3	Magneto and Accessory Drive Adapter	3-6

Note: For parts information on Slick magnetos and harnesses refer to Section 1-5, "Related Publications," of this manual.

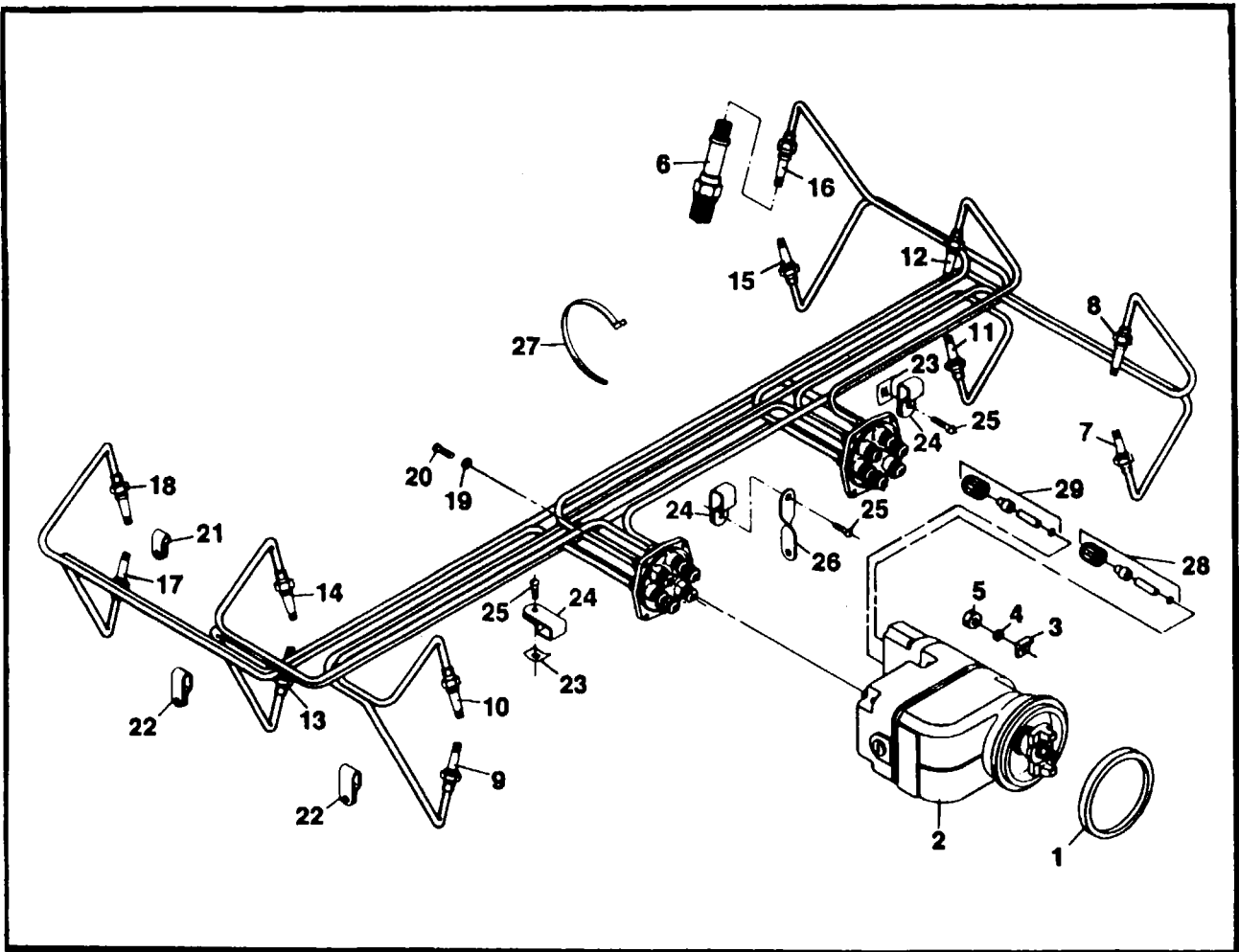


FIGURE 3-1. IGNITION SYSTEM (IO-520-BA, BB, M & MB)

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY			
			BA	BB	M	MB
3-1	-1	649954 \$ Gasket, Magneto to Crankcase	2	2	2	2
	-2	653540 Magneto, L.H. Side	1	1	1	1
	-2	653544 Magneto, R.H. Side	1	1	1	1
		ATTACHING PARTS				
	-3	535847 Washer, Magneto Holding	4	4	4	4
	-4	MS35337-45 Washer, Lock	4	4	4	4
	-5	2439 Nut, Plain, Hex	4	4	4	4

	-6	634675 Spark Plug	12	12	12	12
		652974 Harness Assembly, Complete	1	1	1	1
	-7	10-400401-48 . Lead Assembly No. 1B 38.00 In. Lg.	1	1	1	1
	-8	10-400401-48 . Lead Assembly No. 1T 19.00 In. Lg.	1	1	1	1
	-9	10-400401-48 . Lead Assembly No. 2B 43.00 In. Lg.	1	1	1	1
	-10	10-400401-48 . Lead Assembly No. 2T 21.00 In. Lg.	1	1	1	1
	-11	10-400401-48 . Lead Assembly No. 3B 42.00 In. Lg.	1	1	1	1
	-12	10-400401-48 . Lead Assembly No. 3T 21.00 In. Lg.	1	1	1	1
	-13	10-400401-48 . Lead Assembly No. 4B 39.00 In. Lg.	1	1	1	1
	-14	10-400401-48 . Lead Assembly No. 4T 18.00 In. Lg.	1	1	1	1
	-15	10-400401-78 . Lead Assembly No. 5B 50.00 In. Lg.	1	1	1	1
	-16	10-400401-48 . Lead Assembly No. 5T 28.00 In. Lg.	1	1	1	1
	-17	10-400401-48 . Lead Assembly No. 6B 42.00 In. Lg.	1	1	1	1
	-18	10-400401-48 . Lead Assembly No. 6T 25.00 In. Lg.	1	1	1	1
		ATTACHING PARTS				
	-19	MS35338-43 Washer, Lock	8	8	8	8
	-20	AN501-10-10 Screw	8	8	8	8

	-21	10-400051-2 . Clamp	14	14	14	14
	-22	10-400053-2 . Clamp	2	2	2	2
	-23	629837 . Nut, Speed	3	3	3	3
	-24	10-400056-1 . Clamp	3	3	3	3
	-25	632105 . Screw	3	3	3	3
	-26	10-400060-7 Bracket	1	1	1	1
	-27	643060 Tie, Cable	11	11	11	11
	-28	628740 ① Kit, Ground Terminal	2	2	2	2
	-29	628739 ① Kit, Retard Terminal (Left Magneto)	1	1	1	1

- ① New style magnetos that have the short cover with the feed through capacitor do not use the 628740 ground terminal kit or 628739 retard terminal kit. For proper P-Lead and Retard connections on the new style magnetos, see TCM SIL 647 or current revision as applicable.

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY		
			B	C	CB
3-2	-1	649954 \$ Gasket, Magneto-to-Adapter	2	2	2
	-2	646981 Magneto, L.H. Side	1	1	1
	-2	646983 Magneto, R.H. Side	1	1	1
		ATTACHING PARTS			
	-3	535847 Washer, Magneto Holding	4	4	4
	-4	MS35337-45 Washer, Lock	4	4	4
	-5	2439 Nut, Plain, Hex	4	4	4
		ATTACHING PARTS			
	-6	MS35338-43 Washer, Lock	8	8	8
	-7	13XX1896 Nut	8	8	8

	-8	646675 Spark Plug	12	12	12
		652997 Harness Assembly, Complete	1	1	1
	-9	10-400401-48 . Lead Assy., No. 1B 38.00 In. Lg.	1	1	1
	-10	10-400401-48 . Lead Assy., No. 1T 19.00 In. Lg.	1	1	1
	-11	10-400401-48 . Lead Assy., No. 2B 43.00 In. Lg.	1	1	1
	-12	10-400401-48 . Lead Assy., No. 2T 21.00 In. Lg.	1	1	1
	-13	10-400401-48 . Lead Assy., No. 3B 42.00 In. Lg.	1	1	1
	-14	10-400401-48 . Lead Assy., No. 3T 21.00 In. Lg.	1	1	1
	-15	10-400401-48 . Lead Assy., No. 4B 39.00 In. Lg.	1	1	1
	-16	10-400401-48 . Lead Assy., No. 4T 18.00 In. Lg.	1	1	1
	-17	10-400401-78 . Lead Assy., No. 5B 50.00 In. Lg.	1	1	1
	-18	10-400401-48 . Lead Assy., No. 5T 28.00 In. Lg.	1	1	1
	-19	10-400401-48 . Lead Assy., No. 6B 42.00 In. Lg.	1	1	1
	-20	10-400401-48 . Lead Assy., No. 6T 25.00 In. Lg.	1	1	1
	-21	10-400051-2 . Clamp	14	14	14
	-22	10-400053-2 . Clamp	2	2	2
	-23	629837 . Nut, Speed	3	3	3
	-24	10-400056-1 . Clamp	3	3	3
	-25	632105 . Screw	3	3	3
	-26	10-400060-7 . Bracket	1	1	1
	-27	634060 . Tie, Cable	11	11	11

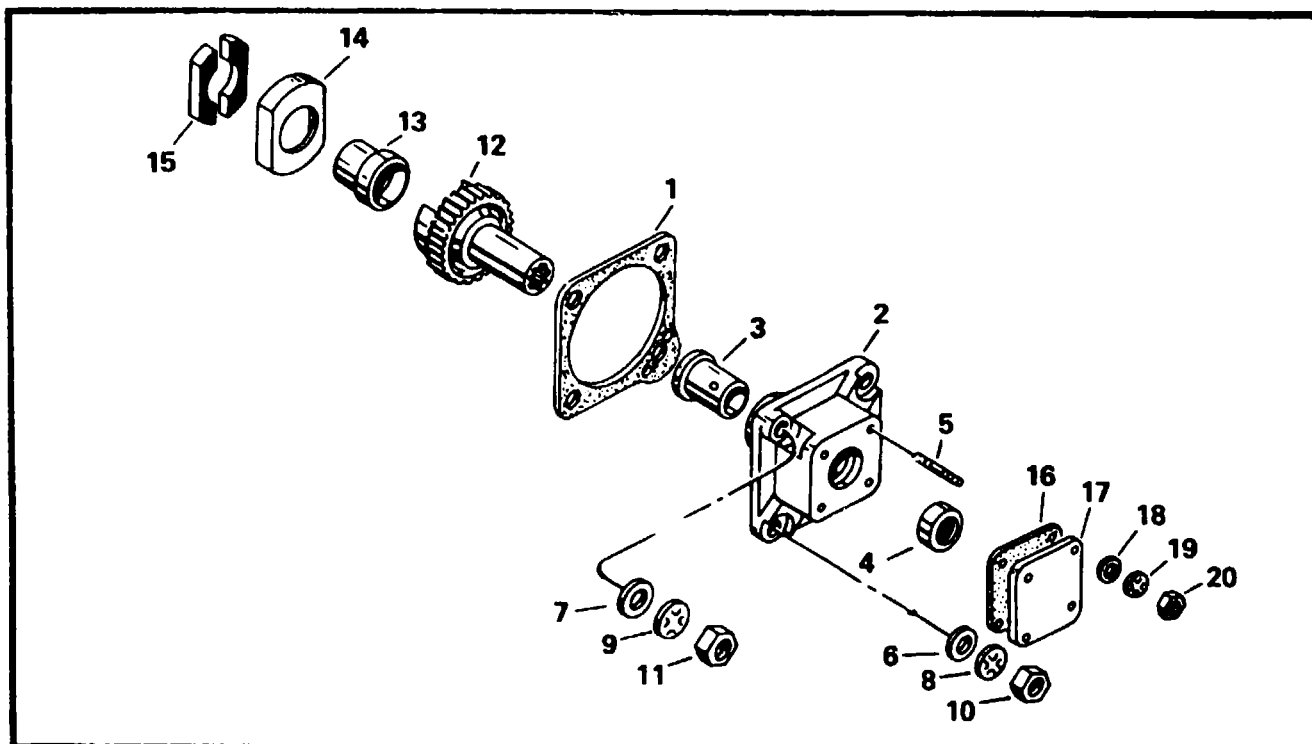


FIGURE 3-3. MAGNETO AND ACCESSORY DRIVE ASSEMBLY (ALL MODELS)

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY								
			B	BA	BB	C	CB	M	MB		
3-3	-1	534863	\$	Gasket, Adapter-to-Crankcase	2	2	2	2	2	2	2
	-2	632653A1		Adapter Assy., Magneto & Accy. Drive	2	2	2	2	2	2	2
	-3	632330		. Bushing, Adapter	1	1	1	1	1	1	1
	-4	25102	\$	. Seal, Oil	1	1	1	1	1	1	1
	-5	25008	†	. Stud, 1/4 x 1-13/32 In. Lg.	4	4	4	4	4	4	4
	-6	2473		Washer, Plain	6	6	6	6	6	6	6
	-7	401507		Washer, Plain	2	2	2	2	2	2	2
	-8	MS35337-45		Washer, Lock	6	6	6	6	6	6	6
	-9	MS35338-46		Washer, Lock	2	2	2	2	2	2	2
	-10	2439		Nut, Plain, Hex, 5/16-24	6	6	6	6	6	6	6
	-11	2441		Nut, Plain, Hex, 3/8-24	2	2	2	2	2	2	2
	-12	641728		Gear Assy., Magneto & Accy. Drive	2	2	2	2	2	2	2
	-13	629077		. Sleeve, Drive Gear	1	1	1	1	1	1	1
	-14	531178		Retainer, Magneto Drive Coupling	2	2	2	2	2	2	2
	-15	638172		Bushing, Drive Coupling, Rubber	4	4	4	4	4	4	4
	-16	653487	\$	Gasket, Adapter-to-Cover	2	2	2	2	2	2	2
	-17	640380		Cover, Accessory Drive	2	2	2	2	2	2	2
ATTACHING PARTS											
-18	2472		Washer, Plain	8	8	8	8	8	8	8	
-19	MS35337-44		Washer, Lock	8	8	8	8	8	8	8	
-20	646605		Nut, Plain, Hex, 1/4-28	8	8	8	8	8	8	8	

CHAPTER 4

FUEL INJECTION

FIGURE		PAGE
4-1	Fuel Injection System (IO-520-B, BA)	4-2
4-2	Fuel Injection System (IO-520-BB)	4-5
4-3	Fuel Injection System (IO-520-C, CB)	4-8
4-4	Fuel Injection System (IO-520-M, MB)	4-10
4-5	Fuel Manifold Valve Assembly	4-12
4-6	Fuel Manifold Valve Fitting Locations	4-13
4-7	Fuel Pump and Shroud Assembly	4-14
4-8	Fuel Pump Fitting Locations	4-15
4-9	Fuel Control Fitting Locations	4-16

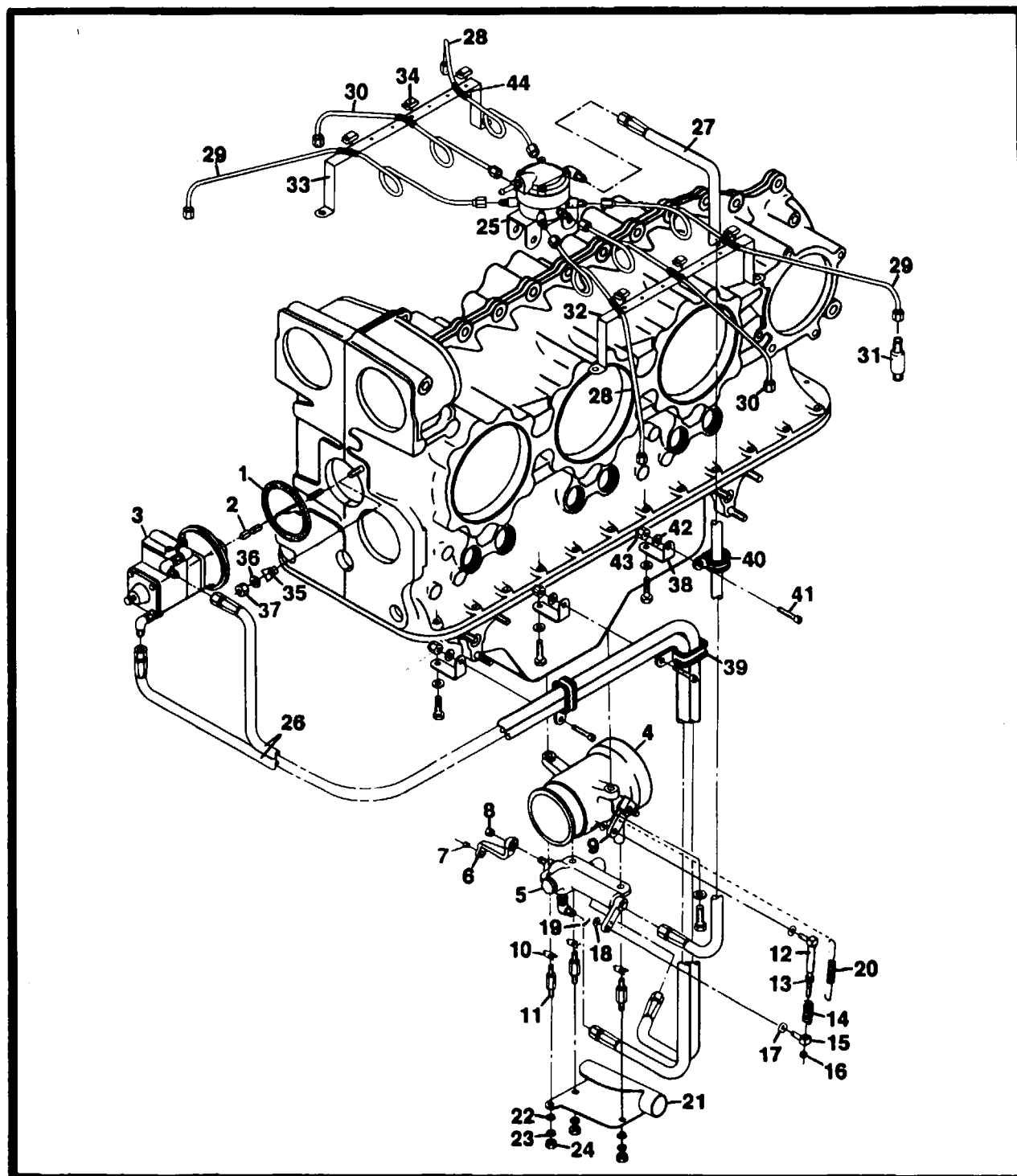


FIGURE 4-1. FUEL INJECTION SYSTEM (IO-520-B, BA)

FIG. & INDEX	PART NUMBER		1 2 3 4 DESCRIPTION	QUANTITY	
				B	BA
4-1	-1	649962	\$ Gasket, Fuel Pump-to-Crankcase	1	1
	-2	653359	Coupling, Crankshaft Gear-to-Fuel Pump	1	1
		649052A1-1R	① ② Fuel Injection Assembly, Complete	opt	opt
		649052A1-1	① ② Fuel Injection Assembly, Complete	1	1
	-3	638154-2A7	⑥ Fuel Pump and Fittings	opt	opt

FIG. & INDEX	PART NUMBER	1 2 3 4 DESCRIPTION	QUANTITY	
			B	BA
4-1	-3	646212-2A1 ⑥ Fuel Pump and Fittings	1	1
	-4	631415A8 Throttle and Control Assembly	1	1
		631408A2 Throttle and Lever Assembly	1	1
	-5	629904-2A11 Control Assembly, Complete	1	1
	-6	632555-56 Lever	1	1
	-7	632554-1 Bushing	1	1
	-8	MS21042-5 Nut	1	1
	-9	632555-24 Lever	1	1
		ATTACHING PARTS		
	-10	501867 Washer, Tab	3	3
	-11	630387 Bolt	3	3

		632558A1 ⑦ Link Rod Assembly, Complete	1	1
	-12	632558 Link and Rod Assembly	1	1
	-13	AN121501 Nut	2	2
	-14	626634 Spring, Compression	1	1
	-15	632557 Rod End	1	1
	-16	MS21044N3 Nut, Self-Locking	1	1
	-17	625327-2 Washer, Wave	2	2
	-18	537690 Washer, Plain	2	2
	-19	2500 Pin, Cotter	2	2
	-20	628371 Spring	1	1
		632859A1 Shroud Assembly, Complete	1	1
	-21	632859 Shroud Assembly	1	1
		ATTACHING PARTS		
	-22	20522 Washer, Plain	3	3
	-23	MS35337-44 Washer, Lock	3	3
	-24	646605 Nut	3	3

	-25	631427-2A9 ③ Manifold Valve Assembly, Fuel	1	1
	-25	631427A6 ④ Manifold Valve Assembly, Fuel	opt	opt
	-26	635158S4S38.00 Hose Assy., Control-to-Fuel Pump	2	2
	-27	635158S4S32.00 Hose Assy., Control-to-M/V	1	1
	-28	628154 Tube Assembly, Cylinders 1 & 6	2	2
	-29	628153 Tube Assembly, Cylinders 2 & 5	2	2
	-30	628152 Tube Assembly, Cylinders 3 & 4	2	2
	-31	627335D13 ⑤ Nozzle Assembly	6	6
	-32	631246 Bracket, Fuel Discharge Tubes, 1-3-5 Side	1	1
	-33	626486 Bracket, Fuel Discharge Tubes, 2-4-6 Side	1	1
	-34	652436-1 Clamp	6	6
	-35	535847 Washer, Holding	2	2
	-36	MS35337-45 Washer, Lock	2	2
	-37	2439 Nut	2	2
		ATTACHING PARTS		
	-38	631275-1 Bracket	3	3
	-39	631273-1 Clamp	2	2
	-40	631266-1 Clamp	1	1
	-41	AN501-10-5 Screw	3	3

(continued on next page)

FIG. & INDEX	PART NUMBER	1 2 3 4 DESCRIPTION	QUANTITY	
			B	BA
4-1	-42 2471	Washer, Plain	3	3
	-43 AN121501	Nut, Plain	3	3
	-44 628306	Protector, Rubber	6	6

NOTES:

- ① See Page 4-5 for IO-520-BB configuration.
- ② Supersedes Equipment 5965-B.
- ③ Use with Phase 2 style crankcases that have a backbone width of 1.00 inch.
- ④ Use with Phase 1 style crankcases that have a backbone width of .76 inch.
- ⑤ Check dash number on hex of old nozzle for complete part number.
- ⑥ See Figure 4-7, "Fuel Pump And Shroud," for shroud application.
- ⑦ Link rod assembly 632558A1 must be used with lever assemblies incorporating 632554 style hardened bushings.

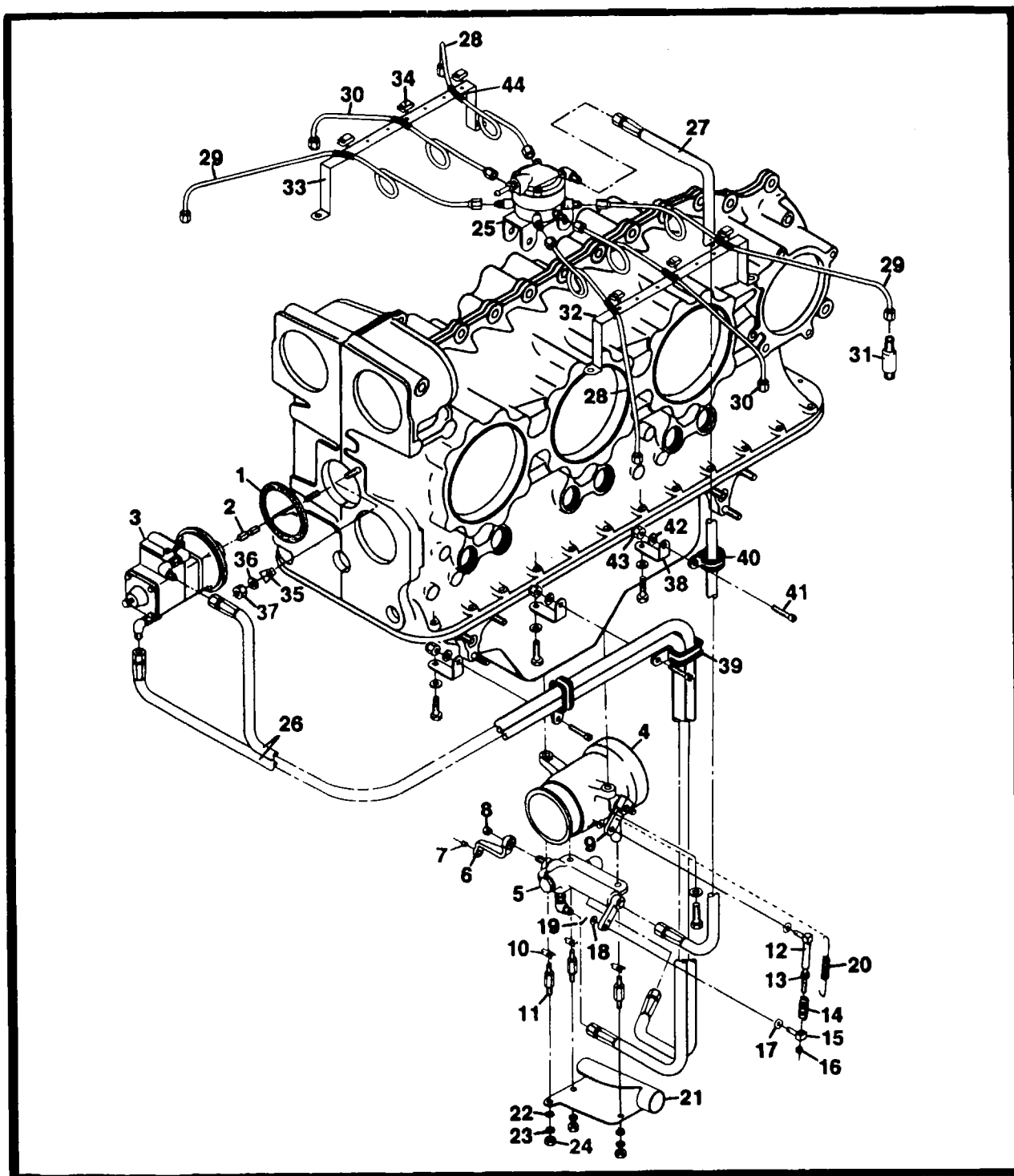


FIGURE 4-2. FUEL INJECTION SYSTEM (IO-520-BB)

FIG. & INDEX	PART NUMBER	1 2 3 4 DESCRIPTION	QUANTITY BB
4-2 - 1	649982	\$ Gasket, Fuel Pump-to-Crankcase	1
- 2	653359	Coupling, Crankshaft Gear-to-Fuel Pump	1

(continued on next page)

FIG. & INDEX	PART NUMBER	1 2 3 4	DESCRIPTION	QUANTITY BB
4-2	649052A2-1R	①	Fuel Injection Assembly, Complete	Opt
	649052A2-1	①	Fuel Injection Assembly, Complete	1
-3	638154-16A4	③	Fuel Pump & Fittings	Opt
-3	646212-16A1	③	Fuel Pump & Fittings	1
-4	631415A8		Throttle and Control Assembly	1
	631408A2	②	Throttle and Lever Assembly	1
-5	629904-2A11		Control Assembly, Complete	1
-6	632555-56		Lever	1
-7	632554-3		Bushing	1
-8	MS21042-5		Nut	1
-9	632554-24		Lever	1
			ATTACHING PARTS	
-10	501867		Washer, Tab	3
-11	630387		Bolt	3

	632558A1	④	Link Rod Assembly, Complete	1
-12	632558		Link and Rod Assembly	1
-13	AN121501		Nut	2
-14	626634		Spring, Compression	2
-15	632557		Rod End, Special	1
-16	MS21044N3		Nut, Self-Locking	1
-17	625327-2		Washer, Wave	2
-18	537690		Washer, Plain	2
-19	2500		Pin, Cotter	2
-20	628371		Spring	1
	632859A1		Shroud Assembly, Complete	1
-21	632859		Shroud Assembly	1
			ATTACHING PARTS	
-22	20522		Washer, Plain	3
-23	MS35337-44		Washer, Lock	3
-24	646605		Nut	3

-25	631427-2A9		Fuel Manifold Valve Assembly	1
-26	635158S4S38.00		Hose Assy., Control-to-Fuel Pump	2
-27	635158S4S32.00		Hose Assy., Control-to-Manifold Valve	1
-28	628154		Tube Assembly	2
-29	628153		Tube Assembly	2
-30	628152		Tube Assembly	2
-31	627335D13	②	Nozzle Assembly	6
-32	631246		Bracket, Fuel Discharge Tube, 1-3-5 Side	1
-33	626486		Bracket, Fuel Discharge Tube, 2-4-6 Side	1
-34	652436-1		Clamp	6
-35	535847		Washer, Holding	2
-36	MS35337-45		Washer, Lock	2
-37	2439		Nut	2
			ATTACHING PARTS	
-38	631275-1		Bracket	3
-39	631273-1		Clamp	2
-40	631266-1		Clamp	1

FIG. & INDEX		PART NUMBER	1	2	3	4	DESCRIPTION	QUANTITY BB
4-2	-41	AN501-10-5	.	.			Screw	3
	-42	2471	.	.			Washer, Plain	3
	-43	AN121501	.	.			Nut, Plain	3
	-44	628306					Protector, Rubber	6

NOTES:

- ① See page 4-2 for IO-520-B, BA configuration.
- ② Check dash number on old nozzle for complete part number.
- ③ See Figure 4-7, "Fuel Pump And Shroud," for shroud application.
- ④ Link rod assembly 632558A1 must be used with lever assemblies incorporating 632554 style hardened bushings.

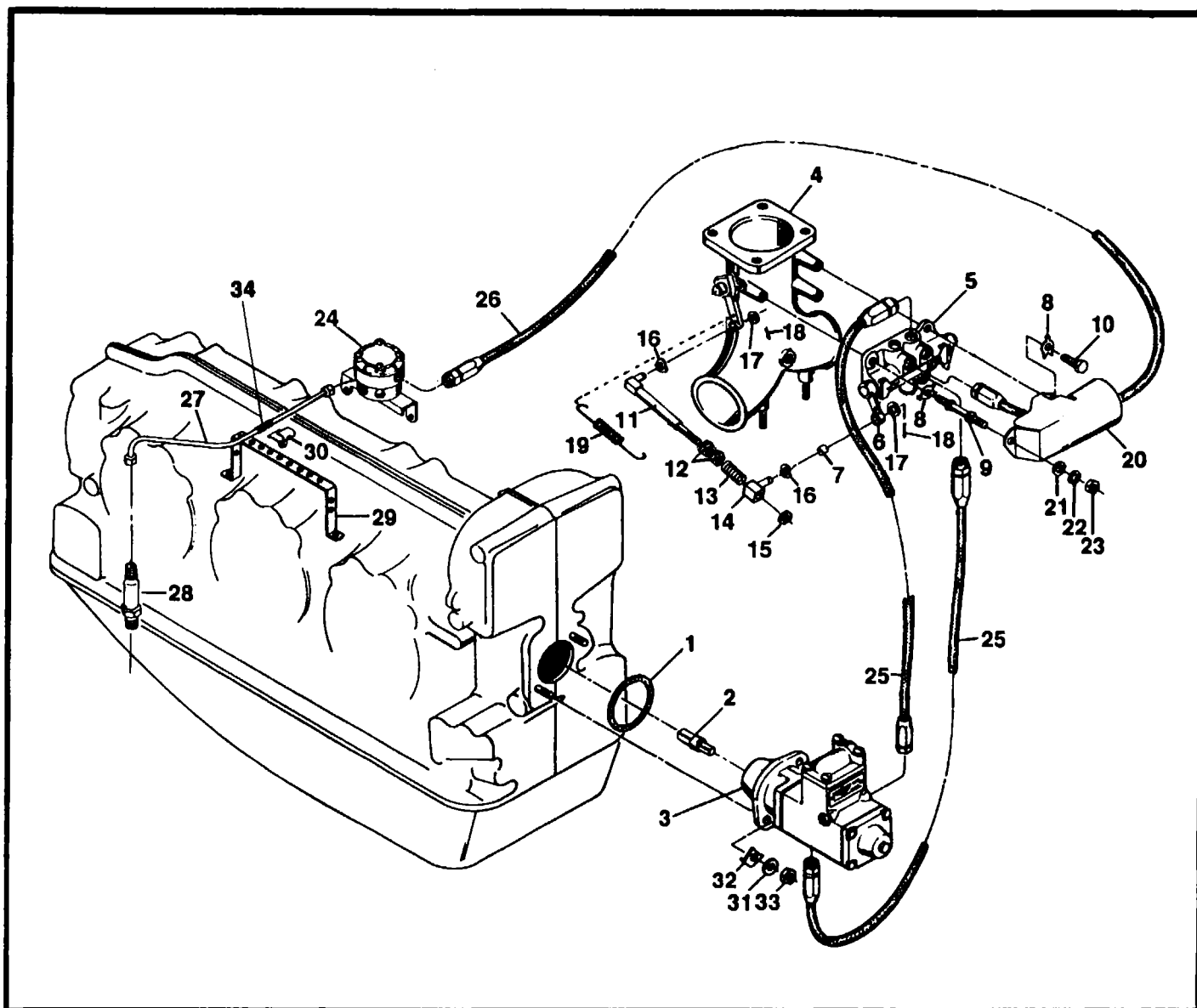


FIGURE 4-3. FUEL INJECTION SYSTEM (IO-520-C, CB)

FIG. & INDEX	PART NUMBER	1 2 3 4	DESCRIPTION	QUANTITY	
				C	CB
4-3	-1	649962	\$ Gasket, Fuel Pump-to-Crankcase	1	
		649982	\$ Gasket, Fuel Pump-to-Crankcase		1
	-2	653359	Coupling	1	1
		649052A3R	① Fuel Injection Assembly, complete	Opt	
		649052A3	① Fuel Injection Assembly, Complete	1	
		649052A4-1R	Fuel Injection Assembly, Complete		Opt
		649052A4-1	Fuel Injection Assembly Complete		1
	-3	638154-2A8	⑤ . Fuel Pump & Fittings	Opt	
	-3	646212-2A2	⑤ . Fuel Pump & Fittings	Opt	
	-3	638154-16A6	⑤ . Fuel Pump & Fittings		Opt
	-3	646212-16A3	⑤ . Fuel Pump & Fittings		1
	-4	653377A2	. Throttle and Control Assembly	1	1
		653376A1	. Throttle and Lever Assembly	1	1
	-5	629904-2A6	. Control Assembly, Complete	1	1

FIG. & INDEX	PART NUMBER	1 2 3 4	DESCRIPTION	QUANTITY	
				C	CB
4-3	-6	632555-35	Lever	1	1
	-7	632554-1	Bushing	1	1
			ATTACHING PARTS		
	-8	501867	Washer, Tab	2	2
	-9	630387	Bolt	2	2
	-10	537629	Bolt	1	1

		632558A1 ⑥	Link Rod Assembly, Complete	1	1
	-11	632558	Link and Rod Assembly	1	1
	-12	AN121501	Nut	2	2
	-13	626634	Spring, Compression	1	1
	-14	632557	Rod End	1	1
	-15	MS21044N3	Nut, Self-Locking	1	1
	-16	625327-2	Washer, Wave	2	2
	-17	537690	Washer, Plain	2	2
	-18	2500	Pin, Cotter	2	2
	-19	628371	Spring	1	1
	-20	646673	Shroud Assembly	1	1
			ATTACHING PARTS		
	-21	20522	Washer, Plain	3	3
	-22	MS35337-44	Washer, Lock	3	3
	-23	646605	Nut	2	2

	-24	631427-2A18 ②	Manifold Valve Assembly, Fuel	1	1
	-24	631427-A10 ③	Manifold Valve Assembly, Fuel	Opt	
	-25	635158S4S12.00	Hose Assy., Fuel Pump-to-Control	2	2
	-26	635158S4S40.00	Hose Assy., Control-to-Manifold	1	1
	-27	628154	Tube Assy., Cylinders 1 & 6	2	2
	-27	628153	Tube Assy., Cylinders 2 & 5	2	2
	-27	628152	Tube Assy., Cylinders 3 & 4	2	2
	-28	627335D13 ④	Nozzle Assembly	6	6
	-29	631246	Bracket, Fuel Discharge Tubes	2	2
	-30	652436-1	Clamp	6	6
	-31	535847	Washer, Holding	2	2
	-32	MS35337-45	Washer, Lock	2	2
	-33	2439	Nut	2	2
	-34	628306	Protector, Rubber	6	6

NOTES:

- ① Supersedes Equipment 5966.
- ② For use with Phase 2 style crankcases that have a backbone width of 1.00 inch.
- ③ For use with Phase 1 style crankcases that have a backbone width of .76 inch.
- ④ Check dash number on hex of old nozzle for complete part number.
- ⑤ See Figure 4-7, "Fuel Pump And Shroud," for shroud application.
- ⑥ Link rod assembly 632558A1 must be used with lever assemblies incorporating 632554 style hardened bushings.

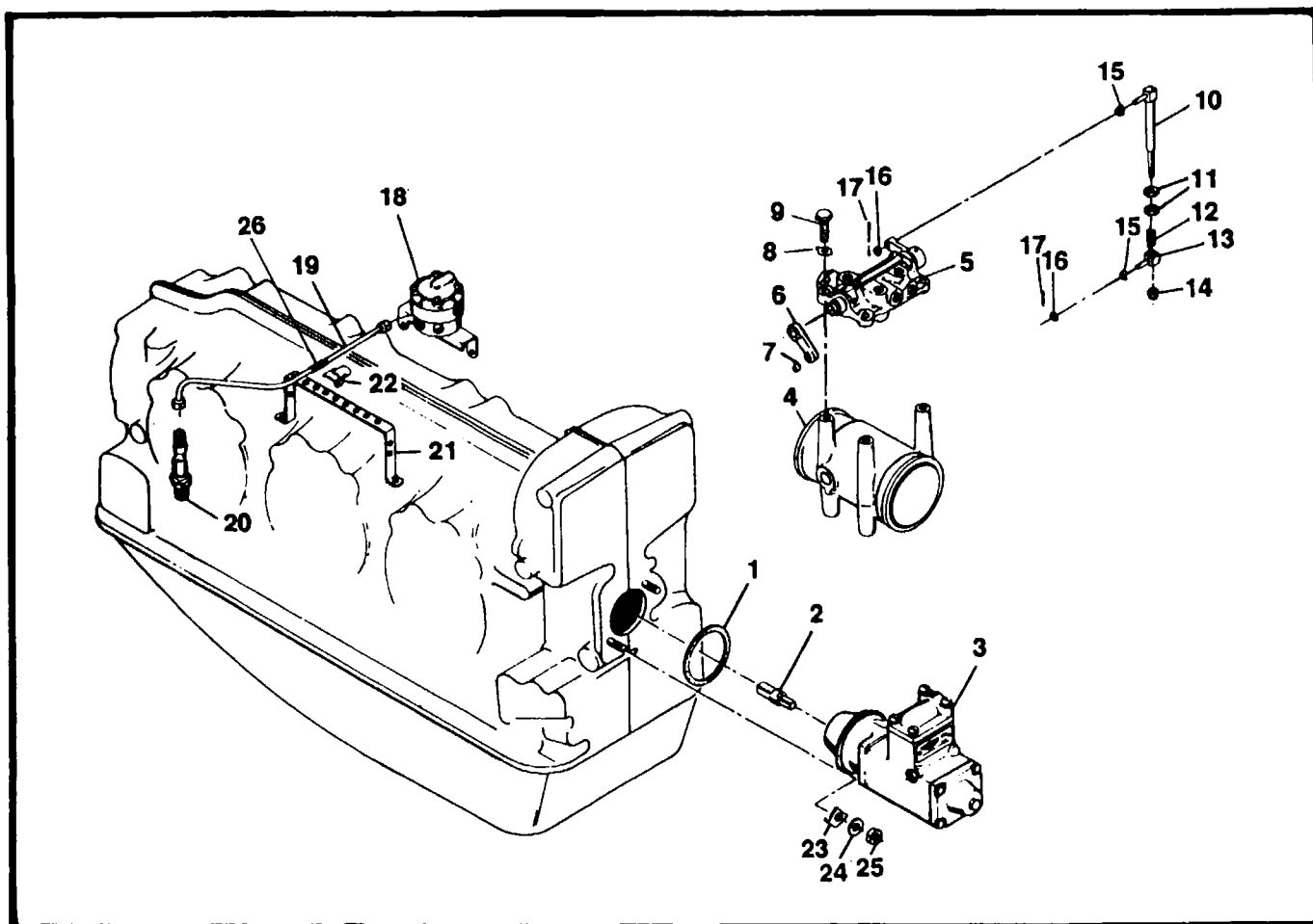


FIGURE 4-4. FUEL INJECTION ASSEMBLY (IO-520-M, MB)

FIG. & INDEX		PART NUMBER	1	2	3	4	DESCRIPTION	QUANTITY	
								M	MB
4-4	-1	649962	\$				Gasket, Fuel Pump-to-Crankcase	1	
		649982	\$				Gasket, Fuel Pump-to-Crankcase		1
	-2	653359					Coupling	1	1
		649052A9R					Fuel Injection Assembly, Complete	Opt	
		649052A9					Fuel Injection Assembly, Complete	1	
		649052A10R					Fuel Injection Assembly, Complete		Opt
		649052A10					Fuel Injection Assembly, Complete		1
	-3	638154-5A1	③				Fuel Pump & Fittings	Opt	
	-3	646212-5A1	③				Fuel Pump & Fittings	1	
	-3	638154-17A1	③				Fuel Pump & Fittings		Opt
	-3	646212-17A1	③				Fuel Pump & Fittings		1
	-4	641027					Throttle Assembly	1	1
	-5	632916-2A3					Control Assembly	1	1

FIG. & INDEX	PART NUMBER	1	2	3	4	DESCRIPTION	QUANTITY	
							M	MB
4-4	-6					Lever	1	1
	-7					Bushing	1	1
						ATTACHING PARTS		
	-8					Washer, Tab	3	3
	-9					Bolt	3	3

						632558A1 ④ Link Rod Assembly, Complete	1	1
	-10					632558 Rod Assembly	1	1
	-11					AN121501 Nut	2	2
	-12					626634 Spring	1	1
	-13					632557 Rod End	1	1
	-14					MS21044N3 Nut, Self-Locking	1	1
	-15					625327-2 Washer, Wave	2	2
	-16					537690 Washer, Plain	2	2
	-17					2500 Pin, Cotter	2	2
	-18					641032-12A2 Fuel Manifold Valve Assembly	1	1
	-18					641032-12A1 ② Fuel Manifold Valve Assembly	Opt	
	-19					641153 Tube Assembly, Cylinder No. 1	1	1
	-19					641154 Tube Assembly, Cylinder No. 2	1	1
	-19					641155 Tube Assembly, Cylinder No. 3	1	1
	-19					641156 Tube Assembly, Cylinder No. 4	1	1
	-19					641157 Tube Assembly, Cylinder No. 5	1	1
	-19					641158 Tube Assembly, Cylinder No. 6	1	1
	-20					627335D12 ① Nozzle Assembly	6	6
	-21					626486 Bracket, Fuel Discharge Tube	2	2
	-22					652436-1 Clamp, Tube-to-Bracket	6	6
						ATTACHING PARTS		
	-23					535847 Washer, Holding	2	2
	-24					MS35337-45 Washer, Lock	2	2
	-25					2439 Nut	2	2

	-26					628306 Protector, Rubber	6	6

NOTES:

- ① Check dash number on old nozzle for complete part number.
- ② For use with Phase 1 style crankcases that have a backbone width of .76 inch.
- ③ See Figure 4-7, "Fuel Pump And Shroud," for shroud application.
- ④ Link rod assembly 632558A1 must be used with lever assemblies incorporating 632554 style hardened bushings.

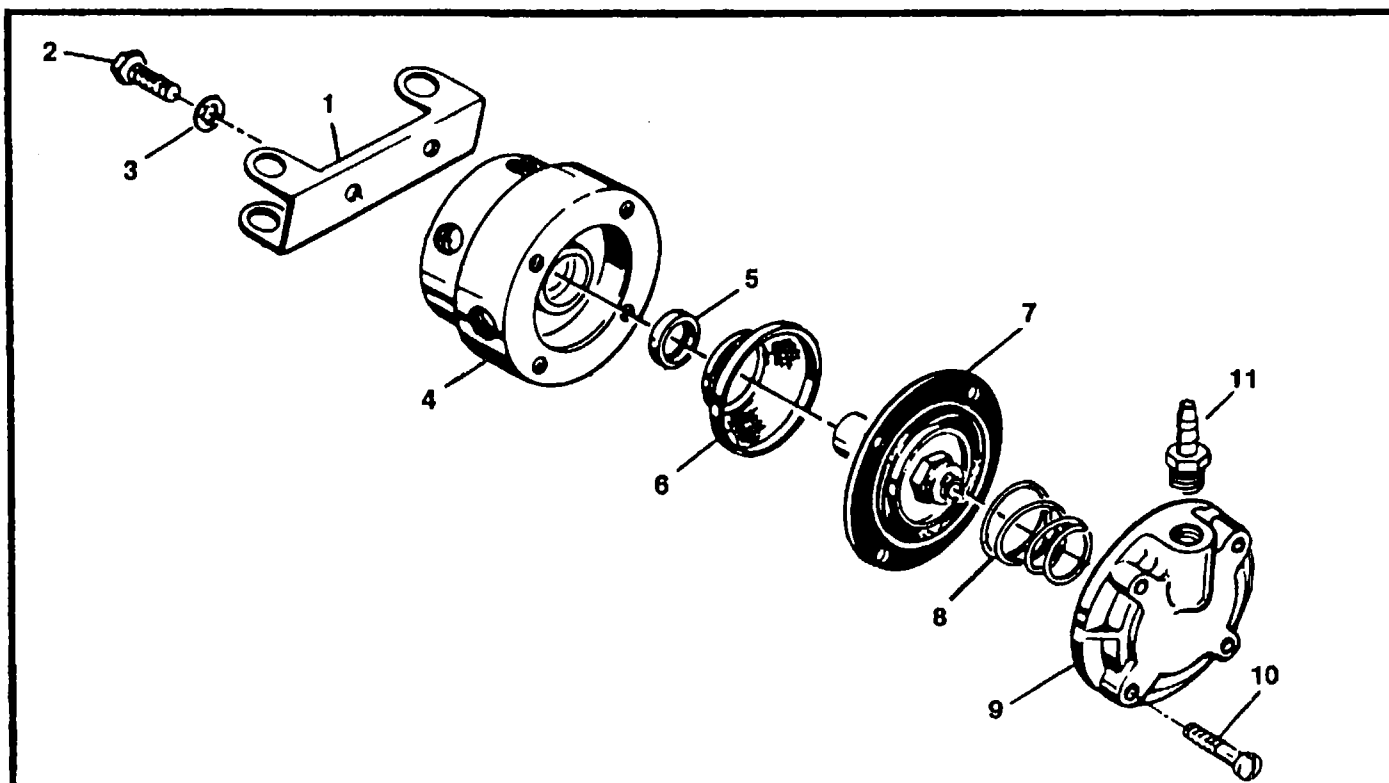


FIGURE 4-5. FUEL MANIFOLD VALVE ASSEMBLY

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY						
			B	BA	BB	C	CB	M	MB
4-5	631427-2A9	③ ④ Fuel Manifold Valve Assembly, Complete	1	1	1				
	631427-2A18	③ ④ Fuel Manifold Valve Assembly, Complete				1	1		
	641032-12A2	③ ④ Fuel Manifold Valve Assembly, Complete						1	1
-1	642064	① Bracket	1	1	1	1	1	1	1
-1	634011	② Bracket	Opt	Opt	Opt	Opt	Opt	Opt	Opt
ATTACHING PARTS									
-2	AN500-10-5	Screw, Fillister Head	2	2	2	2	2	2	2
-3	MS35338-43	Washer, Lock	2	2	2	2	2	2	2

-4	631329	Body, Fuel Manifold Valve	1	1	1	1	1		
-4	641030	Body, Fuel Manifold Valve						1	1
-5	631330	Seal	1	1	1	1	1	1	1
-6	626557	Screen	1	1	1	1	1	1	1
-7	632425	Diaphragm & Plunger Assembly						1	1
-7	631526	Diaphragm & Plunger Assembly	1	1	1	1	1		
-8	630184	Spring						1	1
-8	627378	Spring	1	1	1	1	1		
-9	634325	Cover	1	1	1	1	1	1	1
ATTACHING PARTS									
-10	AN500A8-10	Screw	4	4	4	4	4	4	4
-11	642070	Nipple	1	1	1	1	1		
-11	MS20823-4	Elbow						1	1

NOTES:

- ① This bracket is used with new style crankcases that have a backbone width of 1.00 inch.
- ② This bracket is used with the old style crankcases that have a backbone width of .76 inch.
- ③ For complete parts breakdown of manifold valve assemblies see TCM Form X30593A.
- ④ Bracket and fittings included.

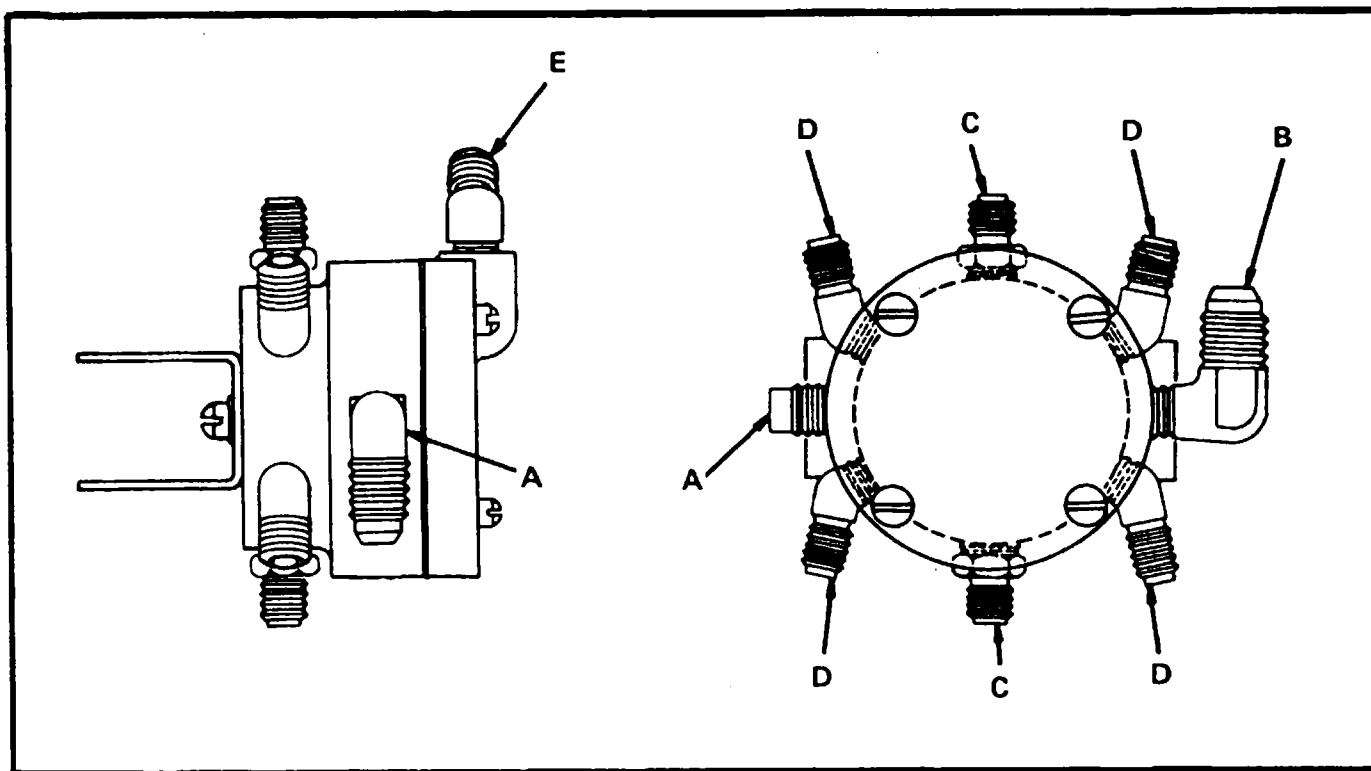


FIGURE 4-6. FUEL MANIFOLD VALVE FITTING LOCATIONS

ENGINE MODEL	Fuel Manifold Assembly P/N ①	Fitting "A" Metered Fuel Press. Conn.	Fitting "B" Fuel Inlet	Fitting "C" Fuel Outlet	Fitting "D" Fuel Outlet	Fitting "E" Manifold vent
IO-520-B, BA, BB, C, CB	631427	631658A1	628437	AN780-2	627331	642070
IO-520-M, MB	641032	AN816-2B	628437	----	----	MS20823-4

NOTE:

- ① This part number is not available. See Figure 4-5, "Fuel Manifold Valve Assembly," for the complete manifold valve assembly part number.

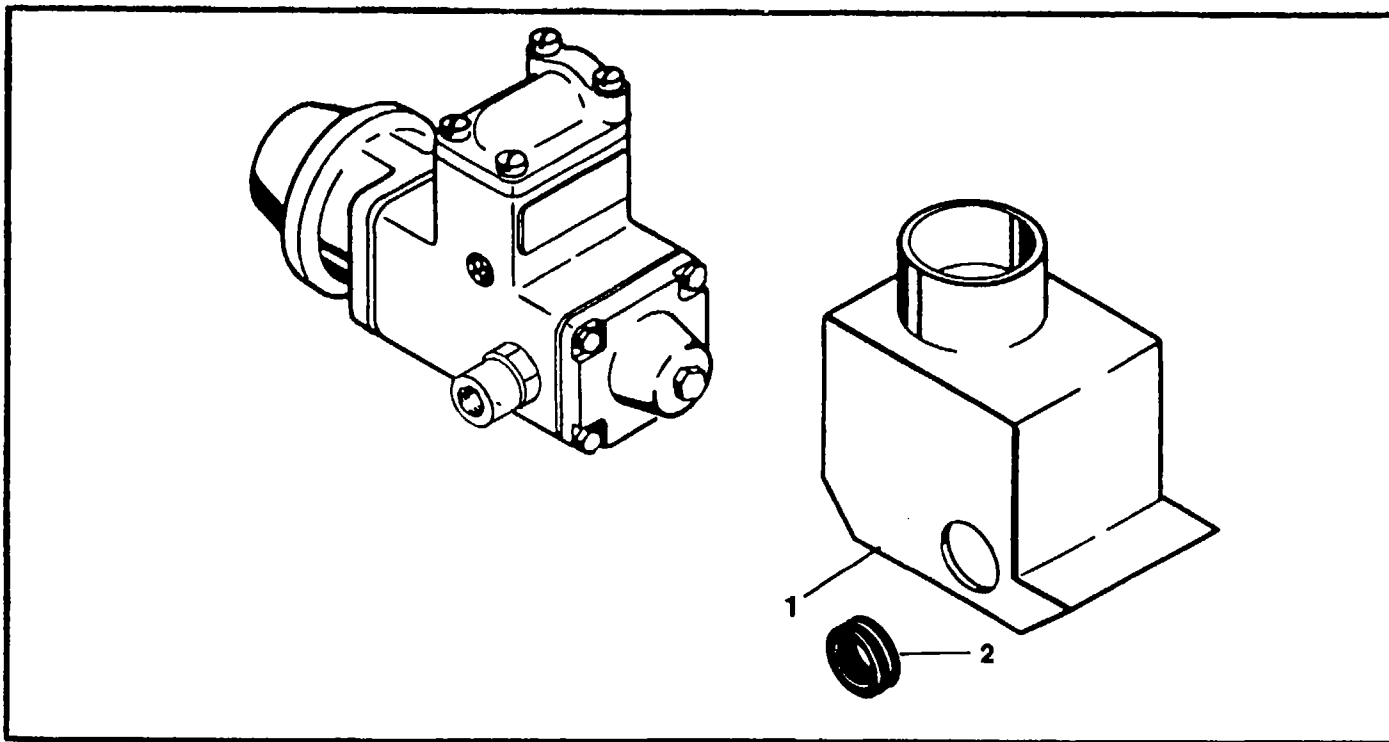


FIGURE 4-7. FUEL PUMP AND SHROUD ASSEMBLY

FIG. & INDEX	PART NUMBER	1 2 3	DESCRIPTION	QUANTITY						
				B	BA	BB	C	CB	M	MB
4-7	638154-2A7	①	Fuel Pump and Fittings	Opt	Opt					
	646212-2A1	①	Fuel Pump and Fittings	1	1					
	638154-16A4	①	Fuel Pump and Fittings			Opt				
	646212-16A1	①	Fuel Pump and Fittings			1				
	638154-2A8	①	Fuel Pump and Fittings				Opt			
	646212-2A2	①	Fuel Pump and Fittings				1			
	638154-16A6	①	Fuel Pump and Fittings					Opt		
	646212-16A3	①	Fuel Pump and Fittings					1		
	638154-5A1	①	Fuel Pump and Fittings						Opt	
	646212-5A1	①	Fuel Pump and Fittings						1	
	638154-17A1	①	Fuel Pump and Fittings							Opt
	646212-17A1	①	Fuel Pump and Fittings							1
-1	642796		Shroud Assembly	1	1	1	1	1		
ATTACHING PARTS										
-2	626879-1		Grommet	3	3	3	3	3		

NOTE:

- ① See TCM Fuel Injection Systems Parts and Overhaul Catalog Form X30593A for a complete parts breakdown of the fuel pump.

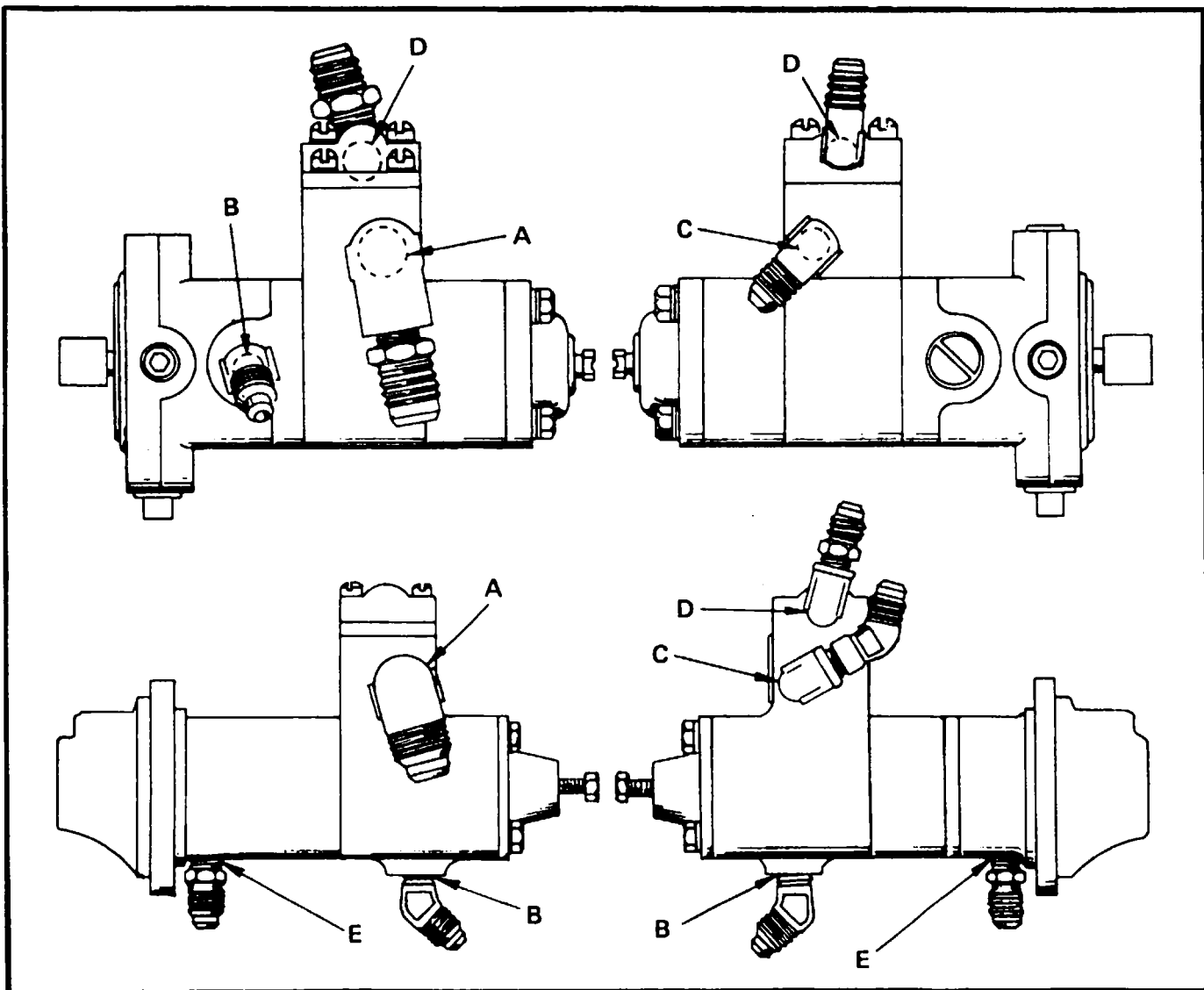


FIGURE 4-8. FUEL PUMP FITTING LOCATIONS

ENGINE MODEL	Fuel Pump & Separator P/N	FITTING "A" Inlet	FITTING "B" Outlet	FITTING "C" Mixture Return	FITTING "D" Vapor Return	FITTING "E" Seal Drain
IO-520-B, BA & BB	638154-2	632017	628437	628437	628476	632115
	646212-2	632017	628437	628437	628476	632115
IO-520-C, CB	638154-16	632017 631308 633121	628437	628476	628438	632115
	646212-16	632017 631308 633121	628437	628476	628438	632115
IO-520-M, MB	638154-17	AN914-2 MS51508B8-4	628437	631293	628436	632115
	646212-17	AN914-2 MS51508B8-4	628437	631293	628436	632115

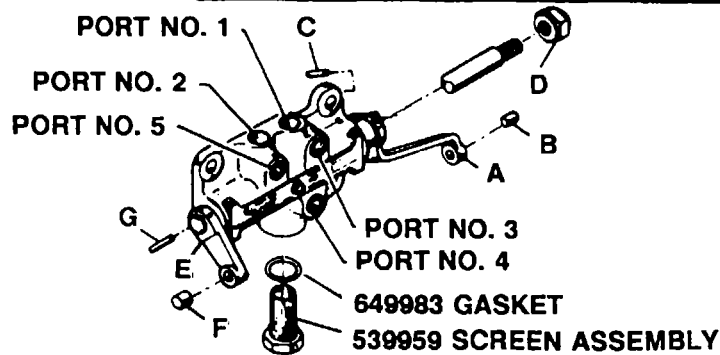


FIGURE 4-9. FUEL CONTROL FITTING LOCATIONS

MODEL	IO-520-B, BA, BB	IO-520-C, CB	IO-520-M, MB
③ Fuel Control Unit Part Number	① 629904-2	① 629904-2	① 632916-2
Port No. 1 Fitting, Fuel Return To Pump.	630119 627119 628478	628478	628478
Port No. 2 Fitting .	2024 628476	2024	2024
Port No. 3 Fitting .	2024	2024	628478
Port No. 4 Fitting, Fuel Inlet From Pump.	628478 630119	628437	628478
Port No. 5 Fitting, Fuel Outlet To Manifold Valve.	628437	628478	628478
Mixture Control Lever "A" .	632555-56	632555-35	② 632555-24
Bushing - Mixture Lever "B".	632554-3	632554-1	632554-2
Pin - Mixture Lever "C" .			625952
Castle Nut - Mixture Lever "D".	MS21042-5	MS21042-5	
Metering Lever "E".	② 632555-24	② 632555-24	
Bushing - Metering Lever "F".	632554-2	632554-2	
Pin - Metering Lever "G".	625952	629952	

NOTES:

- ① This part number is not available. See Figures 4-1, 4-2, 4-3 or 4-4, as applicable, for fuel control assembly P/N.
- ② This is a new style lever which incorporates a hardened bushing. The 632555-24 lever must be used with the 632558A1 link rod assembly.
- ③ See TCM Fuel Injection Systems Parts And Overhaul Catalog Form X30593A for a complete parts breakdown of the fuel control unit.

CHAPTER 5

INDUCTION SYSTEM

FIGURE		PAGE
5-1	Induction System (IO-520-B, BA & BB)	5-2
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5-4	Air Throttle Assembly (IO-520-B, BA, BB, M & MB)	5-8
5-5	Air Throttle Assembly (IO-520-C & CB)	5-9

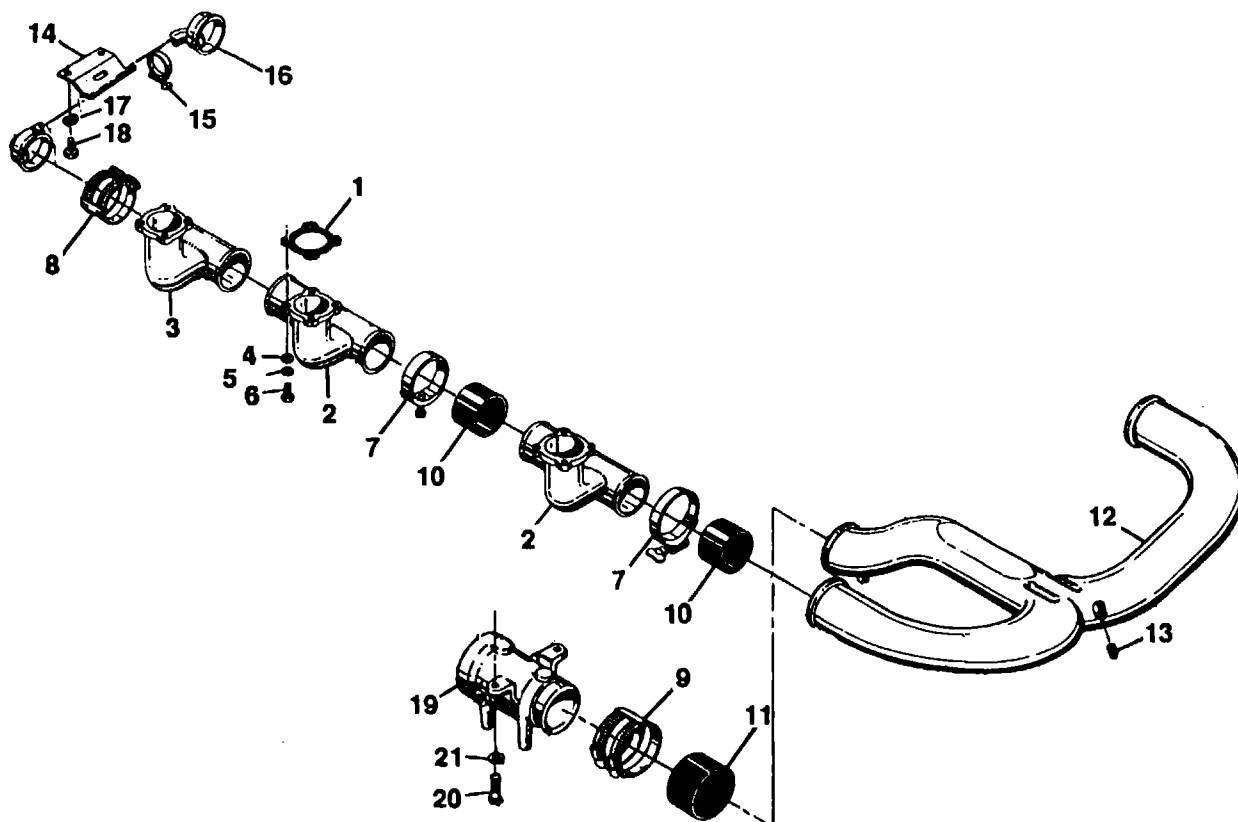


FIGURE 5-1. INDUCTION SYSTEM (IO-520-B, BA & BB)

FIG. & INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY		
			B	BA	BB
5-1	-1	649959 \$ Gasket, Intake Manifold Flange	6	6	6
	-2	629138 Tube Assembly, Intake Manifold No. 1-2-3-4-5 Cylinder	5	5	5
	-3	629325 Tube Assembly, Intake Manifold No. 6 Cyl.	1	1	1
		ATTACHING PARTS			
	-4	20522 Washer, Plain	24	24	24
	-5	MS35337-44 Washer, Lock	24	24	24
	-6	24835 Screw, 1/4-20 X 7/8 Inch Long	24	24	24

	-7	36151L Clamp, Hose	8	8	8
	-8	629163-5 Clamp, Hose	4	4	4
	-9	629163 Clamp, Hose	1	1	1
	-10	642917-1 Hose, Intake Manifold	8	8	8
	-11	539023 Hose, Manifold-to-Throttle	1	1	1
	-12	629601 Manifold, Intake	1	1	1
	-13	629518-1H Plug, Pipe 1/8 - 27 NPTF	1	1	1
	-14	631406 Bracket, Balance Tube	1	1	1
	-15	632444-2 Clamp, Balance Tube	1	1	1
	-16	631220 Tube Assembly, Balance	1	1	1
		ATTACHING PARTS			
	-17	MS35337-45 Washer, Lock	rf	rf	rf
	-18	649206 Screw, 5/16-18 X 1-3/8 Inch Long	rf	rf	rf
		(See Oil Sump attaching hardware for quantity)			

FIG. & INDEX		PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY		
				B	BA	BB
5-1	-19	631408A1	Throttle Assembly	rf	rf	
	-19	631408A2	Throttle Assembly			rf
			ATTACHING PARTS			
	-20	628730	Bolt	2	2	2
	-21	2473	Washer, Plain	2	2	2

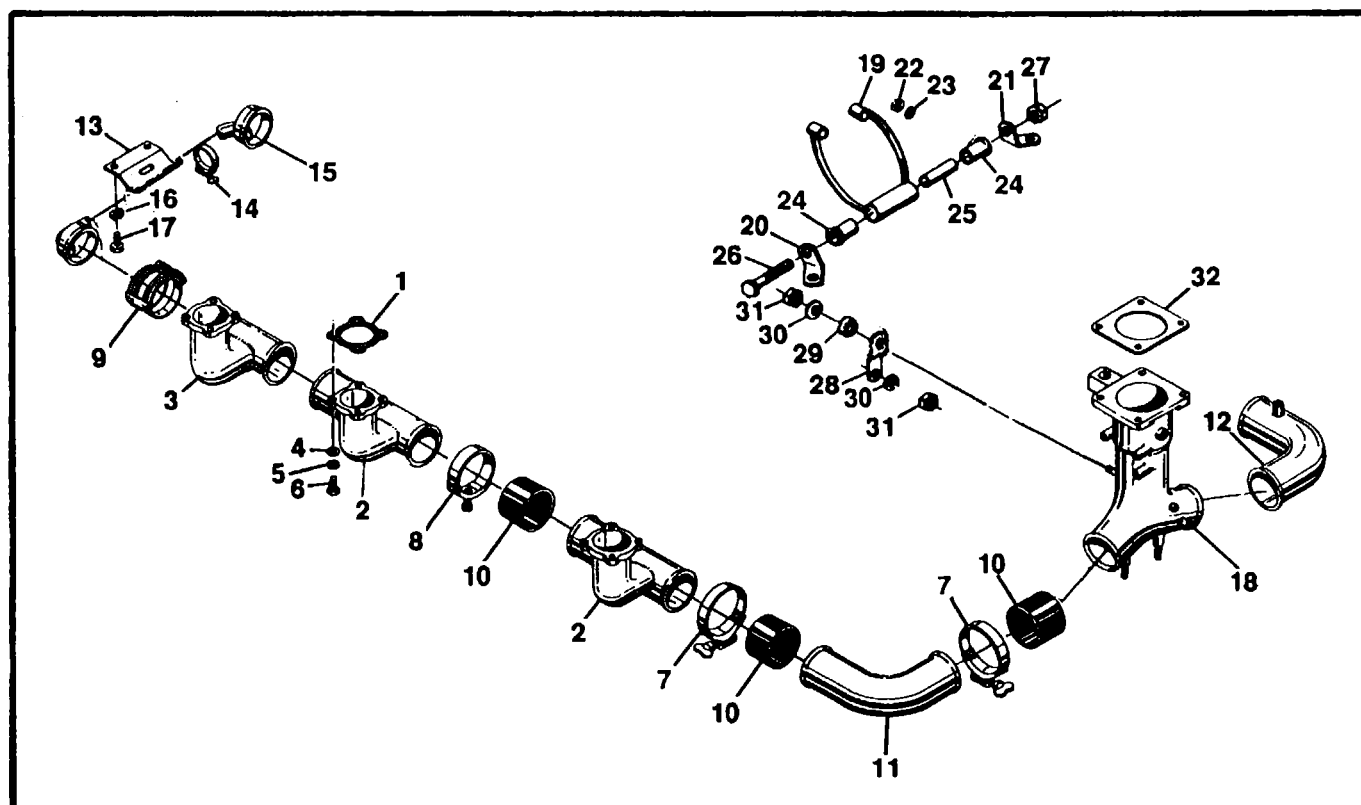


FIGURE 5-2. INDUCTION SYSTEM (IO-520-C, CB)

FIG. & INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY	
			C	CB
5-2	-1 649959	\$ Gasket, Intake Manifold Flange	6	6
	-2 629138	Tube Assembly, Intake Manifold No. 1-2-3-4-5 Cylinder	5	5
	-3 629325	Tube Assembly, Intake Manifold No. 6 Cyl.	1	1
		ATTACHING PARTS		
	-4 20522	Washer, Plain	24	24
	-5 MS35337-44	Washer, Lock	24	24
	-6 24835	Screw, 1/4-20 X 7/8 Inch Long	24	24

	-7 631972	Clamp, Hose	8	8
	-8 36151L	Clamp, Hose	8	8
	-9 629163-5	Clamp, Hose	2	2
	-10 642917-1	Hose, Intake Manifold	10	10
	-11 646908	Tube Assembly, Elbow 2-4-6 Side	1	1
	-12 646907	Tube Assembly, Elbow 1-3-5 Side	1	1
	-13 632280	Bracket, Balance Tube	1	1
	-14 AN737TW46	Clamp, Balance Tube	1	1
	-15 646912	Tube Assembly, Balance	1	1
		ATTACHING PARTS		
	-16 MS35337-45	Washer, Lock	rf	rf
	-17 537961	Screw, 5/16-18 X 1 Inch Long	rf	rf
		(See Oil Sump attaching hardware for quantity)		

	-18 631287A2	Throttle Assembly	rf	rf
	-19 631832	Bracket, Throttle-to-Crankcase	1	1

FIG. & INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY	
			C	CB
5-2	-20	632016 Bracket, Left Hand	1	1
	-21	632015 Bracket, Right Hand	1	1
		ATTACHING HARDWARE		
	-22	22535 Spacer	1	1
	-23	2473 Washer	1	1
	-24	538468 Bushing	2	2
	-25	539114 Sleeve	1	1
	-26	AN4-26A Bolt, 1/4-28 X 2-29/32 Inch Long	1	1
	-27	MS20364-428 Nut, Self Locking	1	1

	-28	652314 Bracket, Throttle-to-Tach Drive	1	1
		ATTACHING PARTS		
	-29	649290 Spacer	1	1
	-30	538100 Washer, Plain	2	2
	-31	646605 Nut, Plain	2	2

-32	652163	\$ Gasket, Throttle	1	1

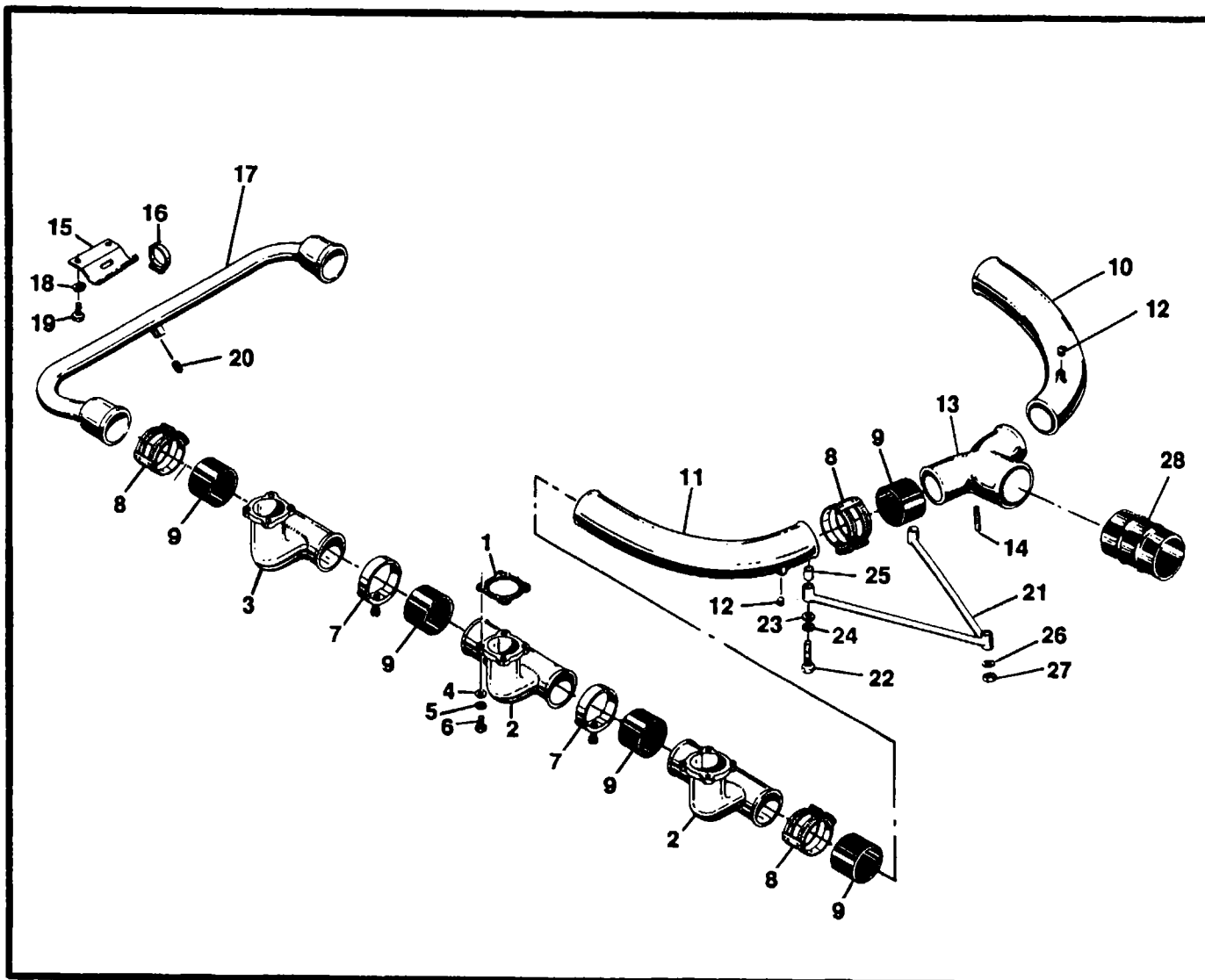


FIGURE 5-3. INDUCTION SYSTEM (IO-520-M, MB)

FIG. & INDEX	PART NUMBER	1 2 3 4 5 DESCRIPTION	QUANTITY	
			M	MB
5-3	-1	649959 \$ Gasket, Intake Manifold Flange	6	6
	-2	629138 Tube Assy., Intake Manifold, Cylinders 1-2-3-4-5	5	5
	-3	629325 Tube Assy., Intake Manifold, Cylinder No. 6	1	1
		ATTACHING PARTS		
	-4	20522 Washer, Plain	24	24
	-5	MS35337-44 Washer, Lock	24	24
	-6	24835 Screw, 1/4 - 20 X 7/8 Inch Long	24	24

	-7	36151L Clamp, Hose	8	8
	-8	629163-5 Clamp Assembly, Hose	6	6
	-9	642917-1 Hose, Intake Manifold	10	10
	-10	643379 Tube, Elbow, 1-3-5 Side	1	1
	-11	643380 Tube, Elbow, 2-4-6 Side	1	1
	-12	629518-1 Plug, Pipe	1	1
	-13	641162A1 Riser	1	1
	-14	401852 † Stud, 1/4 X 1-13/32 Inch Long	1	1
	-15	641393 Bracket, Balance Tube	1	1
	-16	634209 Clamp, Balance Tube-to-Bracket	1	1
	-17	641394 Tube Assembly, Balance	1	1
		ATTACHING PARTS		
	-18	22535 Washer		rf
	-19	537750 Bolt, 15/16 - 18 X 1-1/8 Inch Long (See Oil Sump attaching hardware for quantity)		rf

	-20	629518-2 Plug, Pipe	1	1
	-21	641245 Bracket, Crankcase-to-Riser	1	1
		ATTACHING PARTS		
	-22	MS35303-40 Screw, 5/16 X 2.00 Inch Long	2	2
	-23	2473 Washer, Plain	2	2
	-24	MS35337-45 Washer, Lock	2	2
	-25	538996 Spacer	2	2
	-26	2472 Washer	1	1
	-27	646605 Nut	1	1

	-28	641551 Flexible Duct	1	1

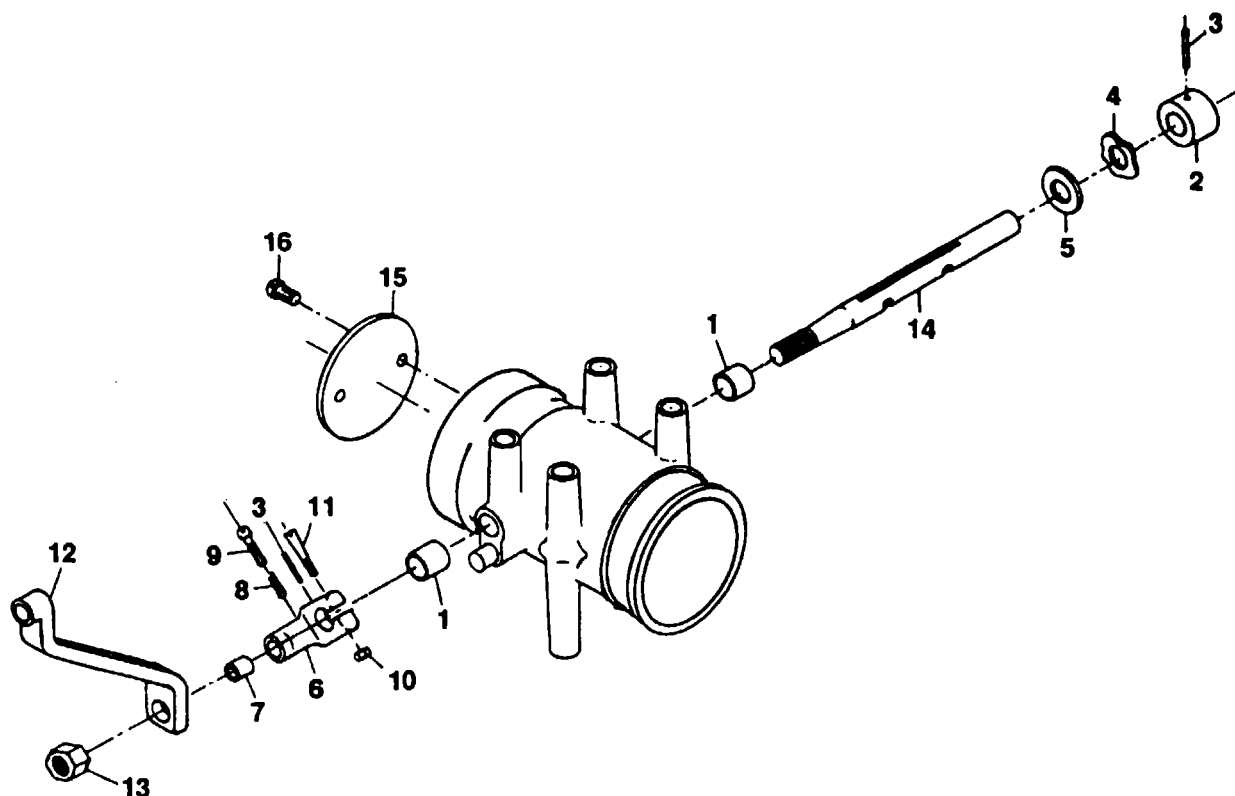


FIGURE 5-4. AIR THROTTLE ASSEMBLY (IO-520-B, BA, BB, M, MB)

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY				
			B	BA	BB	M	MB
5-4	-	631408A1 Throttle Assembly	1	1			
		631408A2 Throttle Assembly			1		
		641027 Throttle Assembly				1	1
	-1	630455 . Bushing	2	2	2	2	2
	-2	625238 . Collar	1	1	1	1	1
	-3	626813 . Pin	2	2	2	2	2
	-4	625327-1 . Washer, Wave	1	1	1	1	1
	-5	625457 . Washer, Plain	AR	AR	AR		
	-5	625457-1 . Washer, Plain				AR	AR
	-6	632556 ① . Lever, Throttle Control				1	1
	-7	632554-2 . Bushing				1	1
	-8	626634 . Spring	1	1	1	1	1
	-9	639479 . Screw, Adjusting	1	1	1	1	1
	-10	13XX18130 . Nut	1	1	1	1	1
	-11	AN565E8H16 . Screw, Set	1	1	1	1	1
	-12	632555-56 . Lever	2	2	2		
	-13	MS21042-5 . Nut	2	2	2		
	-14	630124 . Shaft, Throttle Plate	1	1	1	1	1
	-15	625601 . Plate, Throttle	1	1	1	1	1
	-16	539942 . Screw	2	2	2	2	2

NOTE:

- ① This is a new style lever which incorporates a hardened bushing. The 632556 lever must be used with the 632558A1 link rod assembly.

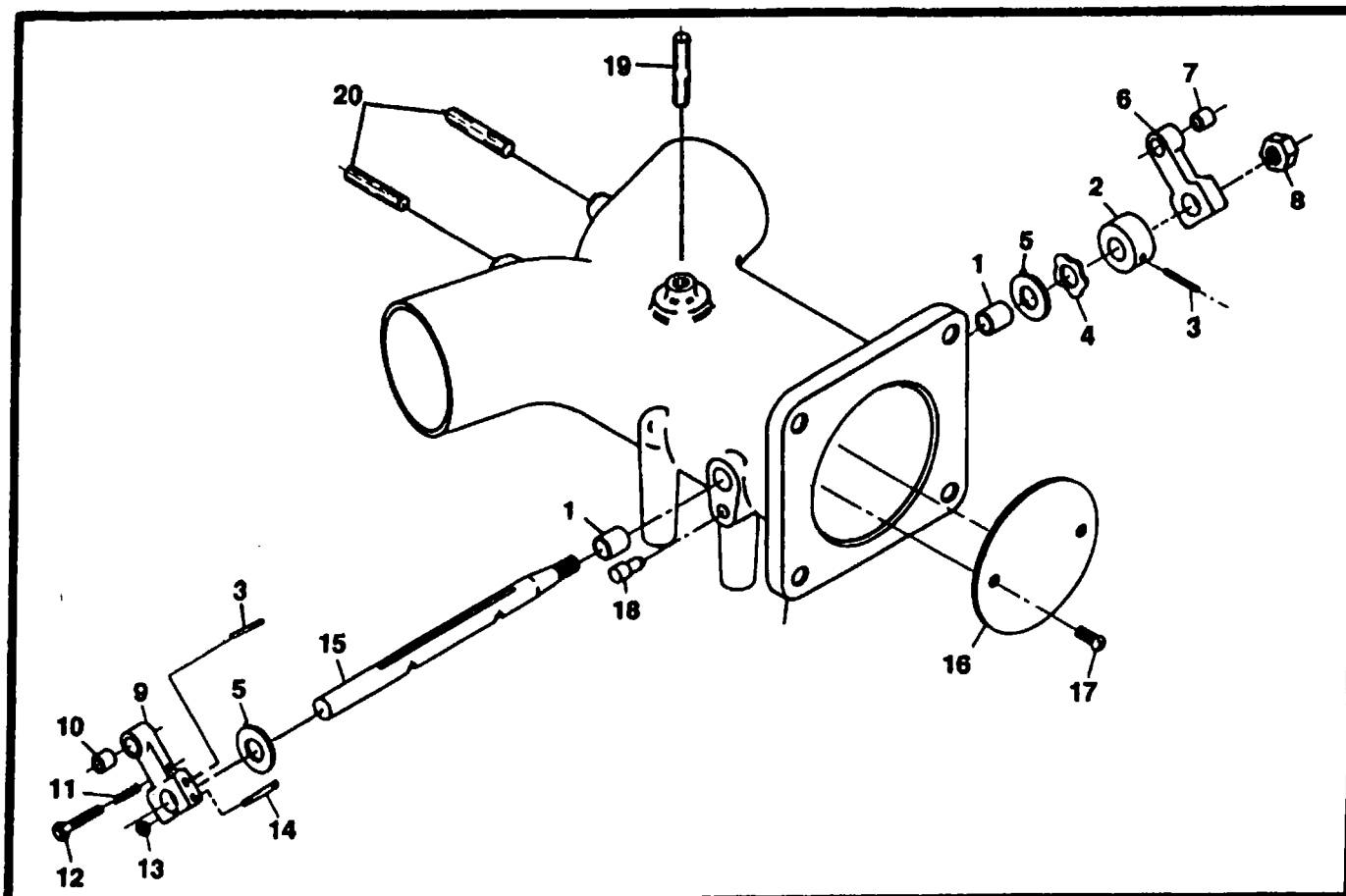


FIGURE 5-5. AIR THROTTLE ASSEMBLY (IO-520-C, CB)

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY	
			C	CB
5-5	631287A2	Throttle Assembly	1	1
-1	630455	. Bushing	2	2
-2	625238	. Collar	1	1
-3	626813	. Pin	2	2
-4	625327-1	. Washer, Wave	1	1
-5	625457	. Washer, Plain	2	2
-6	632555-35	. Lever, Throttle Control	1	1
-7	632554-1	. Bushing	1	1
-8	MS21042-5	. Nut	1	1
-9	632556	① . Lever	1	1
-10	632554-2	. Bushing	1	1
-11	626634	. Spring	1	1
-12	639479	. Screw, Adjusting	1	1
-13	13XX18130	. Nut	1	1
-14	AN565E8H16	. Screw, Set	1	1
-15	633379	. Shaft, Throttle Plate	1	1
-16	625601	. Plate, Throttle	1	1
-17	539942	. Screw	2	2
-18	626812	. Pin, Throttle Stop	1	1
-19	401852	. Stud	1	1
-20	402711	. Stud	2	2

NOTE:

- ① This is a new style lever which incorporates a hardened bushing. The 632556 lever must be used with the 632558A1 link rod assembly.

INTENTIONALLY
LEFT
BLANK

CHAPTER 6

AIR CONDITIONING

FIGURE		PAGE
6-1	Freon Compressor Bracket Assembly (customer specifications)	6-2

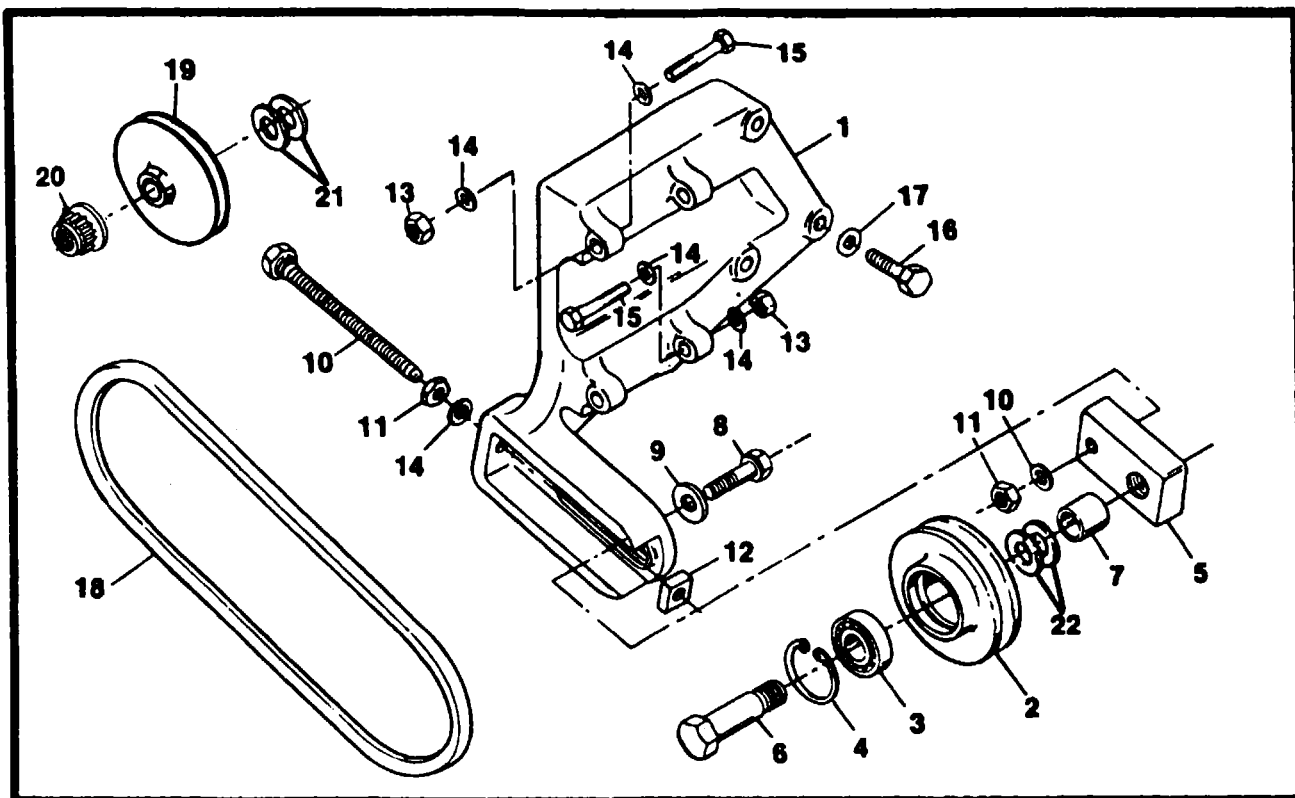


FIGURE 6-1. FREON COMPRESSOR BRACKET ASSEMBLY (CUSTOMER SPECIFICATIONS)

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY
6-1	EQ6576	Kit Assembly, Freon Compressor Bracket	Opt
	646392	Bracket, Assembly, Freon compressor	1
-1	640767	. . . Bracket	1
-2	646391	. . . Sheave Assembly	1
-3	643368	. . . Bearing, Ball	1
-4	MS16631-1165	. . . Ring, Retaining	1
-5	640781	. . . Arm, Idler Sheave	1
-6	643556	. . . Screw	1
-7	643957	. . . Spacer	1
-8	AN101319	. . . Bolt	1
-9	640947	. . . Washer, Special	1
-10	640774	. . . Bolt, Special	1
-11	AN316-6R	. . . Nut	1
-12	640777	. . . Nut, Rectangular	1
-13	MS20364-624C	. . . Nut	4
-14	2474	. . . Washer, Plain	10
-15	AN101319	. . . Bolt	4
-16	MS90728-66	. . . Bolt	2
-17	24239	. . . Washer	2
-18	646293-34.00 ①	. . . Belt, Drive, .50" Wide	1
-19	649342	. . . Sheave, Drive, .50" Wide	1
-20	649924	. . . Nut, Self Locking	1
-21	646064-20	. . . Shims	AR
-22	643956-20	. . . Shims	AR

NOTE:

① Smaller width drive belt 642759 must be used with smaller width drive sheaves 640801 and 643558.

CHAPTER 7

ELECTRICAL CHARGING SYSTEM

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7-1	Alternator Assembly	7-2

CHAPTER 8

STARTING SYSTEM

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8-1	Starter and Starter Adapter Assembly I0-520-B, BA, BB, C, CB, M & MB	8-2
8-2	Starter and Starter Adapter Assembly (customer specification)	8-4

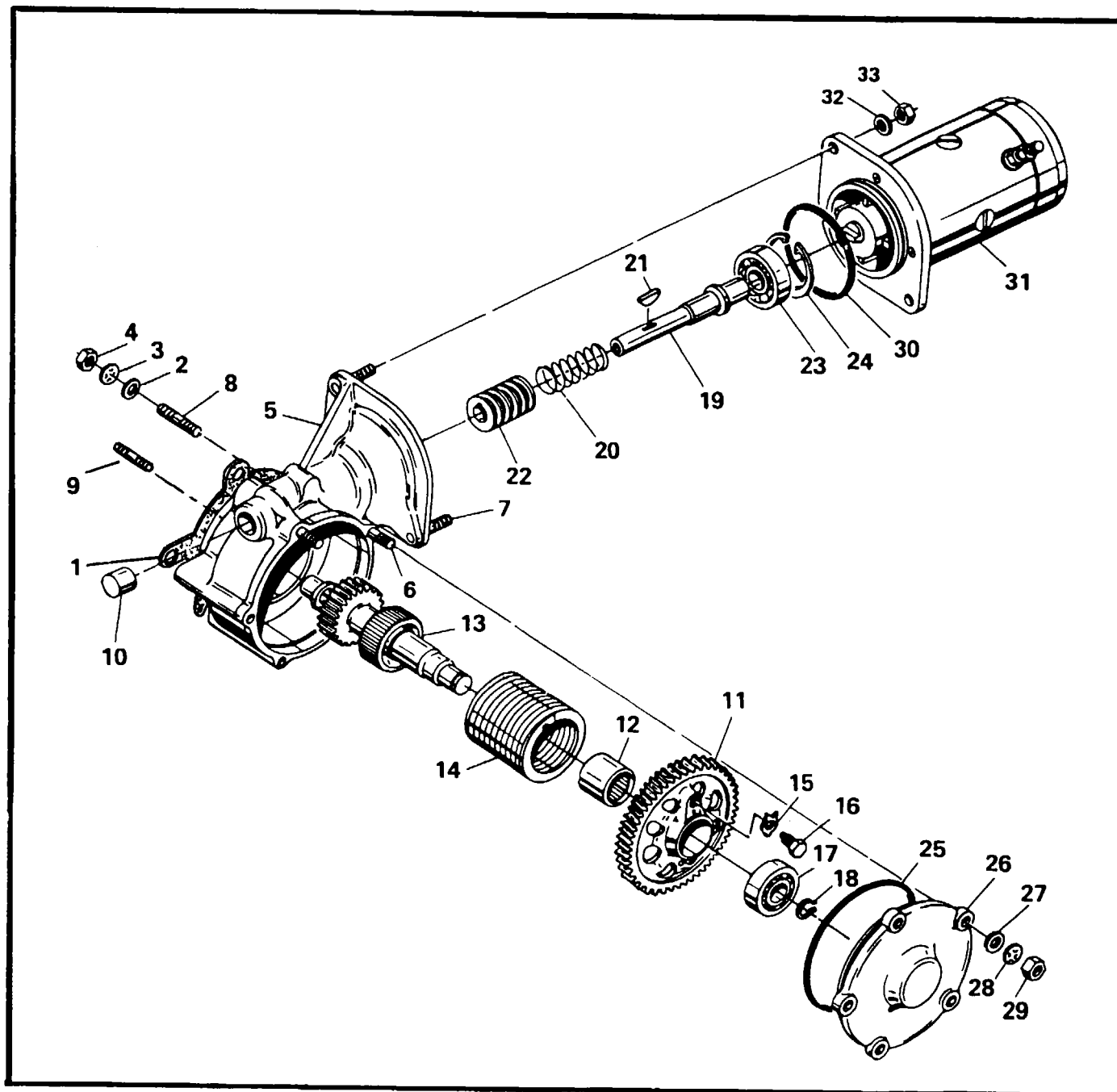


FIGURE 8-1. STARTER AND STARTER ADAPTER ASSEMBLY
 (IO-520-B, BA, BB, C, CB, M, MB)

FIG. & INDEX	PART NUMBER	1 2 3	DESCRIPTION	QUANTITY						
				B	BA	BB	C	CB	M	MB
8-1	-1	653470	Gasket	1	1	1	1	1	1	1
		642083A5	① ② Adapter Assy., Starter Drive Complete .	1	1	1	1	1	1	1
			ATTACHING PARTS							
	-2	2473	Washer, Plain	2	2	2	2	2	2	2
	-3	MS35338-45	Washer, Lock	2	2	2	2	2	2	2
	-4	2439	Nut, Plain, Hex	2	2	2	2	2	2	2

	-5	642083	Adapter Assembly, Starter	1	1	1	1	1	1	1
	-6	402151	† Stud, 5/16 X 1-1/4 Inch Long . . .	3	3	3	3	3	3	3
	-7	402127	† Stud, 3/8 X 1-17/32 Inch Long . . .	2	2	2	2	2	2	2
	-8	401814	† Stud, 5/16 X 1-7/8 Inch Long . . .	1	1	1	1	1	1	1
	-9	401971	† Stud, 5/16 X 1-5/8 Inch Long . . .	1	1	1	1	1	1	1
	-10	641368	Bearing, Needle	1	1	1	1	1	1	1
	-11	630568	Gear Assembly, Starter Worm	1	1	1	1	1	1	1
	-12	630680	Bearing, Needle	1	1	1	1	1	1	1
	-13	629435	Shaft Gear Assembly, Starter	1	1	1	1	1	1	1
	-14	539800	† Spring, Clutch	1	1	1	1	1	1	1
			ATTACHING PARTS							
	-15	501867	Washer, Tab	1	1	1	1	1	1	1
	-16	633845	Screw, 1/4 - 20 X 11/32 Inch Long .	1	1	1	1	1	1	1

	-17	534685	Bearing, Ball	1	1	1	1	1	1	1
	-18	521649-3	Ring, Retaining	1	1	1	1	1	1	1
	-19	631252	Shaft, Worm Drive	1	1	1	1	1	1	1
	-20	536552	Spring, Starter Worm Gear	1	1	1	1	1	1	1
	-21	MS35756-8	Key, Woodruff	1	1	1	1	1	1	1
	-22	539805	Gear, Starter Worm	1	1	1	1	1	1	1
	-23	X13041	Bearing, Ball	1	1	1	1	1	1	1
	-24	502287-3	Ring, Retaining	1	1	1	1	1	1	1
	-25	AN123902	\$ O-Ring	1	1	1	1	1	1	1
	-26	629668	Cover	1	1	1	1	1	1	1
			ATTACHING PARTS							
	-27	2473	Washer, Plain	5	5	5	5	5	5	5
	-28	MS35337-45	Washer, Lock	5	5	5	5	5	5	5
	-29	2439	Nut, Plain, Hex	5	5	5	5	5	5	5

	-30	MS9021-038	\$ O-Ring	1	1	1	1	1	1	1
	-31	646275-1	③ Motor, 24 Volt, Starter				1	1	1	1
	-31	646238-2	③ Motor, 12 Volt, Starter	1	1	1				
			ATTACHING PARTS							
	-32	539058	Washer, Plain	2	2	2	2	2	2	2
	-33	2441	Nut, Plain, Hex	2	2	2	2	2	2	2

NOTES:

- ① Rebuilt starter adapter assemblies are available see your local TCM Distributor.
- ② See Figure 6-1 for optional freon compressor kit used with the optional starter adapter. See next page for optional starter adapter.
- ③ See TCM Form X30592 Starter Service Instructions for a complete parts listing of 646275-1 and 646238-2 Starter Assemblies.

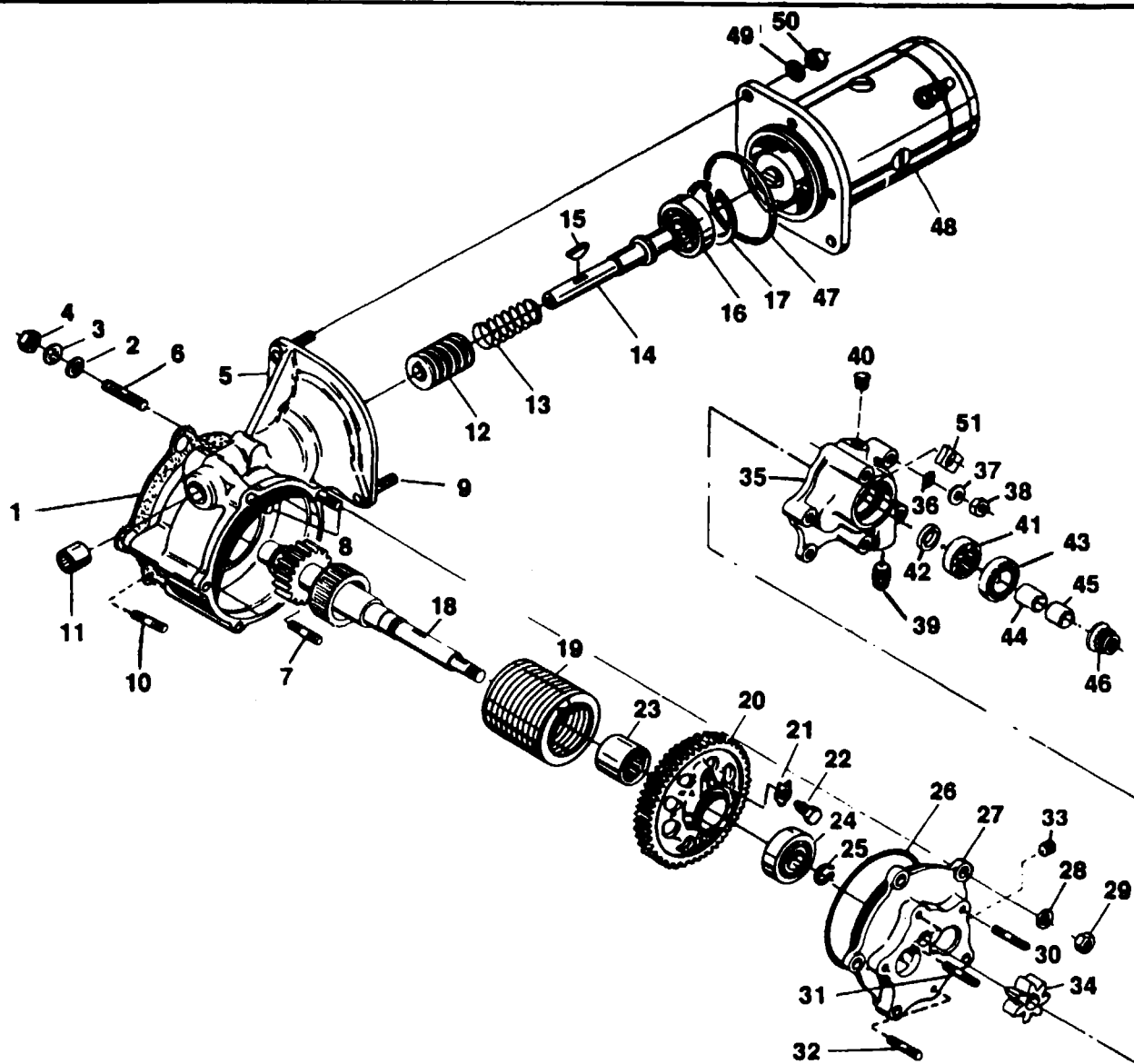


FIGURE 8-2. STARTER AND STARTER ADAPTER ASSEMBLY
(CUSTOMER SPECIFICATION)

FIG. & INDEX	PART NUMBER	1 2 3	DESCRIPTION	QUANTITY
8-2	-1	653470	\$ Gasket	1
		642087A35	Adapter Assy., Starter Drive, Complete	1
			ATTACHING PARTS	
	-2	2473	Washer, Plain	4
	-3	MS35337-45	Washer, Lock	4
	-4	2439	Nut, Plain, Hex	4

	-5	642087	Adapter Assembly, Starter	1
	-6	352655	† Stud, 5/16 X 2-11/16 Inch Long	1
	-7	401814	† Stud, 5/16 X 1-7/8 Inch Long	1
	-8	401881	† Stud, 5/16 X 1-1/8 Inch Long	2
	-9	402127	† Stud, 3/8 X 1-17/32 Inch Long	2
	-10	401971	† Stud, 5/16 X 1-5/8 Inch Long	1

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY
8-2	-11 641368	. Bearing, Needle	1
	-12 539805	. Gear, Starter Worm	1
	-13 536552	. Spring, Starter Worm Gear	1
	-14 631252	. Shaft, Worm Drive	1
	-15 MS35756-8	. Key, Woodruff	1
	-16 X13041	. Bearing, Ball	1
	-17 502287-3	. Ring, Retaining	1
	-18 649886	. Shaft Gear Assembly, Starter	1
	-19 539800 †	. Spring, Clutch	1
	-20 630568	. Gear Assembly, Starter	1
		ATTACHING PARTS	
	-21 501867	. Washer, Tab	1
	-22 633845	. Screw, Special, 1/4 - 20 X 13/32 Inch Long	1

	-23 630680	. . Bearing, Roller	1
	-24 640731	. Bearing, Ball	1
	-25 502293	. Ring, Retaining	1
	-26 AN123902 \$	. O-Ring	1
	-27 640749	. Cover Assembly	1
		ATTACHING PARTS	
	-28 2473	. Washer, Plain	3
	-29 2439	. Nut, Plain, Hex	3

	-30 401813 †	. . Stud, 5/16 X 1-11/16 Inch Long	2
	-31 401899 †	. . Stud, 5/16 X 2 Inch Long	1
	-32 352655 †	. . Stud, 5/16 X 2-5/8 Inch Long	1
	-33 2024	. . Plug, Pipe 1/8 - 27	1
	-34 640808	. Gear, Scavenge Pump, Driver	1
	-35 652019A1	. Body Assembly, Scavenge Pump	1
		ATTACHING PARTS	
	-36 2473	. Washer, Plain	4
	-37 MS35337-45	. Washer, Lock	4
	-38 2439	. Nut, Plain, Hex	4

	-39 629518-4	. . Plug	1
	-40 401752	. . Plug	1
	-41 637817	. Bearing, Ball	1
	-42 649865	. Spacer	1
	-43 653171	. Seal, Oil	1
	-44 640733	. Sleeve, Starter Shaft	1
	-45 649351	. Spacer, Starter Shaft	1
	-46 649924	. Nut, Self Locking	1
	-47 MS9021-038 \$	. O-Ring	1
	-48 646275	. Starter, 24 Volt	1
		ATTACHING PARTS	
	-49 401507	. Washer, Plain	2
	-50 2441	. Nut, Plain, Hex	2

	-51 653014	. Clip, Seal Retainer	1

INTENTIONALLY
LEFT
BLANK

CHAPTER 9

LUBRICATION SYSTEM

FIGURE		PAGE
9-1	Oil Pump Assembly	9-2
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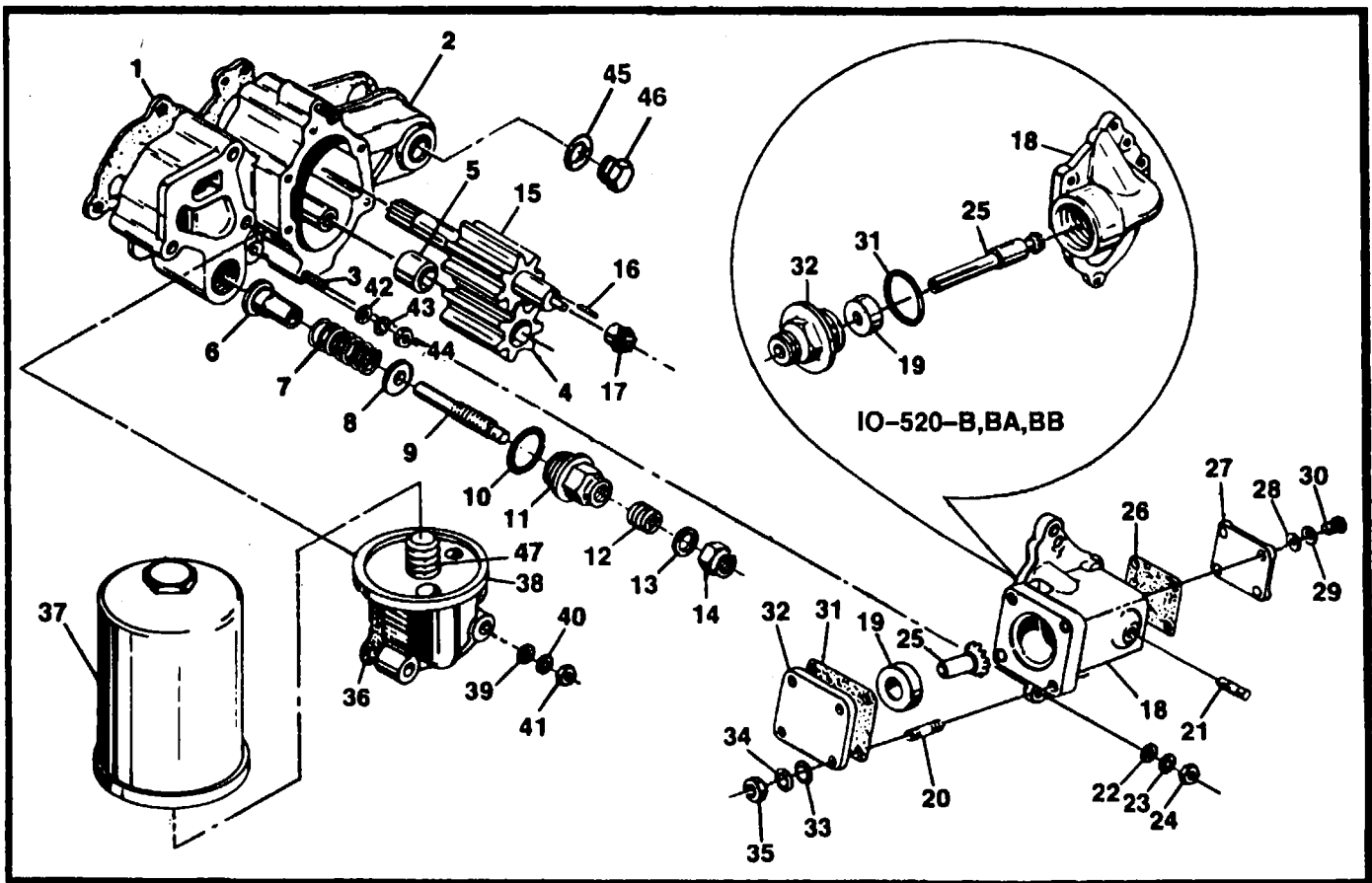


FIGURE 9-1. OIL PUMP ASSEMBLY

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY								
			B	BA	BB	C	CB	M	MB		
9-1	- 1	649949	\$	Gasket, Pump, Housing-to-Crankcase . .	1	1	1	1	1	1	1
		632977A6		Housing Assy., Oil Pump, Complete	1	1	1				
		632970		Housing Assy., Oil Pump, Complete				1	1	1	1
	-2	632977		. Housing and Shaft Assy., Oil Pump . .	1	1	1	1	1	1	1
	-3	401801	†	. . Stud, 1/4 X 1-1/16 Inch Long	2	2	2	2	2	2	2
	-4	631016		. Gear & Bushing Assy., Oil Pump Driven	1	1	1	1	1	1	1
	-5	23024		. . Bushing, Oil Pump Gear	2	2	2	2	2	2	2
	-6	642336		. Plunger, Oil Pressure Relief Valve . . .	1	1	1	1	1	1	1
	-7	634150		. Spring, Oil Pressure Relief Valve	1	1	1	1	1	1	1
	-8	631653		. Washer, Spring Seat	1	1	1	1	1	1	1
	-9	642335		. Screw, Adjusting	1	1	1	1	1	1	1
	-10	MS35769-26	\$	. Gasket, Copper Asbestos	1	1	1				
	-10	MS35769-18	\$	. Gasket, Copper Asbestos				2	2	2	2
	-11	642224		. Housing, Oil Pressure Relief Valve . . .	1	1	1	1	1	1	1
	-12	MS124657		. . Helical Coil	1	1	1	1	1	1	1
	-13	X1473		. Washer, Copper	1	1	1	1	1	1	1
	-14	632762		. Nut, Stop, 5/16 - 24	1	1	1	1	1	1	1
	-15	631014		. Shaft Gear Assy., Tach Drive	1	1	1				
-15	631075		. Shaft Gear Assy., Tach Drive				1	1	1	1	

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY						
			B	BA	BB	C	CB	M	MB
9-1	-16	535634 . . . Pin, Dowel	1	1	1	1	1	1	1
	-17	535008 . . . Gear, Bevel, Tach Drive	1	1	1				
	-17	535900 . . . Gear, Bevel, Tach Drive				1	1	1	1
	-18	646237 . . . Cover, Right Angle Tach Drive	1	1	1				
	-18	631056A1 . . . Cover, Right Angle Tach Drive				1	1	1	1
	-19	531378 \$. . . Seal, Oil				1	1	1	1
	-19	642714 \$. . . Seal, Oil	1	1	1				
	-20	401893 † . . . Stud, 1/4 X 1-1/4 Inch Long				4	4	4	4
	-21	402711 † . . . Stud, 1/4 X 7/8 Inch Long				1	1	1	1
		ATTACHING PARTS							
	-22	20522 . . . Washer, Plain	6	6	6	8	8	8	8
	-23	MS35338-44 . . . Washer, Lock	6	6	6	8	8	8	8
	-24	646605 . . . Nut, Plain, Hex	6	6	6	8	8	8	8

	-25	631650 . . . Shaft Assembly, Tach Drive	1	1	1				
	-25	535908 . . . Shaft Gear Assy., Bevel, Tach Drive				1	1	1	1
	-26	653023 \$. . . Gasket, Cover-to-Cover				1	1	1	1
	-27	535887 . . . Cover, Tach Gear Box				1	1	1	1
		ATTACHING PARTS							
	-28	2471 . . . Washer, Plain				4	4	4	4
	-29	MS35337-43 . . . Washer, Lock				4	4	4	4
	-30	20655 . . . Screw, Round Head, 10-24 X 1 Inch Long				4	4	4	4

	-31	653487 \$. . . Gasket, Tach Drive Pad				1	1	1	1
	-31	632085 . . . Gasket, Annular	1	1	1				
	-32	640380 . . . Cover, Tach Drive Pad				1	1	1	1
	-32	21208A2 . . . Housing, Tach Drive Assembly	1	1	1				
		ATTACHING PARTS							
	-33	2472 . . . Washer, Plain				4	4	4	4
	-34	MS35337-44 . . . Washer, Lock				4	4	4	4
	-35	646605 . . . Nut, Plain, Hex				4	4	4	4

	-36	649991 \$. . . Gasket, Oil Filter Adapter-to-Pump Housing	1	1	1	1	1	1	1
	-37	649923 . . . Filter Assembly, Oil	1	1	1	1	1	1	1
	-38	653491 . . . Adapter Assembly, Oil Filter	1	1	1	1	1	1	1
		ATTACHING PARTS							
	-39	2474 . . . Washer, Plain	3	3	3	3	3	3	3
	-40	MS35337-46 . . . Washer, Lock	3	3	3	3	3	3	3
	-41	2441 . . . Nut, Plain, Hex	3	3	3	3	3	3	3
	-42	20522 . . . Washer, Plain	2	2	2	2	2	2	2
	-43	MS35338-44 . . . Washer, Lock	2	2	2	2	2	2	2
	-44	646605 . . . Nut, Plain, Hex	2	2	2	2	2	2	2

	-45	MS35769-12 . . . Gasket, Annular	1	1	1	1	1	1	1
	-46	532432 . . . Plug, Oil Suction Tube	1	1	1	1	1	1	1
	-47	653490 . . . Stud, Oil Filter Adapter	1	1	1	1	1	1	1

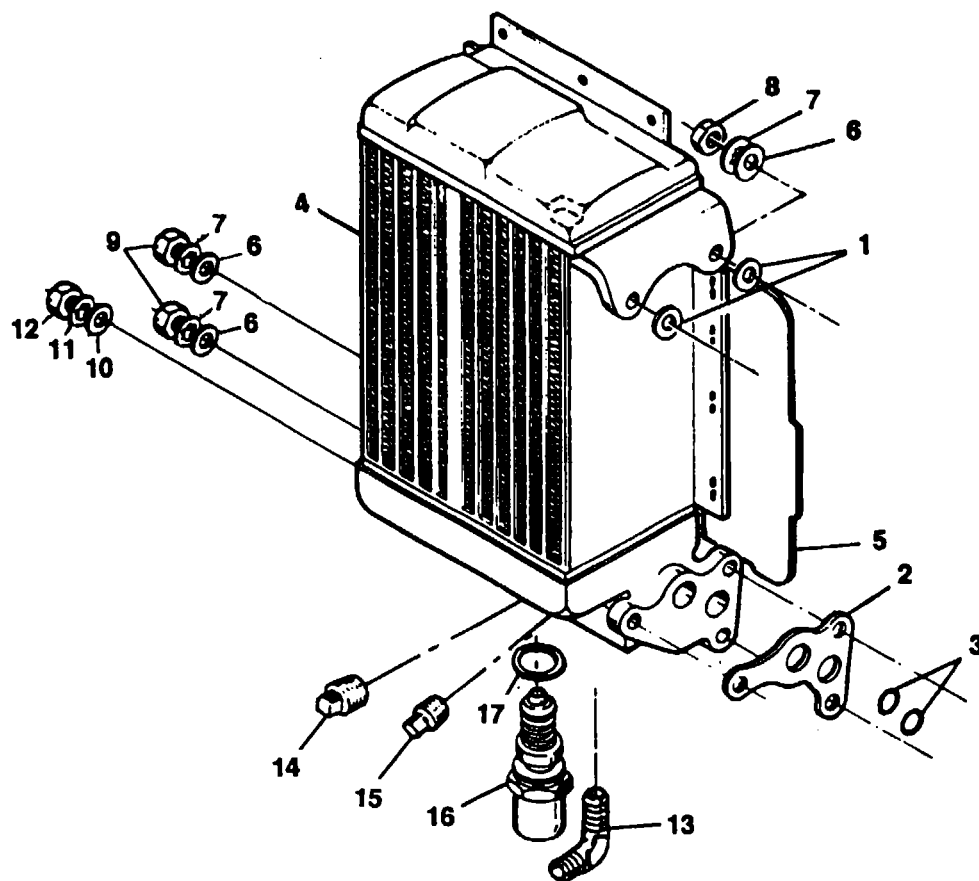


FIGURE 9-2. OIL COOLER

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY						
			B	BA	BB	C	CB	M	MB
9-2	- 1	649961 \$ Gasket, Oil Cooler-to-Crankcase, Top	2	2	2			2	2
	-2	649989 \$ Gasket, Crankcase-to-Oil Cooler	1	1	1			1	1
	-3	MS9021-017 \$ O-Ring, O/C-to-Engine Mounting Bracket				2	2		
		633287 Oil Cooler & Baffle Assembly	1	1	1			1	1
		633288 Oil Cooler & Baffle Assembly				1	1		
	-4	635996 . Cooler, Oil	1	1	1	1	1	1	1
	-5	632224 . Baffle, Oil Cooler	1	1	1			1	1
	-5	632276 . Baffle, Oil Cooler				1	1		
		ATTACHING PARTS							
	-6	2474 Washer, Plain	4	4	4	4	4	4	4
	-7	MS35337-46 Washer, Lock	4	4	4	4	4	4	4
	-8	2441 Nut, Plain, Hex	2	2	2	2	2	2	2
	-9	531003 Nut, Plain, Hex	2	2	2	2	2	2	2
	-10	2473 Washer, Plain	1	1	1	1	1	1	1
	-11	MS35337-45 Washer, Lock	1	1	1	1	1	1	1
	-12	2439 Nut, Plain, Hex							

	-13	634628 Elbow, 90 Degree, 1/8 NPTF to 1/8 Tube	1	1	1			1	1
	-13	631658A1 Elbow, 90 Degree, 1/8 NPTF to 1/4 Tube				1	1		
	-14	629518-1H Plug, Oil Cooler Outlet				1	1		
	-15	629518-3H Plug, Oil Cooler Outlet				1	1		
	-16	639305 Valve Assy., Oil Temperature Control	1	1	1	1	1	1	1
	-17	627496 Gasket	1	1	1	1	1	1	1

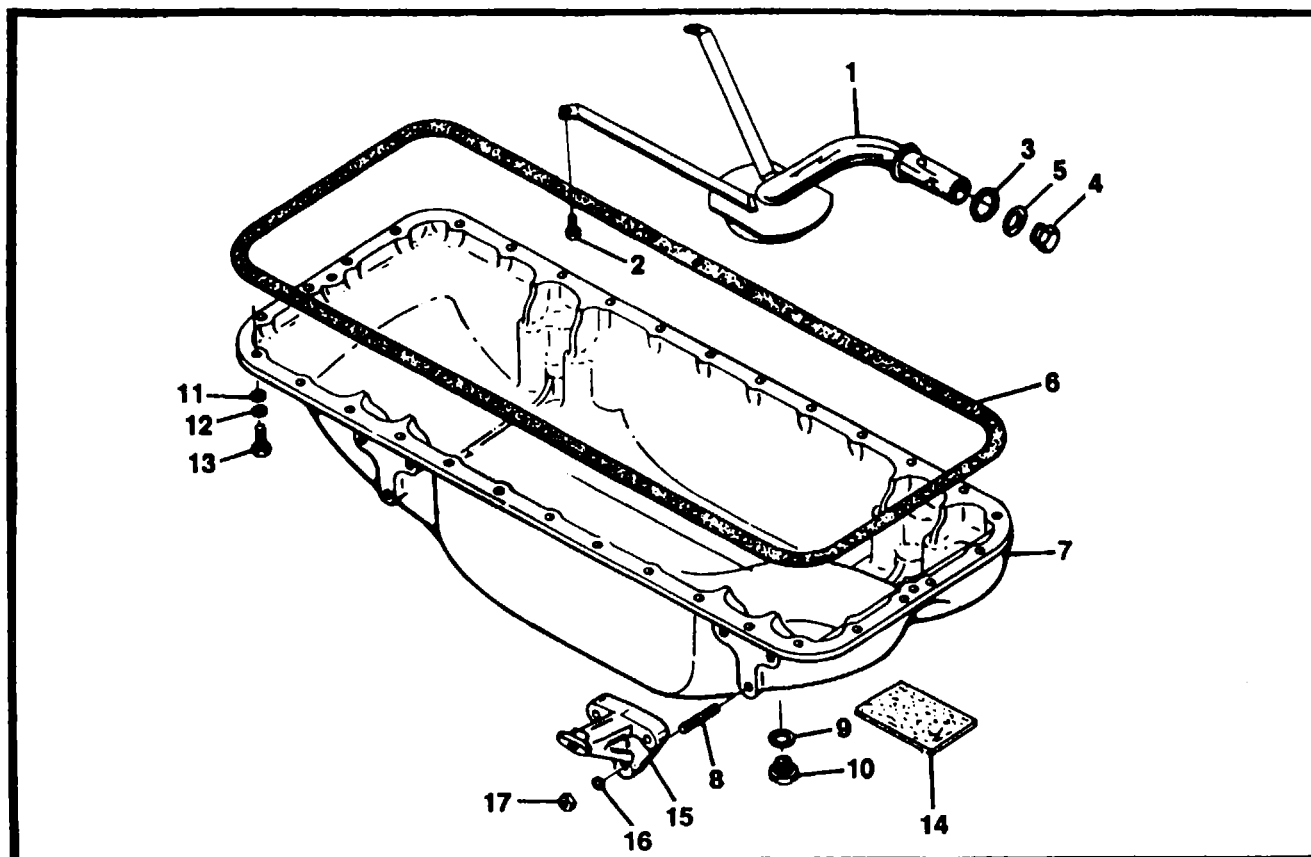


FIGURE 9-3. OIL SUMP (IO-520-B, BA, BB)

FIG. & INDEX		PART NUMBER	1 2 3 DESCRIPTION	QUANTITY		
				B	BA	BB
9-3	- 1	649812	Tube Assembly, Suction, Oil Pump	1	1	1
			ATTACHING PARTS			
	-2	630966-.56	Bolt, 5/16 - 18 X 9/16 Inch Long	2	2	2

	-3	MS35769-15	\$ Gasket, Annular	1	1	1
	-4	532432	① Plug	1	1	1
	-5	MS35769-12	① \$ Gasket, Annular	1	1	1
	-6	653528	\$ Gasket, Oil Sump	1	1	1
	-7	642273A3	Sump Assembly, Oil	1	1	1
	-8	401860	. Stud, 3/8 X 9/16 Inch Long	12	12	12
	-9	MS35769-11	. Gasket, Annular	1	1	1
	-10	532432	. Plug	1	1	1
			ATTACHING PARTS			
	-11	2473	Washer, Plain	30	30	30
	-11	22535	Washer	2	2	2
	-12	MS35337-45	Washer, Lock	32	32	32
	-13	537750	Screw, 5/16 - 18 X 1-1/8 Inch Long	30	30	30
	-13	649206	Screw, 5/16 - 18 X 1-3/8 Inch Long	2	2	2

	-14	534625	Felt, 3-1/16 X 4-1/16	1	1	1
	-15	632663	Bracket, Engine Mount	4	4	4
			ATTACHING PARTS			
	-16	AN960-616L	Washer, Plain	12	12	12
	-17	2441	Nut, Hex	12	12	12

NOTE: ① See Figure 9-1, "Oil Pump Assembly," for orientation.

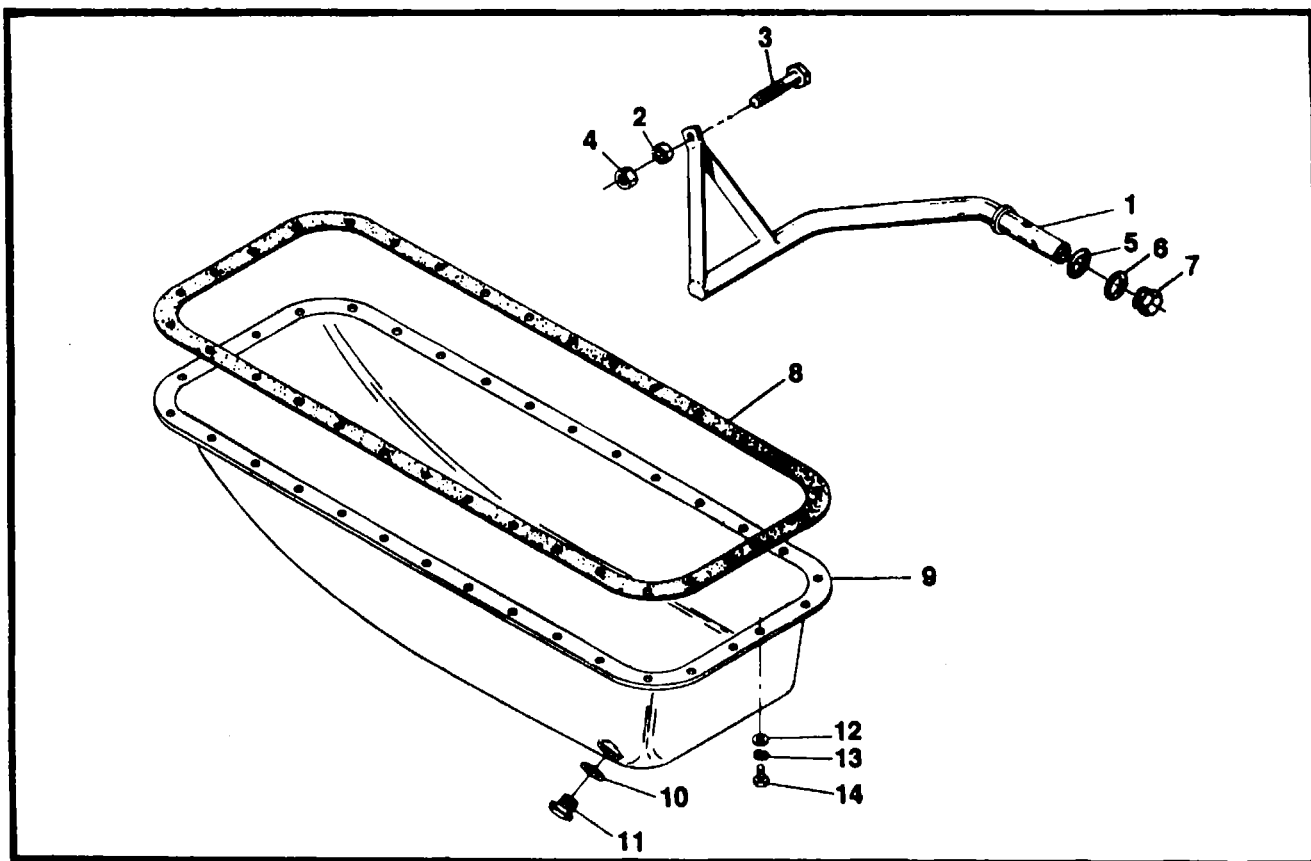


FIGURE 9-4. OIL SUMP (IO-520-C, CB, M, MB)

FIG. & INDEX	PART NUMBER	DESCRIPTION	QUANTITY			
			C	CB	M	MB
9-4	- 1	649813 Tube Assembly, Suction	1	1	1	1
		ATTACHING PARTS				
	-2	NAS42DD8-16 Washer, Special	1	1	1	1
	-3	AN4-17A Bolt	1	1	1	1
	-4	632443-4 Nut	1	1	1	1

	-5	MS35769-15 \$ Gasket, Annular	1	1	1	1
	-6	MS35769-12 \$ ② Gasket, Annular	1	1	1	1
	-7	532432 ② Plug, Hex	1	1	1	1
	-8	653528 \$ Gasket, Oil Sump	1	1	1	1
	-9	537650 Sump Assembly, Oil	1	1		
	-9	632876 Sump Assembly, Oil			1	1
	-10	MS35769-11 \$ Gasket, Annular	2	2	1	1
	-11	532432 ① Plug, Oil Drain	2	2	1	1
		ATTACHING PARTS				
	-12	2473 Washer, Plain	30	30	32	32
	-13	MS35337-45 Washer, Lock	32	32	32	32
	-14	530346 Screw, 5/16 - 18 X 7/8 Inch Long	30	30	28	28
	-14	537750 Screw, 5/16 - 18 X 1-1/8 Inch Long			2	2
	-14	537961 Screw, 5/16 - 18 X 1 Inch Long	2	2		
	-14	MS35303-40 Screw, 5/16 - 18 X 2 Inches Long			2	2

NOTES:

- ① The magnetic drain plug, P/N 636376 may be used as an option to drain plug P/N 532432.
- ② See Figure 9-1, "Oil Pump Assembly," for orientation.

CHAPTER 10

CYLINDERS AND PISTONS

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10-2	Cylinder Assembly (customer specifications)	10-2
10-3	Piston And Ring Assembly	10-5

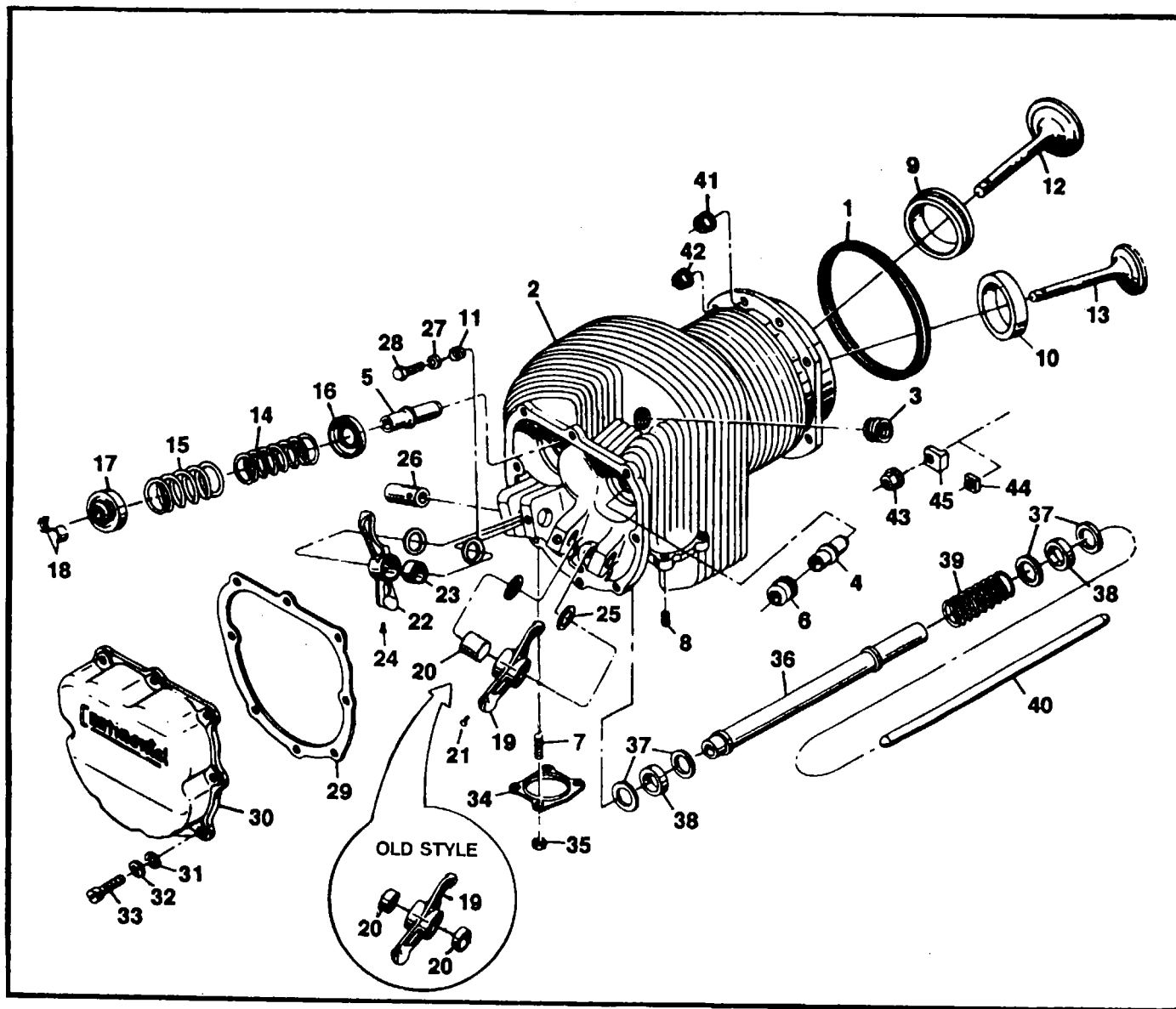
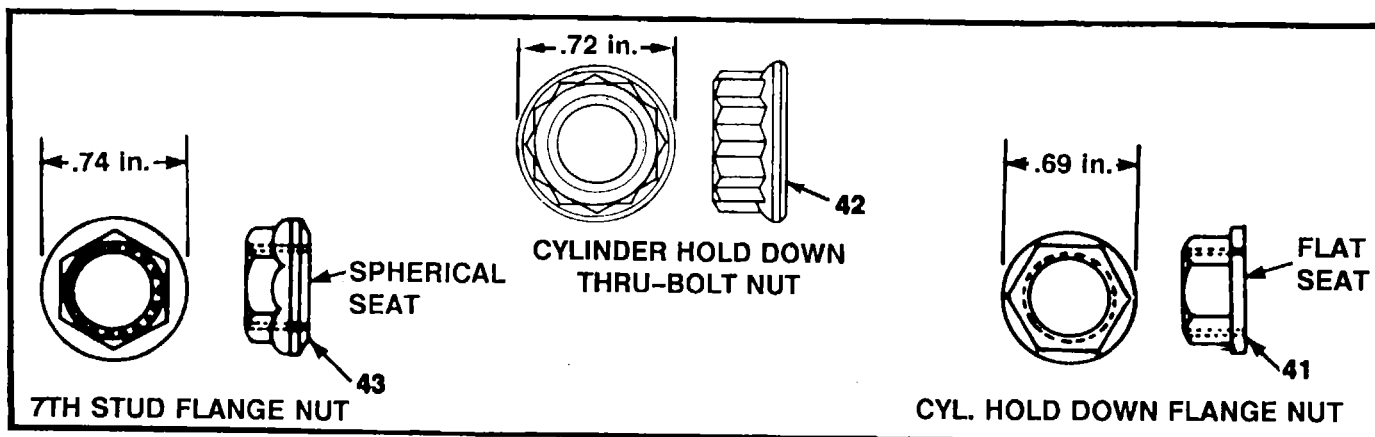


FIGURE 10-1. CYLINDER ASSEMBLY



NUT IDENTIFICATION

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY						
			B	BA	BB	C	CB	M	MB
10-1	- 1	641066 \$	O-Ring	6	6	6	6	6	6
		653446A5	Cylinder and Valve Assembly	6	6	6	6	6	6
		653446A6 ①	Cylinder and Valve Assembly	6	6	6	6	6	6
		646657CE-A7 ①	Cylinder and Valve Assembly, Cermicrome ® Process	6	6	6	6	6	6
		649317CE-A7 ①	Cylinder and Valve Assembly, Cermicrome ® Process	Opt	Opt	Opt	Opt	Opt	Opt
	-2	653446	Cylinder Assembly	1	1	1	1	1	1
	-2	646657CE	Cylinder Assembly, Cermicrome ® Process	1	1	1	1	1	1
	-2	649317CE	Cylinder Assembly, Cermicrome ® Process	Opt	Opt	Opt	Opt	Opt	Opt
	-3	520112-3	. . . Insert, Spark Plug Thread	2	2	2	2	2	2
	-4	643766 †	. . . Guide, Intake Valve	1	1	1	1	1	1
	-5	648051 ②③†	. . . Guide, Exhaust Valve	1	1	1	1	1	1
	-5	643767 †	. . . Guide, Exhaust Valve, Ni-Resist	Opt	Opt	Opt	Opt	Opt	Opt
	-6	646985	. . . Seal Assy., Intake Valve Guide	1	1	1	1	1	1
	-7	401893 ①	. . . Stud, 1/4 X 1-1/4 Inch Long	4	4	4	4	4	4
	-7	638125	. . . Stud, Ring Locked	4	4	4	4	4	4
	-8	MS122121	. . . Insert, Intake Pipe Flange	4	4	4	4	4	4
	-9	630591	. . . Insert, Intake Valve Seat	1	1	1	1	1	1
	-10	35967	. . . Insert, Exhaust Valve Seat	1	1	1	1	1	1
	-11	MS21209C4-15 ⑤	. . . Helical, Coil .25-20	2	2	2	2	2	2
	-12	646283	. . . Valve, Intake	1	1	1	1	1	1
	-13	646286	. . . Valve, Exhaust	1	1	1	1	1	1
	-14	631521	. . . Spring, Valve, Inner	2	2	2	2	2	2
	-15	637837	. . . Spring, Valve, Outer	2	2	2	2	2	2
	-16	625393	. . . Retainer, Valve Spring, Inner	2	2	2	2	2	2
	-17	652112	. . . Roto-Coil Assy., Exhaust Valve	1	1	1	1	1	1
		35971	. . . Retainer, Intake Valve	1	1	1	1	1	1
	-18	24802	. . . Key, Valve Spring Retainer	4	4	4	4	4	4
	-19	652131	Rocker Assy., Intake Valve	6	6	6	6	6	6
	-20	652129 ④	. . . Bushing, Valve Rocker	1	1	1	1	1	1
	-21	21007	. . . Screw, Drive	1	1	1	1	1	1
	-22	652130	Rocker Assy., Exhaust Valve	6	6	6	6	6	6
	-23	652129 ④	. . . Bushing, Valve Rocker	1	1	1	1	1	1
	-24	21007	. . . Screw, Drive	1	1	1	1	1	1
	-25	653188 †	Washer, Thrust	24	24	24	24	24	24
	-26	652984 ⑤	Shaft, Valve Rocker	12	12	12	12	12	12
			ATTACHING PARTS						
	-27	653309 ⑤	Washer, Plain	12	12	12	12	12	12
	-28	MS90725-12 ⑤	Bolt, Hex Head	12	12	12	12	12	12

	-29	653191 \$	Gasket, Valve Rocker Cover	6	6	6	6	6	6
	-30	625615	Cover, Valve Rocker	6	6	6	6	6	6
			ATTACHING PARTS						
	-31	20522	Washer, Plain	48	48	48	48	48	48
	-32	MS35338-44	Washer, Lock	48	48	48	48	48	48
	-33	649353-.75	Screw, Fillister Head, 1/4 X 3/4 In. Lg.	48	48	48	48	48	48

(continued on next page)

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY						
			B	BA	BB	C	CB	M	MB
10-1	-34 631544	\$ Gasket, Exhaust Flange	6	6	6	6	6	6	6
	-34 652458	Gasket, Exhaust Flange, Spiral Wound	Opt	Opt	Opt	Opt	Opt	Opt	Opt
		ATTACHING PARTS							
	-35 643967	Nut, Hex, 1/4 - 28	24	24	24	24	24	24	24

	-36 537296	Housing, Push Rod	12	12	12	12	12	12	12
	-37 534609	Washer, Push Rod Housing	48	48	48	48	48	48	48
	-38 534610	\$ Packing, Push Rod Housing	24	24	24	24	24	24	24
	-39 626147	Spring, Push Rod Housing	12	12	12	12	12	12	12
	-40 652451-8	† Push Rod Assembly	12	12	12	12	12	12	12
	-41 652422	Nut, Flanged, 7/16 - 20	36	36	36	36	36	36	36
	-42 652541	Nut, Flanged, 1/2 - 20	12	12	12	12	12	12	12
	-43 646312	Nut, Self Aligning, 7th Stud	6	6	6	6	6	6	6
	-44 646297	Bracket, 7th Stud, Flanged	4	4	4	4	4	4	4
	-45 646298	Bracket, 7th Stud, "L"	2	2	2	2	2	2	2

NOTES:

- ® Cermicrome is a registered trademark of Engine Components, Inc.
- ① These assemblies are sold with 652984 rocker shafts and the 646563A1 gasket set. The 653446A6 cylinder assembly is sold with the 652148 ring set. The 646657CE-A7 and 649317CE-A7 cylinder assemblies are sold with the 649227CP ring set.
- ② Old cylinders may have the 648051 exhaust guide.
- ③ 646277 hydraulic tappet assembly must be used with 648051 exhaust valve guide.
- ④ Two piece bushing 639629 must be used in old style rocker arms without lubrication groove. One piece bushing 652129 must be used in new style rocker arms that incorporate lubrication groove.
- ⑤ Old cylinders must be reworked to through-bolt rocker shaft configuration in accordance with TCM Service Bulletin M92-6 or current revision as applicable.

NOTE:

See page 10-5 for customer specification cylinder assembly. See page 10-8 for piston and rings.

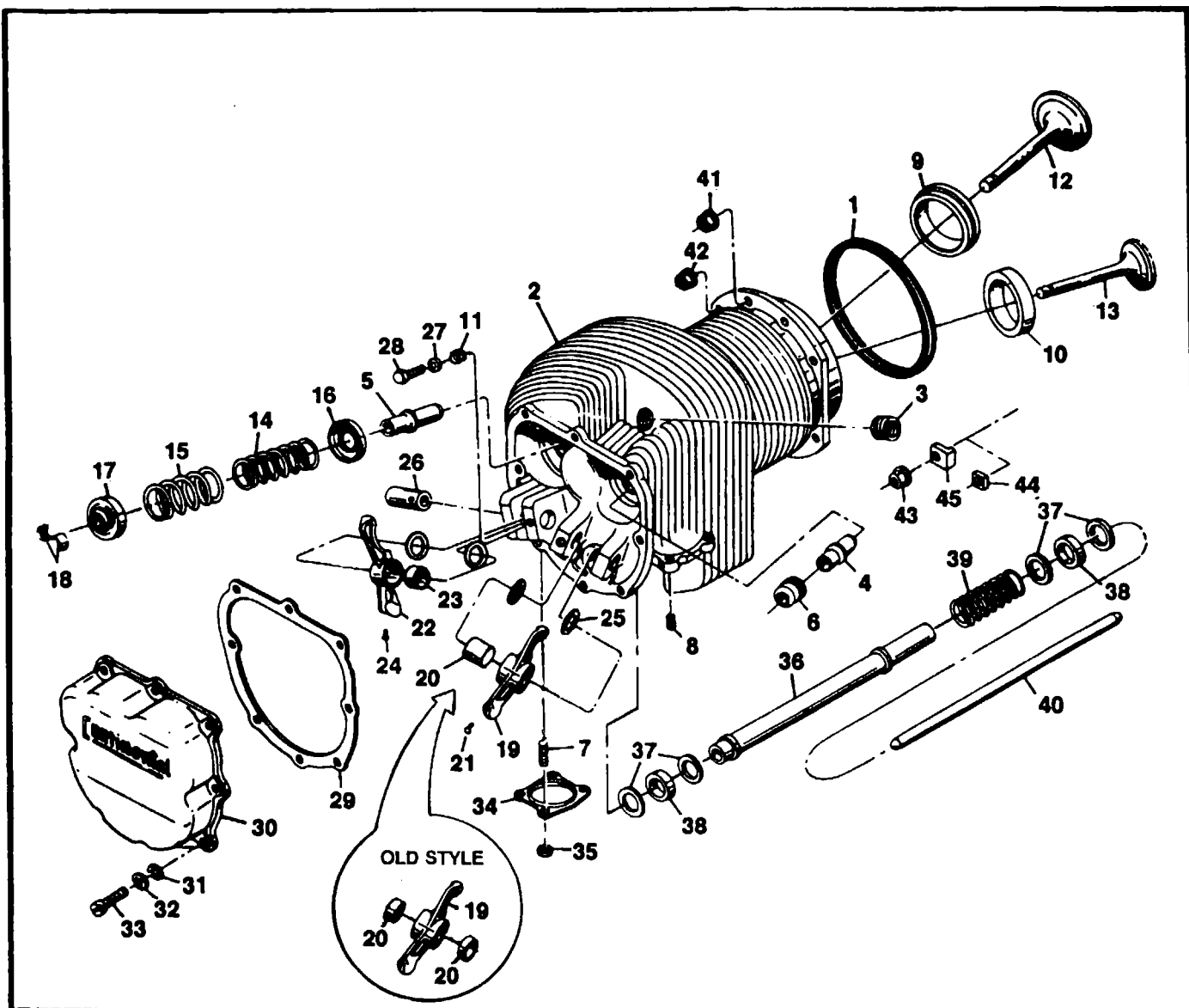
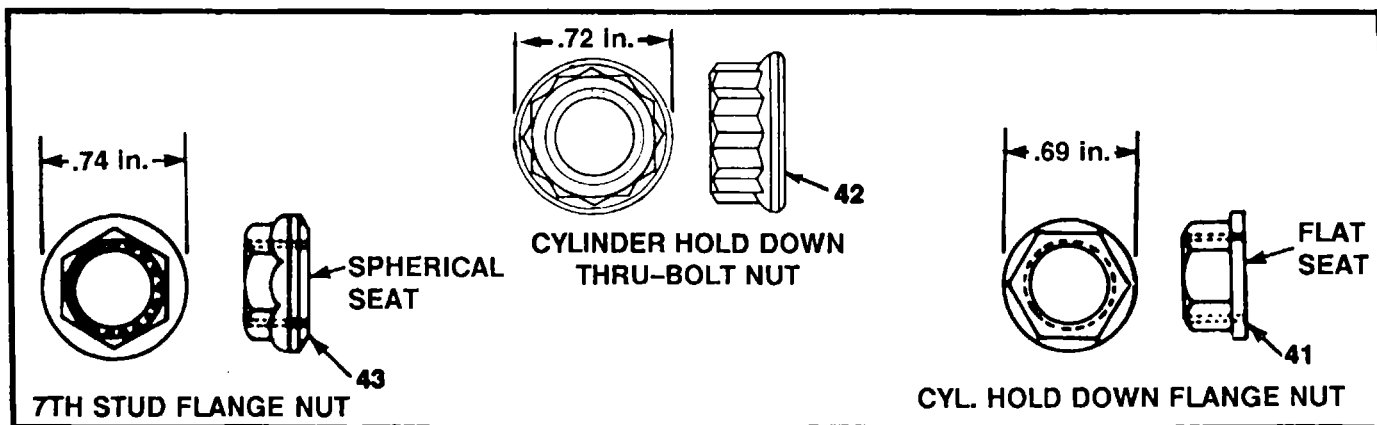


FIGURE 10-2. CYLINDER ASSEMBLY (CUSTOMER SPECIFICATIONS)



NUT IDENTIFICATION

(continued on next page)

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY
10-2 - 1	641066	\$ Packing, Cylinder Base	6
	653445A6	Cylinder and Valve Assembly	6
-2	653445	. Cylinder Assembly	1
-3	520112-3	. . Insert, Spark Plug Thread	2
-4	643766	† . . Guide, Intake Valve	1
-5	648051	② . . Guide, Exhaust Valve	1
-5	643767	. . Guide, Exhaust Valve, Ni-Resist	Opt
-6	646985	. Seal Assy., Intake Valve Guide	1
-7	638125	† . . Stud, 1/4 - 1-1/4 Inch Long	4
-8	MS122121	. . Insert	4
-9	642318	† . . Insert, Intake Valve Seat	1
-10	35967	† . . Insert, Exhaust Valve Seat	1
-11	MS21209C4-15	③ Helical Coil, .25-20	2
-12	646283	. Valve, Intake	1
-13	646286	. Valve, Exhaust	
-14	631521	. Spring, Valve Inner	2
-15	637837	. Spring, Valve Outer	2
-16	625393	. Retainer, Valve Spring, Inner	2
-17	652112	. Roto-Coil Assy., Exhaust Valve	1
	35971	. Retainer, Intake Valve	1
-18	24802	. Key, Valve Spring Retainer	4
-19	652131	Rocker Assembly, Intake Valve	6
-20	652129	① . Bushing, Valve Rocker	2
-21	21007	. Screw, Drive	1
-22	652130	Rocker Assembly, Exhaust Valve	6
-23	652129	① . Bushing, Valve Rocker	2
-24	21007	. Screw, Drive	1
-25	653188	† Washer, Thrust	24
-26	652984	③ Shaft, Valve, Rocker	12
		ATTACHING PARTS	
-27	653309	Washer, Plain	12
-28	MS90725-12	③ Bolt, Hex Head	12

-29	653191	Gasket, Valve Rocker Cover	6
-30	625615	Cover, Valve Rocker	6
		ATTACHING PARTS	
-31	20522	Washer, Plain	48
-32	MS35338-44	Washer, Lock	48
-33	649353-.75	Screw, Fillister Head	48

-34	631544	\$ Gasket, Exhaust Flange	6
-34	652458	Gasket, Exhaust Flange, Spiral Wound	Opt
		ATTACHING PARTS	
-35	643967	Nut, Hex, 1/4 - 28	24

-36	537296	Housing, Push Rod	12
-37	534609	Washer, Push Rod Housing	48
-38	534610	\$ Packing, Push Rod Housing	24
-39	626147	Spring, Push Rod Housing	12

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY
10-2	-40 652451-8	Push Rod Assembly	12
		ATTACHING PARTS	
	-41 652422	Nut, Flanged, 7/16 - 20	36
	-42 652421	Nut, Flanged, 1/2 - 20	12
	-43 646312	Nut, Self Aligning	6
	-44 646297	Bracket, 7th Stud, Flanged	4
	-45 646298	Bracket, 7th Stud, "L"	2

NOTE:

- ① Two piece bushing 639629 must be used in old style rocker arms without lubrication groove. One piece bushing 652129 must be used in new style rocker arms that incorporate lubrication groove.
- ② 646277 hydraulic tappet assembly must be used with 648051 exhaust valve guide.
- ③ Old cylinders must be reworked to through-bolt rocker shaft configuration in accordance with TCM Service Bulletin M92-6 or current revision as applicable.

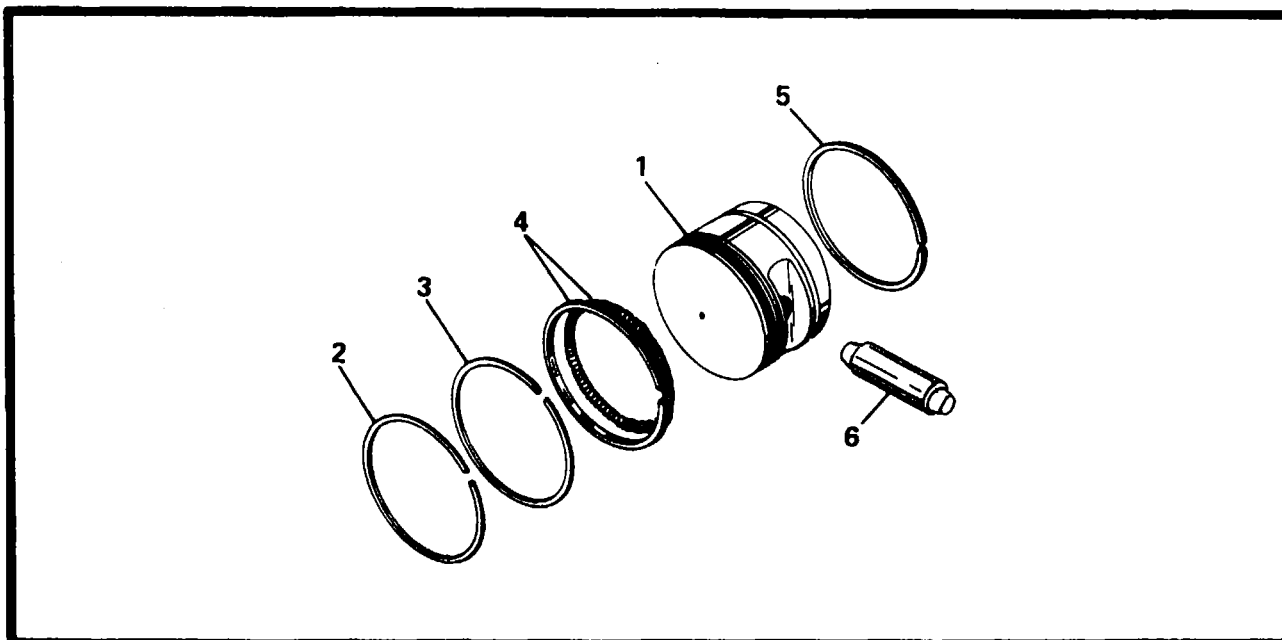


FIGURE 10-3. PISTON AND PIN ASSEMBLY

FIG. & INDEX	PART NUMBER	1 2 3	DESCRIPTION	QUANTITY						
				B	BA	BB	C	CB	M	MB
10-3	- 1 648045	†	Piston, 8.5:1 Compression Ratio	6	6	6	6	6	6	6
	-2 648005	\$ †	Ring, Compression, Top Groove	6	6	6	6	6	6	6
	-2 648005CP ① \$ †		Ring, Compression, Top Groove	Opt	Opt	Opt	Opt	Opt	Opt	Opt
	-3 648006	\$	Ring, Compression, Second Groove	6	6	6	6	6	6	6
	-3 648006CP ① \$ †		Ring, Compression, Second Groove	6	6	6	6	6	6	6
	-4 648050	\$ †	Ring, Oil Control, Third Groove	6	6	6	6	6	6	6
	-4 648007CP ① \$ †		Ring, Oil Control, Third Groove	Opt	Opt	Opt	Opt	Opt	Opt	Opt
	-5 648008	\$ †	Ring, Scraper, Fourth Groove	6	6	6	6	6	6	6
	-6 630046	†	Pin and Plug Assembly, Piston	6	6	6	6	6	6	6

NOTE:

① Use these rings with chrome cylinders.

CHAPTER 11

CRANKCASE

FIGURE		PAGE
11-1	Crankcase Associated Parts, Oil Gage	11-2
11-2	Crankcase Associated Parts, Engine Mounts	11-4
11-3	Crankcase Attaching Parts	11-6
11-4	Crankcase Studding Assembly, I0-520-B, BA, BB	11-8
11-5	Crankcase Studding Assembly, I0-520-C, CB	11-10
11-6	Crankcase Studding Assembly, I0-520-M, MB	11-12



11-2

FIG. & INDEX	PART NUMBER	1	2	3	4	DESCRIPTION	QUANTITY						
							B	BA	BB	C	CB	M	MB
11-1	-5	632964-1	②	④		Breather and Oil Filler Assembly				1	1	1	1
	-5	649406-3	①			Breather and Oil Filler Assembly	1	1	1				
	-5	632964-2	②	④		Breather and Oil Filler Assembly	1	1	1				
						ATTACHING PARTS							
	-6	AN960-516L				Washer, Plain	2	2	2	2	2	2	2
	-7	MS35338-45				Washer, Lock	2	2	2	2	2	2	2
	-8	537742-1				Screw, 5/16 - 18 X 2-13/16 Inch Long	2	2	2	2	2	2	2

	-9	649608-32	②			Gage and Cap Assembly, L.H.						1	1
	-9	649608-31	②			Gage and Cap Assembly, R.H.						1	1
	-9	652171-14				Gage and Cap Assembly, R.H.						1	1
	-9	652171-1	②			Gage and Cap Assembly	1	1	1				
	-9	652171-15				Gage and Cap Assembly	1	1	1				
	-9	652171-2	②			Gage and Cap Assembly, R.H.				1	1		
	-9	652171-16				Gage and Cap Assembly, R.H.				1	1		
	-9	649608-4	②			Gage and Cap Assembly, L.H.				1	1		
	-9	652171-18				Gage and Cap Assembly, L.H.				1	1		
	-9	652171-19				Gage and Cap Assembly, L.H.						1	1
	-10	642892				Gasket	1	1	1	1	1	1	1
	-10	633240	②	③		Gasket	1	1	1	1	1	1	1
	-10	533355	②	③		Gasket	1	1	1	1	1	1	1
	-11	653415	\$			Gasket, Camshaft, Cover	1	1	1	1	1	1	1
	-12	629201				Cover, Camshaft Hole	1	1	1	1	1	1	1
						ATTACHING PARTS							
	-13	20522				Washer, Plain	2	2	2	2	2	2	2
	-14	MS35338-44				Washer, Lock	2	2	2	2	2	2	2
	-15	646605				Nut, Plain	2	2	2	2	2	2	2

	-16	630871				Bushing, Idler Gear	1	1	1	1	1	1	1
	-17	652189				Gasket, Flange	1	1	1	1	1	1	1
	-18	630870				Bushing	11	1	1	1	1	1	1
						ATTACHING PARTS							
	-19	MS35338-44				Washer, Lock	2	2	2	2	2	2	2
	-20	646605				Nut, Plain, Hex	2	2	2	2	2	2	2
	-21	2025				Plug	1	1	1	1	1	1	1

NOTES:

- ① Kit 649407A2 must be purchased if replacing old breather assembly 632964-1 or -2 with new breather assembly 649406-1 or 649406-3. Old style breather tube diameter is 1 inch and the new style breather tube diameter is 3/4 of an inch.
- ② These components are for old style crankcase which does not incorporate cylinder hold down 7th stud.
- ③ Check the oil filler gasket and order same thickness. Order P/N 533355 gasket if coil spring is used. Order P/N 633240 gasket if leaf spring is used. Cap assemblies P/N 649608 and 652171 require P/N 642892 gasket.
- ④ Use 2 ea. MS9021-210 o-rings which are included in the major O/H gasket set if engine has 1 inch diameter breather assembly. Use 1 ea. MS9970-116 and 1 ea. MS9970-117 o-rings if engine has 3/4 inch diameter breather assembly.

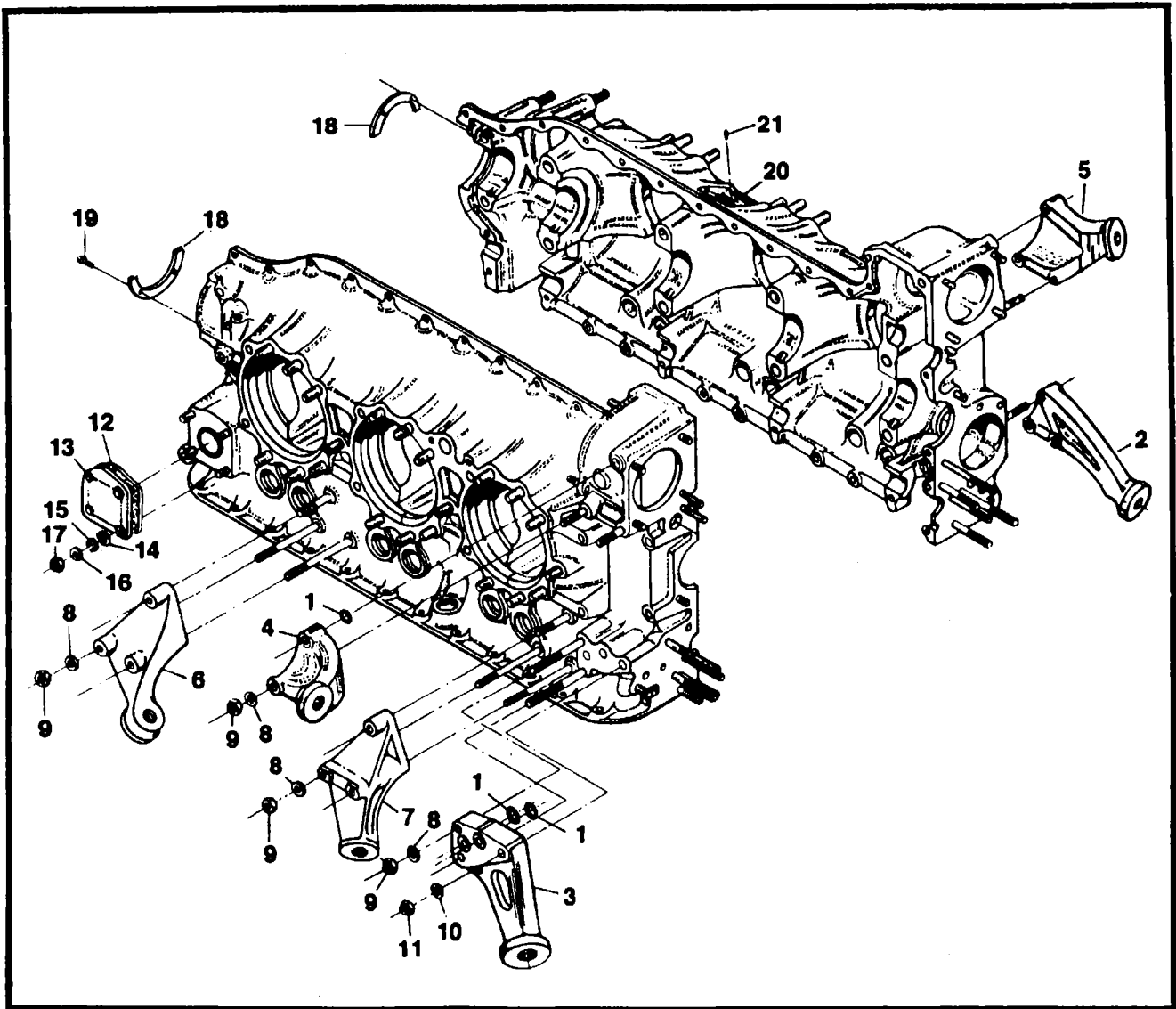


FIGURE 11-2. CRANKCASE ASSOCIATED PARTS (ENGINE MOUNTS)

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY						
			B	BA	BB	C	CB	M	MB
11-2	-1	MS9021-017 \$				2	2	4	4
	-2	653305 ①				1	1		
	-3	653306				1	1		
	-4	631393				1	1		
	-5	631394				1	1		
	-6	631152						2	2
	-7	653226						2	2
		ATTACHING PARTS							
	-8	539058				9	9	12	12
	-9	2441				9	9	12	12
	-10	2473				1	1		
	-11	2439				1	1		

	-12	649981 ③ ④	1	1	1	1	1	1	1
	-13	639997 ③	1	1	1	1	1	1	1
		ATTACHING PARTS							
	-14	22535	8	8	8	8	8	8	8
	-15	2473	4	4	4	4	4	4	4
	-16	MS35337-45	4	4	4	4	4	4	4
	-17	2439	4	4	4	4	4	4	4

	-18	641361	2	2	2	2	2	2	2
		ATTACHING PARTS							
	-19	628321-.38	4	4	4	4	4	4	4

	-20	*** ②	rf	rf	rf	rf	rf	rf	rf
		ATTACHING PARTS							
	-21	24764	6	6	6	6	6	6	6

NOTES:

- ① See Figure 9-3, "Oil Sump Assembly," for IO-520-B, BA & BB engine mount brackets.
- ② See TCM Service Bulletin M87-18R1 or current revision as applicable.
- ③ For shipping purpose only.
- ④ Use P/N 646698 gasket if installing propeller governor.

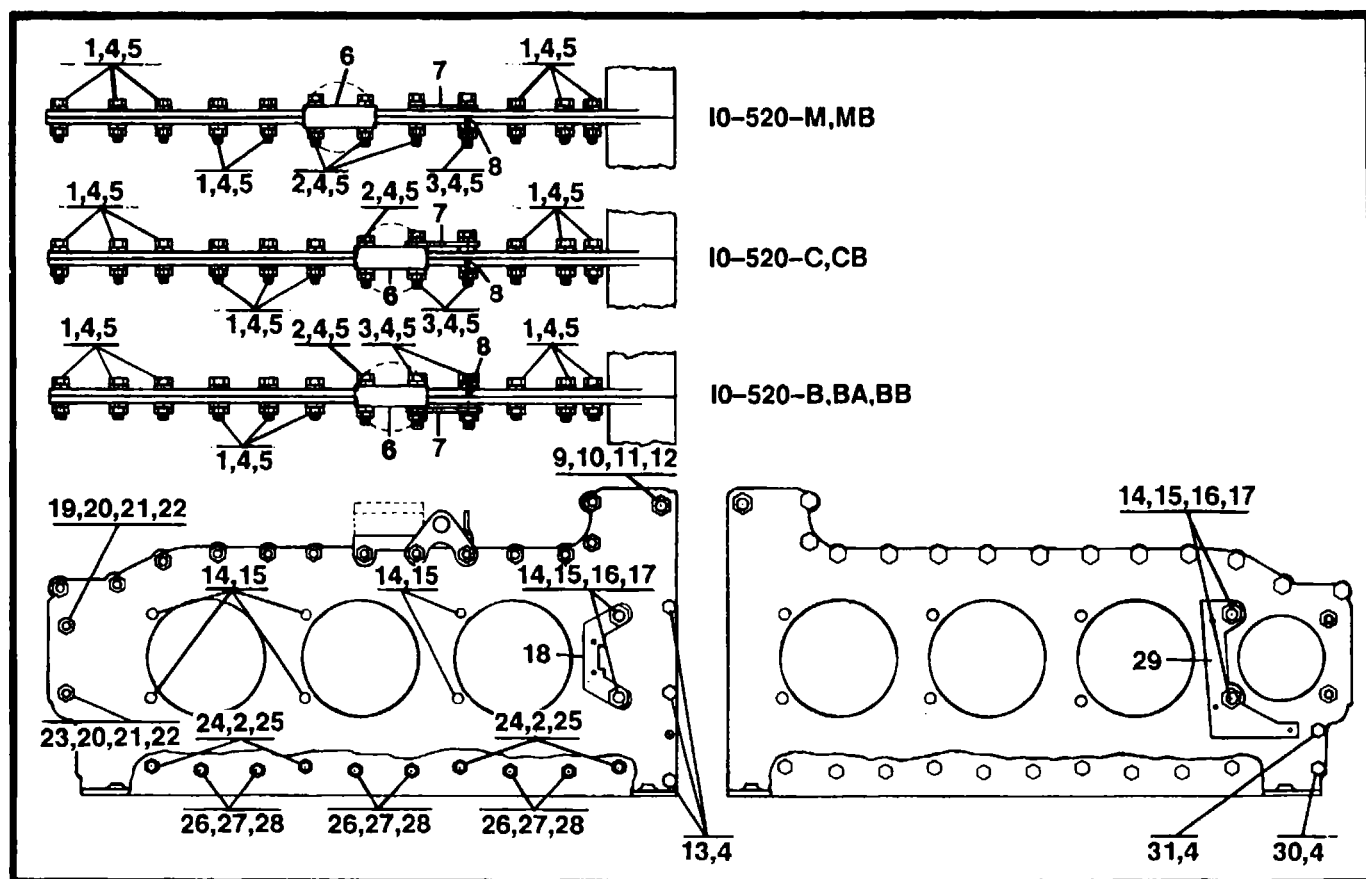


FIGURE 11-3. CRANKCASE ATTACHING PARTS

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY							
			B	BA	BB	C	CB	M	MB	
11-3	-1	AN5-13A	Bolt, 5/16 - 24 X 1.47 Inch Long	10	10	10	10	10	9	9
	-2	AN5-14A	Bolt, 5/16 - 24 X 1.59 Inch Long	1	1	1	1	1	3	3
	-3	AN5-15A	Bolt, 5/16 - 24 X 1.72 Inch Long	2	2	2	2	2	1	1
	-4	2473	Washer, Plain, 5/16 I.D.	40	40	40	40	40	39	39
	-5	2439	Nut, Plain, 5/16 - 24	13	13	13	13	13	13	13
	-6	631427-2A9	Manifold Valve	rf	rf	rf				
		631427-2A11	Manifold Valve				rf	rf		
		641032-12A2	Manifold Valve						rf	rf
	-7	538650	Eye, Engine Lifting	1	1	1	1	1	1	1
	-8	635363	Bracket, Ignition	rf	rf	rf	rf	rf	rf	rf
	-9	630693-10.44	Bolt, Through, 3/8 - 24 X 10.44 Inch Long	1	1	1	1	1	1	1
	-10	AN123862	. O-Ring	2	2	2	2	2	2	2
	-11	24239	Washer, Plain, 3/8 I.D.	2	2	2	2	2	2	2
	-12	2441	Nut, Plain, 3/8 - 24	2	2	2	2	2	2	2
	-13	630966-4.00	Bolt, C/C Tie, 5/16 - 18 X 4.00 Inch Long	3	3	3	3	3	3	3
	-14	641931-10.75	Bolt, Through, 1/2 - 20 X 10.75 Inch Long	8	8	8	8	8	8	8
	-15	MS29513-010	. O-ring	16	16	16	16	16	16	16
-16	632120	Washer, 1/2 I.D.	4	4	4	4	4	4	4	
-17	634511	Nut, Plain, 1/2 - 20	4	4	4	4	4	4	4	

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY						
			B	BA	BB	C	CB	M	MB
11-3	-18	646599	Bracket, Baffle Support	1	1	1	1	1	1
	-19	630943-5.31	Bolt, Through, 7/16 - 20 X 5.31 Inch Long	1	1	1	1	1	1
	-20	20202	Washer, Plain, 7/16 ID	1	1	1	1	1	1
	-21	646256	Washer, Plain, 7/16 ID	1	1	1	1	1	1
	-22	652422	Nut, 7/16 - 20	4	4	4	4	4	4
	-23	630943-6.19	Bolt, Through, 7/16 - 20 X 6.19 Inch Long	1	1	1	1	1	1
	-24	AN5-23A	Bolt, 5/16 - 24 X 2.47 Inch Long	4	4	4	4	4	4
	-25	632443-6	Nut, Marsden, Lock	4	4	4	4	4	4
	-26	24878	Bolt, 1/4 - 28 X 1.63 Inch Long	6	6	6	6	6	6
	-27	20522	Washer, Plain, 1/4 ID	12	12	12	12	12	12
	-28	632443-4	Nut, 1/4 - 28	6	6	6	6	6	6
	-29	646600	Bracket, Baffle Support	1	1	1	1	1	1
	-30	537750	Bolt, C/C Tie	1	1	1	1	1	1
	-31	649206	Bolt, C/C Tie	1	1	1	1	1	1

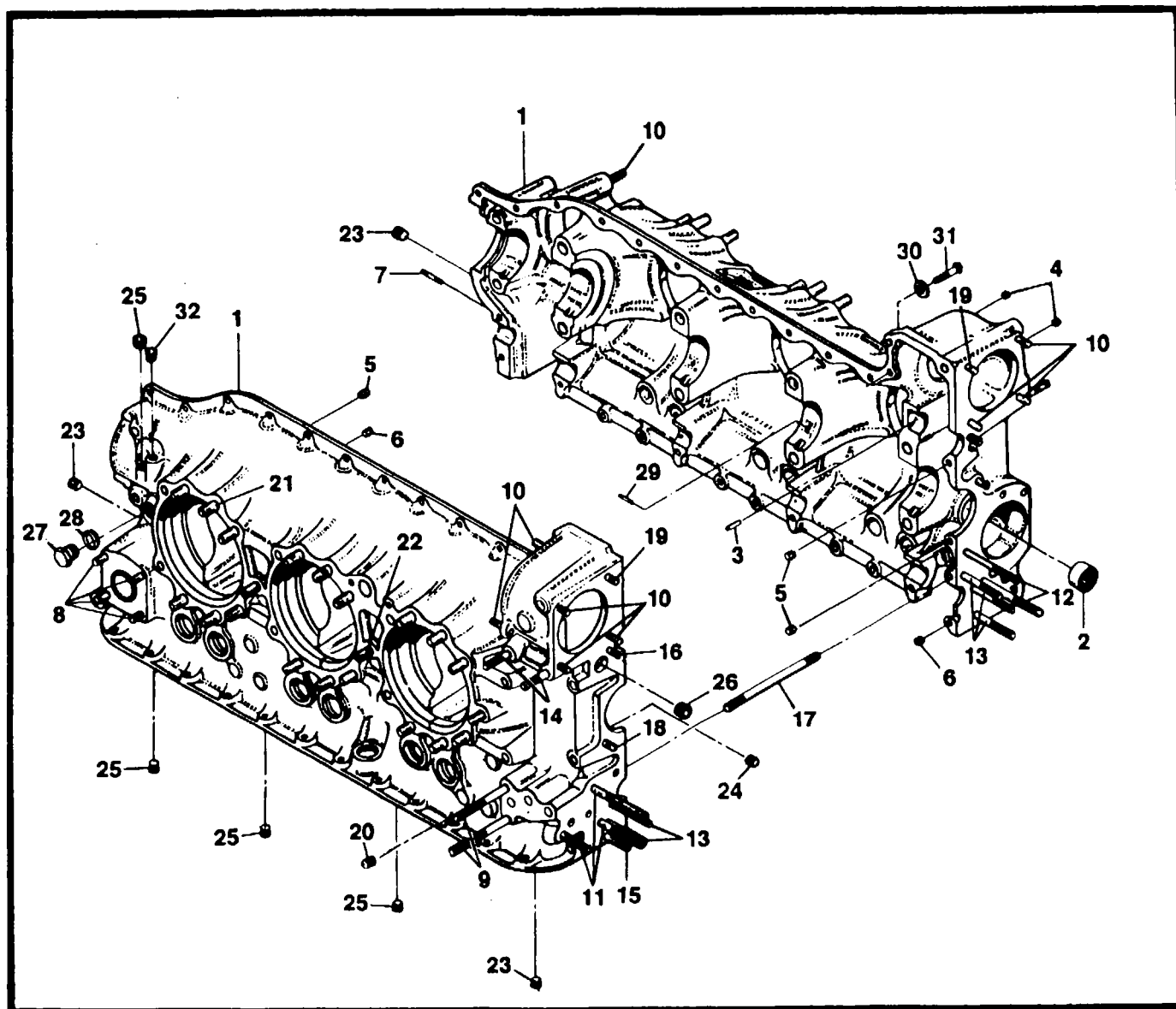


FIGURE 11-4. CRANKCASE STUDDING ASSEMBLY IO-520-B, BA, BB

FIG. & INDEX	PART NUMBER	1 2 3	DESCRIPTION	QUANTITY		
				B	BA	BB
11-4	- 1	652540-1	①②③ Studding Assembly, Crankcase	1	1	
	-1	652540-2	①②③ Studding Assembly, Crankcase			1
	-2	630899	. Bearing, Needle	1	1	1
	-3	630873	. Dowel, 3/16 X 1/2 Inch Long	1	1	1
	-4	MS122163	. Helical Coil	2	2	2
	-5	MS122162	. Helical Coil	3	3	3
	-6	MS122122	. Helical Coil	2	2	2
	-7	401804	† . Stud, 1/4 X 1-1/16 Inch Long	2	2	2
	-8	401814	† . Stud, 5/16 X 1-7/8 Inch Long	4	4	4
	-9	402127	† . Stud, 3/8 X 1-19/32 Inch Long	2	2	2
	-10	401885	† . Stud, 5/16 X 1-5/16 Inch Long	14	14	14
	-11	401927	† . Stud, 3/8 X 3-1/2 Inch Long	3	3	3
	-12	401932	† . Stud, 5/16 X 4-1/8 Inch Long	2	2	2
	-13	401936	† . Stud, 1/4 X 3-7/8 Inch Long	5	5	5
	-14	401965	† . Stud, 3/8 X 1-13/32 Inch Long	2	2	2
	-15	401962	† . Stud, 1/4 X 2-3/16 Inch Long	1	1	1
	-16	401963	† . Stud, 5/16 X 2-5/16 Inch Long	2	2	2
	-17	402034	† . Stud, 5/16 X 6 Inch Long	1	1	1
	-18	402151	† . Stud, 5/16 X 1-1/4 Inch Long	2	2	2
	-19	401965	† . Stud, 3/8 X 1-13/32 Inch Long	2	2	2
	-20	MS27769C2	. Plug, 1/8 - 27 NPTF	1	1	1
	-21	646140-1	. Stud, 7/16 X 2-1/16 Inch Long	36	36	36
	-22	646140-2	. Stud, 7/16 X 2-1/16 Inch Long	6	6	6
	-23	401752	. Plug, Pipe, 1/8 - 27	3	3	3
	-24	MS27769C2	. Plug, Pipe	1	1	1
	-25	402941	. Plug, Pipe, 1/16 - 27	4	4	4
	-26	2025	. Plug, Pipe, 3/8 - 18	1	1	1
	-27	532432	. Plug, Machine Thread, 5/8 - 18	1	1	1
	-28	MS35769-11	. Gasket, Copper	1	1	1
	-29	629847	. Nozzle, Squirt	6	6	6
	-30	539374	. Washer, Plain	1	1	1
	-31	AN5-13A	. Bolt	1	1	1
	-32	629518-1H	. Plug, 1/8 - 27 NPTF	1	1	1

NOTES:

- ① See the following pages for IO-520-C, CB, M & MB crankcase studding assemblies.
- ② Replacement of older configuration non 7th stud crankcase requires purchase of EQ6530 Kit for the 652540-1 & 2 crankcase .
- ③ If replacing crankcase with new 7th stud crankcase see TCM Service Bulletin M90-16.

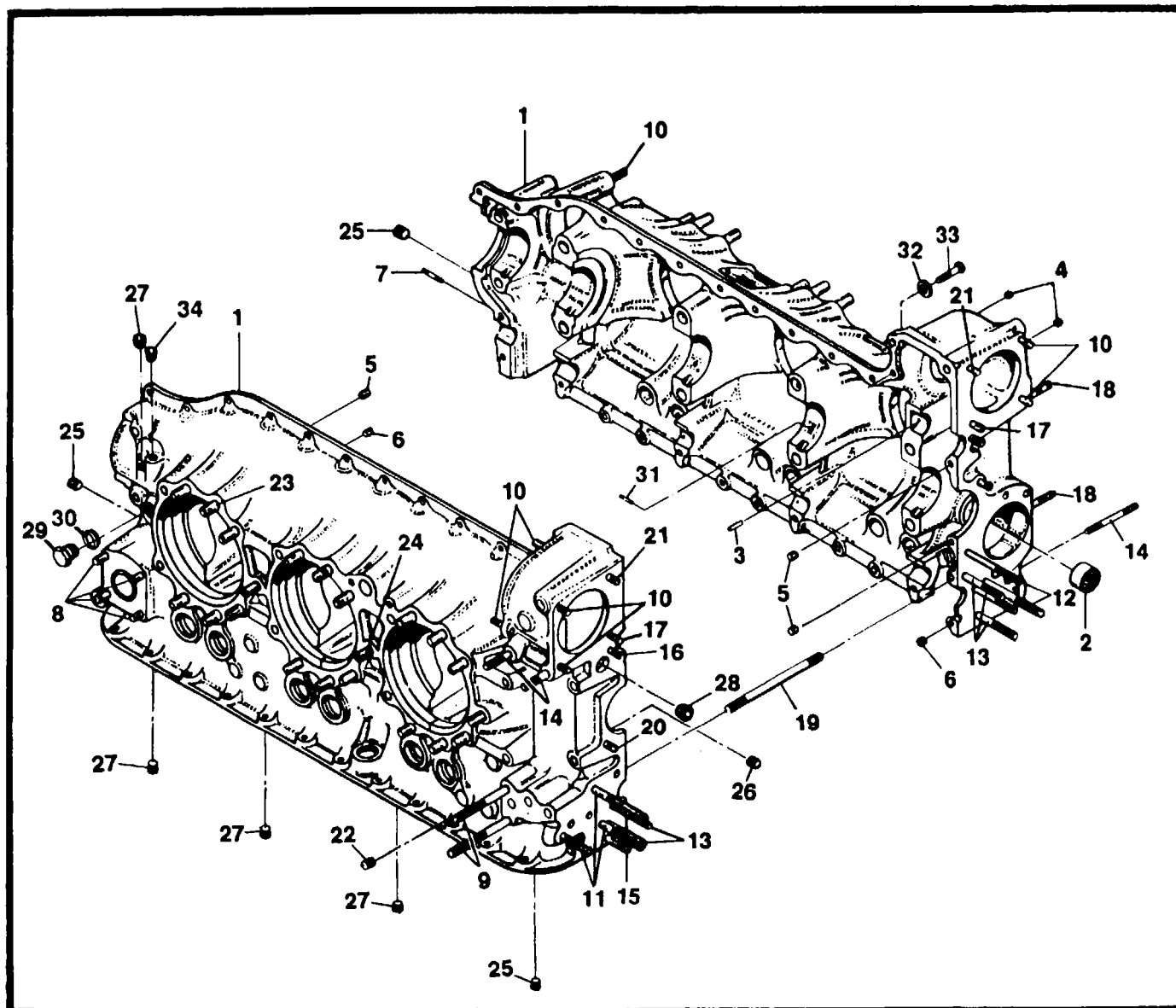


FIGURE 11-5. CRANKCASE STUDDING ASSEMBLY IO-520-C, CB

FIG. & INDEX	PART NUMBER	1 2 3	DESCRIPTION	QUANTITY	
				C	CB
11-5	-1	652538-1	① ② Studding Assembly, Crankcase		1
	-1	652538-4	① ② Studding Assembly, Crankcase	1	
	-2	630899	. Bearing, Needle	1	1
	-3	630873	. Dowel, 3/16 X 1/2 Inch Long	1	1
	-4	MS122163	. Helical Coil	2	2
	-5	MS122162	. Helical Coil	3	3
	-6	MS122122	. Helical Coil	2	2
	-7	401804	† Stud, 1/4 X 1-1/16 Inch Long	2	2
	-8	401814	† Stud, 5/16 X 1-7/8 Inch Long	4	4
	-9	401842	† Stud, 3/8 X 2-9/16 Inch Long	2	2
	-10	401885	† Stud, 5/16 X 1-5/16 Inch Long	12	12
	-11	401927	† Stud, 3/8 X 3-1/2 Inch Long	3	3
	-12	401932	† Stud, 5/16 X 4-1/8 Inch Long	2	2
	-13	401936	† Stud, 1/4 X 3-7/8 Inch Long	5	5
	-14	401944	† Stud, 3/8 X 2-7/16 Inch Long	3	3
	-15	401962	† Stud, 1/4 X 2-3/16 Inch Long	1	1
	-16	401963	† Stud, 5/16 X 2-5/16 Inch Long	2	2
	-17	401863	† Stud, 5/16 X 2-5/16 Inch Long	2	2
	-18	401977	† Stud, 3/8 X 2-3/32 Inch Long	4	4
	-19	524183	† Stud, 5/16 X 6-7/8 Inch long	1	1
	-20	402151	† Stud, 5/16 X 1-1/4 Inch Long	2	2
	-21	401965	† Stud, 3/8 X 1-13/32 Inch Long	2	2
	-22	MS27769-C2	. Plug, 1/8 - 27 NPTF	1	1
	-23	646140-1	. Stud, 7/16 X 2-1/16 Inch long	36	36
	-24	646140-2	. Stud, 7/16 X 2-1/16 Inch Long	6	6
	-25	401752	. Plug, Pipe, 1/8 - 27	3	3
	-26	MS27769C2	. Plug, Pipe	1	1
	-27	402941	. Plug, Pipe, 1/16 - 27	4	4
	-28	2025	. Plug, Pipe, 3/8 - 18	1	1
	-29	532432	. Plug, Machine Thread, 5/8 - 18	1	1
	-30	MS35769-11	. Gasket, Copper	1	1
	-31	629847	. Nozzle, Squirt	6	6
	-32	539374	. Washer, Plain	1	1
	-33	AN5-13A	. Bolt	1	1
	-34	629518-1H	. Plug, 1/8 - 27 NPTF	1	1

NOTES:

- ① See the following pages for IO-520-M & MB crankcase studding assemblies.
- ② Replacement of older configuration non 7th stud crankcase requires purchase of EQ6531 Kit for the 652538-1 & 4 crankcase .

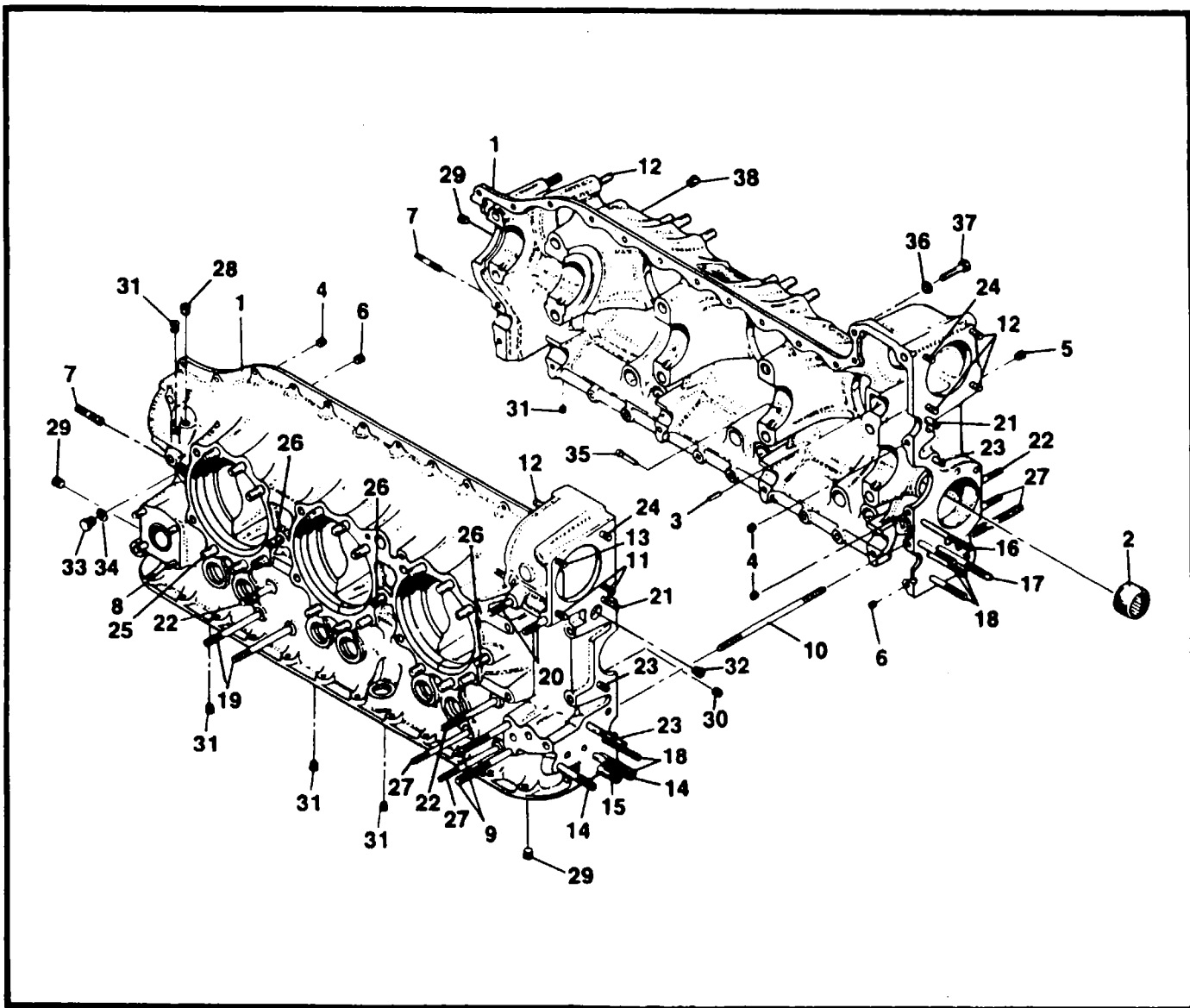


FIGURE 11-6. CRANKCASE STUDDING ASSEMBLY IO-520-M, MB

FIG. & INDEX	PART NUMBER	1 2 3	DESCRIPTION	QUANTITY	
				M	MB
11-6	-1	652539-6	① Studding Assembly, Crankcase	1	
	-1	652539-5	① Studding Assembly, Crankcase		1
	-2	630899	. Bearing, Needle	1	1
	-3	630873	. Dowel, 3/16 X 1/2 Inch Long	1	1
	-4	MS122162	. Insert, Thread	3	3
	-5	MS122163	. Insert, Thread	2	2
	-6	MS122122	. Insert	2	2
	-7	401804	+ Stud, 1/4 X 1-1/16 Inch Long	2	2
	-8	401814	+ Stud, 5/16 X 1-7/8 Inch Long	4	4
	-9	401860	+ Stud, 3/8 X 1-3/4	2	2
	-10	402034	+ Stud, 5/16 X 6-3/8 Inch Long	1	1
	-11	401885	+ Stud, 5/16 X 1-9/16 Inch Long	2	2
	-12	401885	+ Stud, 5/16 X 1-5/16 Inch Long	11	11
	-13	401885	+ Stud, 5/16 X 1-3/8 Inch Long	1	1
	-14	401927	+ Stud, 3/8 X 3-1/2 Inch Long	3	3
	-15	401962	+ Stud, 1/4 X 2-3/16 Inch Long	1	1
	-16	401932	+ Stud, 5/16 X 4-1/8 Inch Long	1	1
	-17	401932	+ Stud, 5/16 X 4-23/32	1	1
	-18	401936	+ Stud, 1/4 X 3-7/8 Inch Long	5	5
	-19	401873	+ Stud, 3/8 X 3-7/8 Inch Long	4	4
	-20	401965	+ Stud, 3/8 X 1-5/8 Inch Long	2	2
	-21	401963	+ Stud, 1/4 X 1 Inch Long	2	2
	-22	401977	+ Stud, 3/8 X 2-3/32 Inch Long	4	4
	-23	402151	+ Stud, 5/16 X 1-1/4 Inch Long	2	2
	-24	401965	+ Stud, 3/8 X 1-13/32 Inch Long	2	2
	-25	646140-1	+ Stud, 7/16 X 2-1/16 Inch Long	36	36
	-26	646140-2	+ Stud, 7/16 X 2-1/16 Inch Long	6	6
	-27	401873	+ Stud, 3/8 X 4-5/16 Inch Long	4	4
	-28	629518-1H	. Plug, Pipe 1/8 - 27 NPTF	1	1
	-29	401752	. Plug, Pipe 1/8 - 27 NPTF	3	3
	-30	MS27769C2	. Plug, Pipe 1/8 - 27 NPTF	1	1
	-31	402941	. Plug, Pipe 1/16 X 27	4	4
	-32	2025	. Plug, Pipe	1	1
	-33	532432	. Plug, Machine Thread, 5/8 - 18	1	1
	-34	MS35769-11	\$ Gasket, Copper	1	1
	-35	633874	. Nozzle, Squirt	6	6
	-36	539374	. Washer, Plain	1	1
	-37	AN5-13A	. Bolt	1	1
	-38	629518-1H	. Plug	1	1

NOTE:

- ① Replacement of older configuration non 7th stud crankcase requires purchase of EQ6531 Kit for the 652539-5 & 6 crankcase .

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CHAPTER 12

ENGINE DRIVE TRAIN

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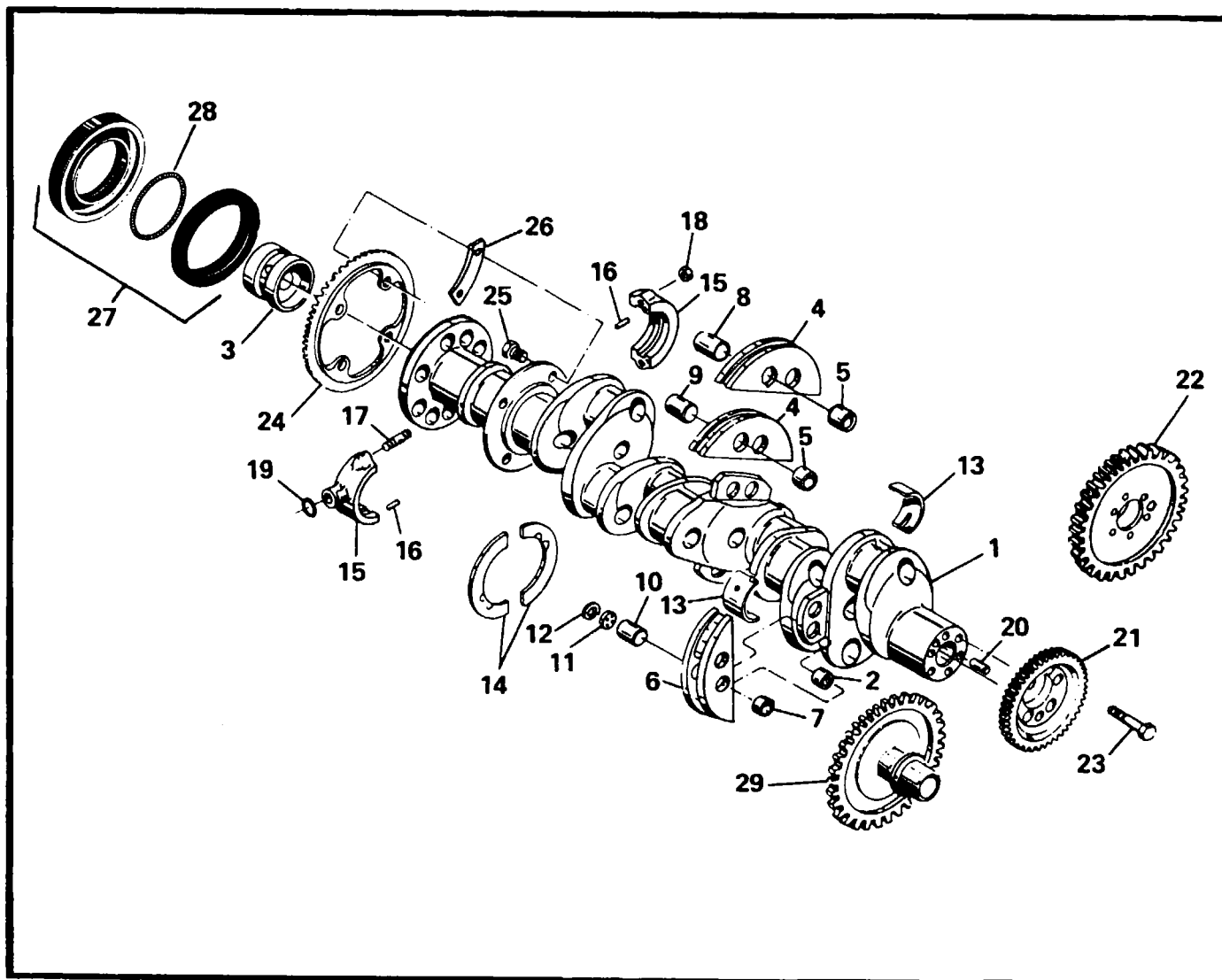


FIGURE 12-1. ENGINE DRIVE TRAIN (CRANKSHAFT GROUP) IO-520-B, BA, C, M

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY			
			B	BA	C	M
12-1	-1	649896		1		
		649895	1		1	1
	-2	350998	8	8	8	8
	-3	633189	1	1	1	1
	-4	639196	2	2	2	2
	-5	639193	4	4	4	4
	-6	639195	2	2	2	2
	-7	639193	4	4	4	4
	-8	643626-103	2	2	2	2
	-8	643626-104	2		2	2
	-9	643626-101		2		
	-10	643626-101	4	4	4	4
ATTACHING PARTS						
-11	643629	Plate, Pin Retaining	16	16	16	16

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY			
			B	BA	C	M
12-1	-12	629104 . Ring, Retaining	16	16	16	16

	-13	642839 \$ † Bearing, Crankshaft, Main	10	10	10	10
	-14	646288 \$ Washer, Thrust	4	4	4	4
	-15	629680 † Collar Assembly	1	1	1	1
	-16	626889 . Dowel	2	2	2	2
	-17	401893 † . Stud, 1/4 X 1-1/4 Inch Long	2	2	2	2
	-18	MS21042-4 . Nut, Marsden, Lock	2	2	2	2
	-19	AN123962 \$ O-Ring	1	1	1	1
	-20	536563 † Dowel, Crankshaft-to-Gear	1	1	1	1
	-21	632892 Gear, Crankshaft, Small	1	1	1	1
	-22	632893 Gear, Crankshaft, Large	1	1	1	1
		ATTACHING PARTS				
	-23	536379 Screw	6	6	6	6

	-24	632018 Gear, Face, Alternator Drive	1	1	1	1
		ATTACHING PARTS				
	-25	649205 Screw, 5/16 - 24 X 13/32 Inch Long	4	4	4	4
	-26	641909 Lock Plates	2	2	2	2

	-27	641250 Seal Assembly, Oil	1	1	1	1
	-28	641306 . Spring	1	1	1	1
	-29	629360 Gear, Idler	1	1	1	1

NOTES:

See Page 1-5 for complete Bearing Set.

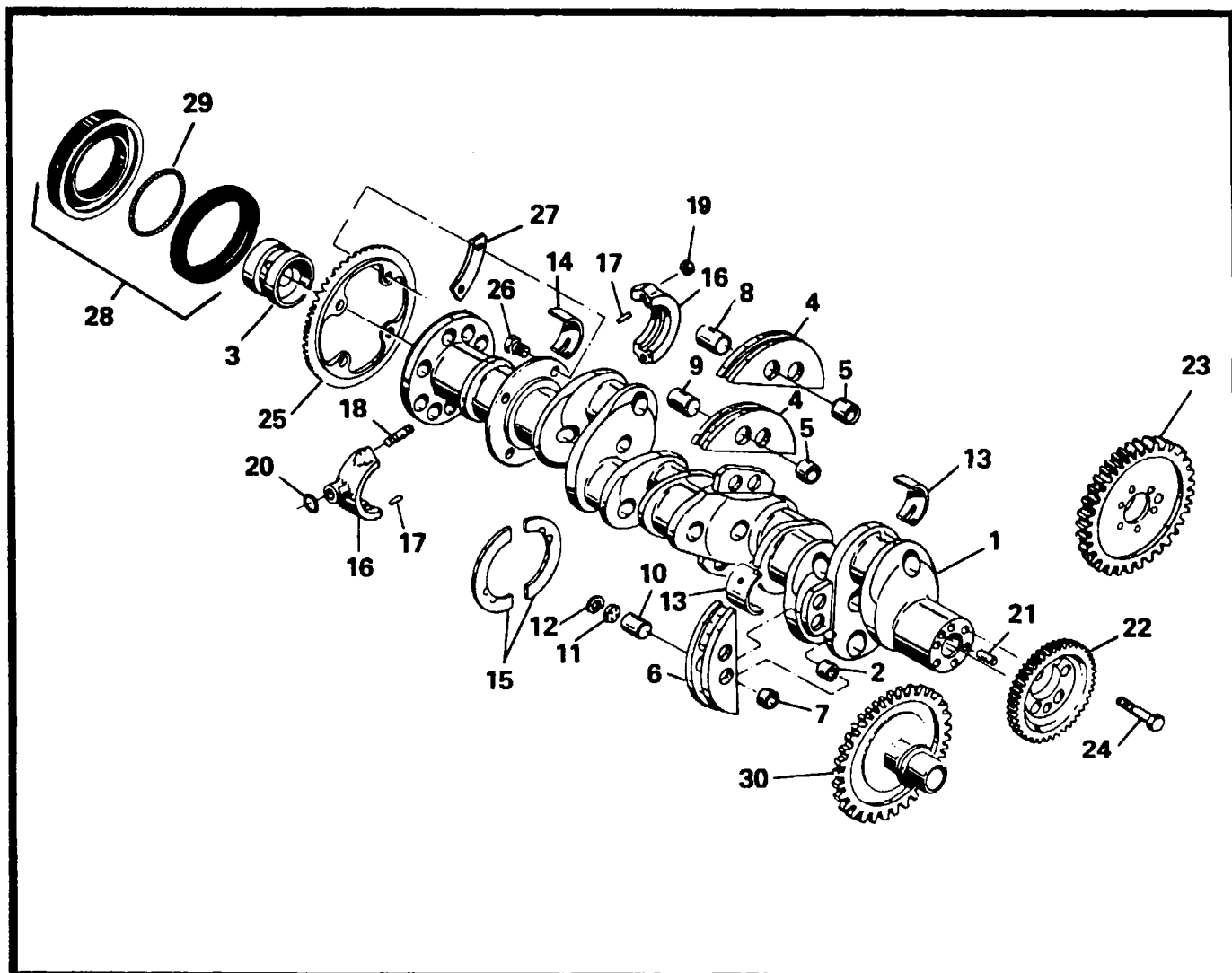


FIGURE 12-2. ENGINE DRIVE TRAIN (CRANKSHAFT GROUP) IO-520-BB, CB, MB

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY		
			BB	CB	MB
12-2	-1	649898 Crankshaft and Counterweight Assembly	1	1	1
	-2	350998 Bushing, Counterweight Hanger Blade	8	8	8
	-3	633189 Plug, Oil Control	1	1	1
	-4	639196 Counterweight Assy., (Cheek No. 5)	2	2	2
	-5	639193 Bushing	4	4	4
	-6	639195 Counterweight Assy., (Cheek No. 2)	2	2	2
	-7	639193 Bushing	4	4	4
	-8	643626-103 Pin, Counterweight, 4th Order	2	2	2
	-9	643626-104 Pin, Counterweight, 5th Order	2	2	2
	-10	643626-105 Pin, Counterweight, 6th Order	4	4	4
		ATTACHING PARTS			
	-11	643629 Plate, Pin Retaining	16	16	16

FIG. & INDEX	PART NUMBER	1	2	3	DESCRIPTION	QUANTITY		
						BB	CB	MB
12-2	-12	629104			Ring, Retaining	16	16	16

	-13	642720	\$	†	Bearing, Crankshaft, Main	4	4	4
	-14	634503	\$	†	Bearing, Crankshaft, Main	6	6	6
	-15	646288	\$	†	Washer, Thrust	4	4	4
	-16	629680		†	Collar Assembly	1	1	1
	-17	626889			Dowel	2	2	2
	-18	401893		†	Stud, 1/4 - 1-1/4 Inch Long	2	2	2
	-19	MS21042-4			Nut, Marsden, Lock	2	2	2
	-20	AN123962	\$		O-Ring	1	1	1
	-21	536563		†	Dowel, Crankshaft-to-Gear	1	1	1
	-22	632892			Gear, Crankshaft, Small	1	1	1
	-23	632893			Gear, Crankshaft, Large	1	1	1
					ATTACHING PARTS			
	-24	536379			Screw	6	6	6

	-25	632018			Gear, Face, Alternator Drive	1	1	1
					ATTACHING PARTS			
	-26	649205			Screw, 5/16 - 24 X 13/32 Inch Long	4	4	4
	-27	641909			Lock Plates	2	2	2

	-28	641250			Seal Assembly, Oil	1	1	1
	-29	641306			Spring	1	1	1
	-30	629360			Gear, Idler	1	1	1

NOTE:

See Page 1-5 for complete Bearing Set.

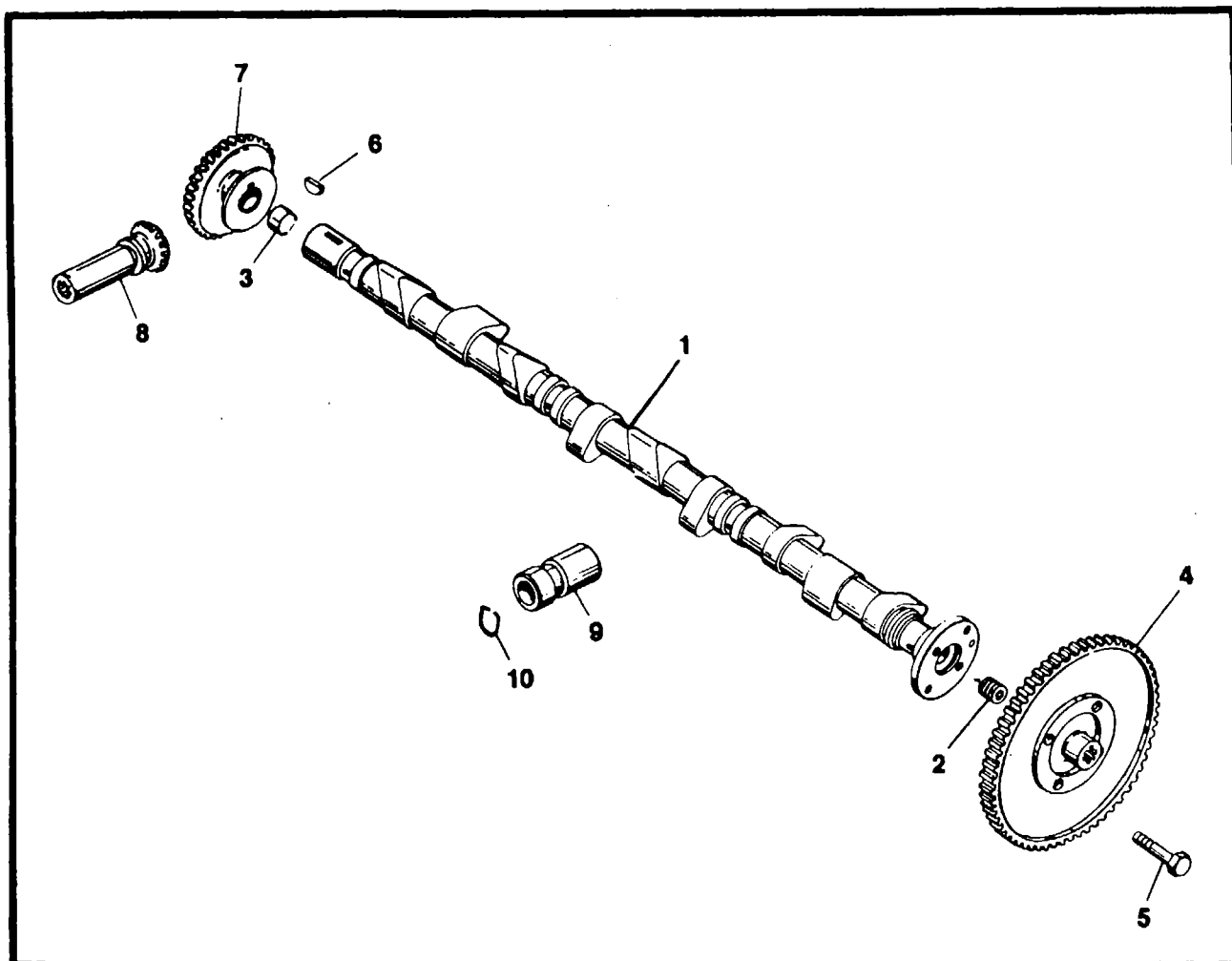


FIGURE 12-3. ENGINE DRIVE TRAIN (CAMSHAFT GROUP)

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY						
			B	BA	BB	C	CB	M	MB
12-3	-1	653058 † Camshaft, Service	1	1	1	1	1	1	1
	-2	524818 Plug, Pipe, 1/4 - 18 NPTF	1	1	1	1	1	1	1
	-3	632092-4 Plug, Expansion	1	1	1	1	1	1	1
	-4	631845 Gear, Camshaft	1	1	1	1	1	1	1
	ATTACHING PARTS								
	-5	631088.44 Screw, 5/16 - 24 X 7/16 Inch Long	4	4	4	4	4	4	4

	-6	MS35756-8 Key, Woodruff	1	1	1	1	1	1	1
	-7	629748 Gear, Bevel, Governor Drive	11	1	1	1	1	1	1
	-8	629747 Gear, Bevel, Governor Drive	1	1	1	1	1	1	1
	-9	646277 Tappet, Hydraulic, Exhaust	6	6	6	6	6	6	6
	-9	628488 Tappet, Hydraulic, Intake	6	6	6	6	6	6	6
	-10	641862 Ring, Snap	1	1	1	1	1	1	1

NOTE:

Tappet 646277 must be used with nitralloy valve guides.

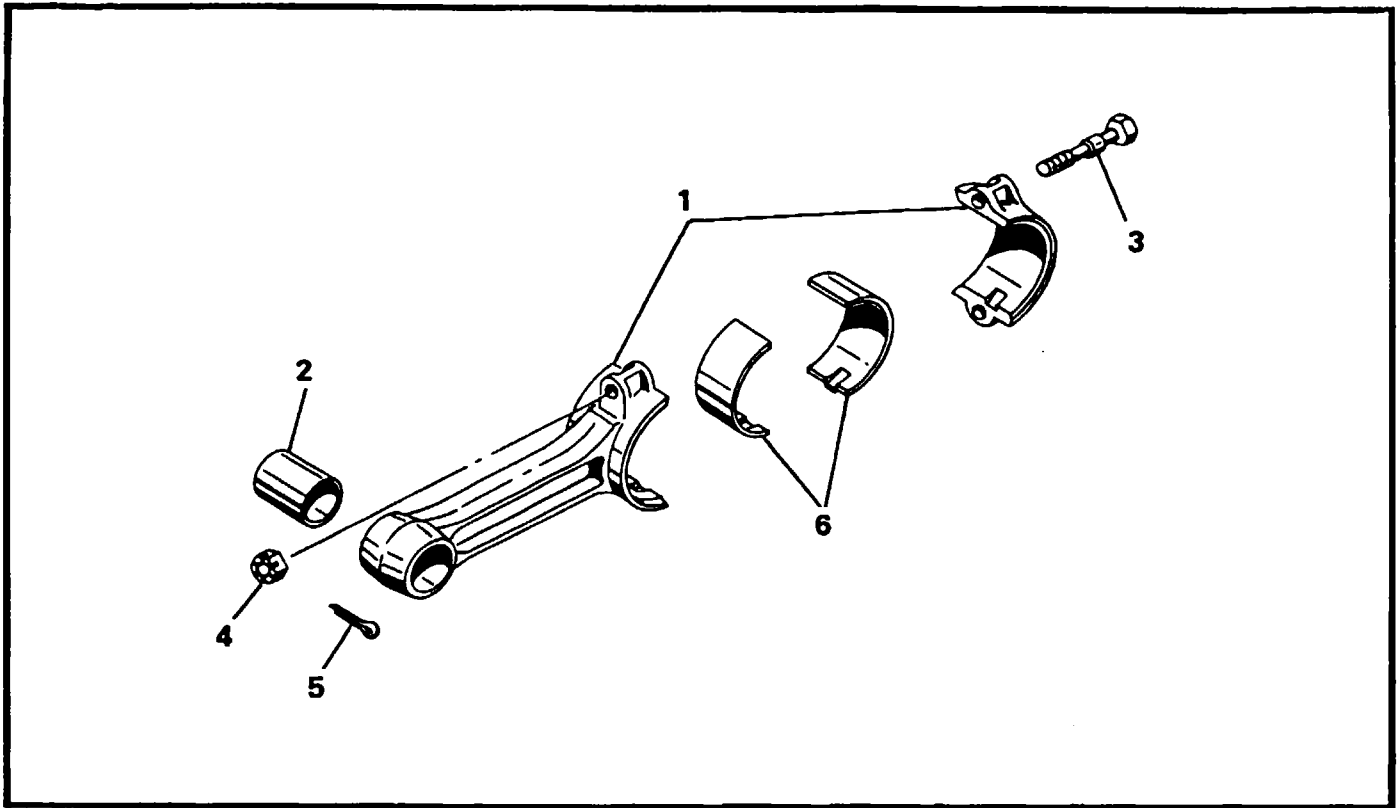


FIGURE 12-4. ENGINE DRIVE TRAIN (CONNECTING ROD ASSEMBLY)

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY			
			B	BA	C	M
12-4	-1 646778	Connecting Rod Assembly	6	6	6	6
	-2 530658	. Bushing, Piston Pin	1	1	1	1
	-3 629340	. Bolt, Connecting Rod	2	2	2	2
	-4 628109	. Nut, 7/16 - 28, Slotted, Special	2	2	2	2
	-5 MS24665-229	. Pin, Cotter	2	2	2	2
	-6 630826 †	Bearing, Connecting Rod	12	12	12	12

FIG. & INDEX	PART NUMBER	1 2 3 DESCRIPTION	QUANTITY		
			BB	CB	MB
12-5	-1 646476	Connecting Rod Assembly	6	6	6
	-2 530658	. Bushing, Piston Pin	1	1	1
	-3 629340	. Bolt, Connecting	2	2	2
	-4 628109	. Nut, 7/16 - 28, Slotted, Special	2	2	2
	-5 MS24665-229	. Pin, Cotter	2	2	2
	-6 642398 †	Bearing, Connecting Rod	12	12	12

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