

T.O. 35A2-2-44-4

★  
**TECHNICAL MANUAL**  
**ILLUSTRATED PARTS BREAKDOWN**

**TYPE F-1 20 TON CAPACITY AIRCRAFT**  
**HYDRAULIC AXLE HAND JACK**

**PART NO. 53D22034**

**AIR FORCE STOCK NO. 5120-540-1238**

(COLUMBUS JACK)

**COLUMBUS JACK CORPORATION**  
**1000 S. FRONT STREET**  
**COLUMBUS, OHIO 43206**

**PUBLISHED UNDER AUTHORITY OF THE SECRETARY OF THE AIR FORCE**

T. O. 35A2-2-44-4

Reproduction for nonmilitary use of the information or illustrations contained in this publication is not permitted without specific approval of the issuing service (BuAer or USAF). The policy for use of Classified Publications is established for the Air Force in AFR 205-1 and for the Navy in Navy Regulations, Article 1509.

**LIST OF EFFECTIVE PAGES**

INSERT LATEST CHANGED PAGES. DESTROY SUPERSEDED PAGES.

NOTE: The portion of the text affected by the changes is indicated by a vertical line in the outer margins of the page.

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS **14** , CONSISTING OF THE FOLLOWING:

Page No.	Issue
Title .....	Original
A .....	Original
1 .....	Original
ii Blank .....	Original
1-1 thru 1-2 .....	Original
2-1 thru 2-5 .....	Original
2-6 Blank .....	Original
3-1 thru 3-2 .....	Original

\* The asterisk indicates pages changed, added, or deleted by the current change.

ADDITIONAL COPIES OF THIS PUBLICATION MAY BE OBTAINED AS FOLLOWS:

USAF ACTIVITIES.—In accordance with T.O. 00-5-2.

**USAF**

NAVY ACTIVITIES.—Submit request to nearest supply point listed below, using form NavAer 140; NASD, Philadelphia, Pa.; NAS, Alameda, Calif.; NAS, Jacksonville, Fla.; NAS, Norfolk, Va.; NAS, San Diego, Calif.; NAS, Seattle, Wash.; ASD, NSC, Guam.

For listing of available material and details of distribution see Naval Aeronautics Publications Index NavAer 00-500.

**TABLE OF CONTENTS**

<u>Section</u>		<u>Page</u>
I	INTRODUCTION .....	1-1
II	GROUP ASSEMBLY PARTS LIST .....	2-1
	Type F-1, 20 Ton Capacity, Axle Hydraulic Hand Jack ..	2-1
	Lift .....	2-5
III	NUMERICAL INDEX .....	3-1

**LIST OF ILLUSTRATIONS**

<u>Figure</u>	<u>Title</u>	<u>Page</u>
1	Type F-1, 20 Ton Capacity, Axle Hydraulic Hand Jack ..	2-2
2	Lift, Exploded View .....	2-4

## SECTION I

### INTRODUCTION

#### 1-1. GENERAL.

a. This catalog lists and describes the parts for the Type F-1, 20 Ton Capacity Aircraft Hydraulic Axle Hand Jack manufactured by the Columbus Jack Corporation, Columbus, Ohio. The catalog is divided into three sections as shown in the Table of Contents.

b. The Table of Contents at the front of the catalog shows the method of grouping the parts and the sequence of the groups.

c. The Group Assembly Parts List (Section II) consists of the complete jack divided into four main groups as shown in the Table of Contents. Each assembly listed is followed immediately by its component parts properly indented, thereunder, to show their relationship to the assembly. Component parts of the complete jack which are not included in any assembly, but which are used in conjunction with, attach, or attach to a certain assembly, are listed either preceding the first detail or following the last detail of that assembly, and in line with the major assembly.

d. The quantities listed in the "Units Per Assy" column of the Group Assembly Parts List, are, in the case of assemblies, the total quantity used per jack at the location indicated, while the component parts indented under the assemblies are the quantity used per assembly. The quantities specified therefore, are not necessarily the total used per jack. Refer to the Numerical Index (Section III) for the total quantities used per jack.

e. Part numbers are used exclusively to identify parts.

f. The index numbers are numerically arranged in the Group Assembly Parts List and are used mainly in locating a part in the Group Assembly Parts List after it has been found in the Numerical Index.

g. The Numerical Index (Section III) is compiled in accordance with the numerical part number filing system described below:

(1) Part number numerical arrangement starts on the left-hand column and continues from left to right, one column at a time, until part number numerical arrangement is determined.

(2) The order of precedence in part number numerical arrangement is as follows:

- (1) Space (blank column).
- (2) Dash (-).
- (3) Letters A through Z.
- (4) Numerals 0 through 9.

SOURCE CODING - Source coding as applied to numer-

ical index has been assigned by Department representatives.

#### SOURCE CODE DEFINITIONS - FOR NON-KITTED ITEMS (AIR FORCE ONLY)

##### a. CODE "P" - PARTS UNDER INVENTORY STOCK CONTROL

(1) CODE "P" is applied to parts on which usage is anticipated or known. CODE "P" parts may be requisitioned and installed by any maintenance level unless followed by the letter "D" (depot), which restricts requisition and replacement to depot level only. Restricted service manufacture is considered practicable, but only after an attempt has been made to procure from supply sources.

(2) CODE "P1" is applied to parts which are very difficult, impractical, or uneconomical to manufacture. CODE "P1" parts may be requisitioned and installed by any maintenance level unless followed by the letter "D" (depot), which restricts requisition and replacement to depot level only.

##### b. CODE "M" MANUFACTURE - PARTS NOT PROCURED

(1) CODE "M" is applied to parts which are within the capabilities of any activity to manufacture. Procurement is not justified in view of relatively low usage, or storage and installation factors of these parts. Needs are to be met by local manufacturer only as required.

(2) CODE "M1" is applied to parts which can be manufactured only by utilizing the capabilities of the depot. Procurement and stocking of these parts is not justified in view of their relatively low usage and installation factors. Needs of all activities are to be met through manufacture or by requisition from the nearest appropriate depot.

##### c. CODE "A" ASSEMBLE - ASSEMBLY NOT PROCURED

(1) CODE "A" is applied to assemblies made up of two or more parts, at least one of which is purchased and carries an individual part number and description, which may be assembled by any maintenance level.

(2) CODE "A1" is applied to assemblies made up of two or more parts, at least one of which is purchased and carries an individual part number and description, which may be assembled only by activities having depot facilities.

##### d. CODE "X" - PARTS CONSIDERED IMPRACTICABLE FOR MANUFACTURE OR PROCUREMENT

Section I  
Paragraph 1-1

T. O. 35A2-2-44-4

(1) CODE "X" is applied to main structural members of similar parts which, if required, would suggest extensive repair. The need of a part or parts CODED "X" should normally result in a recommendation to retire the article from service.

(2) CODE "X1" is applied to parts for which procurement of the next larger assembly so coded "P1" is justified; e.g. an integral detail part such as a welded segment inseparable from its assembly, a part machined in a matched set, or a part of an assembly, which if required, would suggest extensive reconditioning of each assembly.

(3) CODE "X2" is applied to parts which are not procured for stock, but may be acquired for use through salvage and reclamation. Activities requiring such parts shall attempt to obtain from salvage; if not obtainable from salvage, such parts shall be requisitioned through normal supply channels with supporting justification. Repeated request shall justify change in code to "P1", if considered economical to procure and stock such parts.

e. CODE \*- PARTS NOT PROCURED, MANUFACTURED OR STOCKED

(1) CODE \* is applied to installation drawings, diagrams, instruction sheets, field service drawing numbers, and obsolete parts which cannot be procured or manufactured.

SOURCE CODE DEFINITIONS - FOR KITTED ITEMS (FOR AIR FORCE ONLY)

a. CODE "C" - CURE-DATED COMPONENTS KIT

(1) CODE "C" is applied to kits containing replacement for parts subject to deterioration due to aging or exposure to aromatic fuels, such as rubber gaskets, seals, and "O" Rings. C-Kit is available to maintenance activities authorized to replace expired cure-dated parts as necessary at overhaul, minor repair, or other times as required by pertinent directives. This kit may include non-cure dated gaskets, packings, etc., necessary for reassembly after technical order compliance or repair.

b. CODE "D" - MAJOR OVERHAUL KIT

(1) CODE "D" is applied to kits which are available only to maintenance activities authorized to perform depot or major overhaul. These kits do not contain cure-dated parts.

c. CODE "F" - MINOR OR FIELD REPAIR KIT

(1) CODE "F" is applied to kits which are available to maintenance activities authorized to perform minor or field repair, including overhaul activities in support of field activities. These kits do not contain cure-dated parts.

d. CODE "KC" - COMPONENT OF C-KIT

(1) CODE "KC" is applied to items which are components of a C-Kit. Also stocked separately in the appropriate class if followed by the letter "P".

e. CODE "KD" - COMPONENT OF D-KIT

(1) CODE "KD" is applied to items which are components of a D-Kit. Also stocked separately in the appropriate class if followed by the letter "P".

f. CODE "KF" - COMPONENT OF F-KIT

(1) CODE "KF" is applied to items which are components of an F-Kit. Also stocked separately in the appropriate class if followed by the letter "P".

g. CODE "KFD" - COMPONENT OF BOTH F-KIT AND D-KIT

(1) CODE "KFD" is applied to items which are components of both an F-Kit and a D-Kit. Also stocked separately in the appropriate class if followed by the letter "P". When the stock number of an item does not appear in the Numerical Index of the Illustrated Parts Breakdown, reference should be made to the S-00-1 Master Numerical Index. S-00-1 is a cross reference of contractor's part numbers to the Air Force stock numbers.

VENDORS' CODE

CODE	VENDORS' NAME AND ADDRESS
72064	EASTMAN MANUFACTURING CO., Manitowoc, Wis.
91939	MINNESOTA RUBBER AND GASKET CO., Detroit, Mich.

HOW TO FIND THE PART NUMBER IF THE PART USED IS KNOWN:

(1) Turn to the Table of Contents and find the page number for the Major Assembly or System in which the part is used.

(2) Turn to the page determined in step (1).

(3) Locate the part and its index number on the illustration.

(4) Find the index number on the Group Assembly Parts List page to determine complete description.

HOW TO FIND THE ILLUSTRATION FOR A PART IF THE PART NUMBER IS KNOWN:

(5) Refer to Section III, the Numerical Index, and find the part number.

(6) Turn to Section II and find the first figure and index number indicated in the Numerical Index for that part. If this figure shows the part in a section of the equipment other than the one desired, refer to the other figure numbers listed in the Numerical Index.

(7) On the face of the illustration, find the index number determined in step (6).

**SECTION II**  
**GROUP ASSEMBLY PARTS LIST**

Fig. & Index No.	Part Number	Description						Units Per Assy.	Usable on Code
		1	2	3	4	5	6		
1-	53D22034	JACK, HAND, HYDRAULIC, AXLE, 20 TON CA- . . .						1	
-1	53B22114	PACITY, TYPE F-1							
-2	53C22081	HANDLE, PUMP . . . . .						1	
		TOWBAR . . . . .						1	
		(ATTACHING PARTS)							
-3	AN380-4-5	PIN, COTTER . . . . .						2	
-4	53A22083	PIN, PIVOT . . . . .						1	
		---*---							
-5	53B22091	ARM, ROCKER, PUMP . . . . .						2	
		(ATTACHING PARTS)							
-6	AN380-3-3	PIN, COTTER . . . . .						4	
-7	AN395-35	PIN, FLAT HD . . . . .						2	
		---*---							
-8	53A22090	NUT, PACKING, SMALL . . . . .						1	
-9	53B22036-1	RING, PACKING BACKUP . . . . .						1	
-10	AN6227B-10	PACKING, "O" RING . . . . .						1	
-11	53A22106	PISTON, PUMP, SMALL . . . . .						1	
-12	53A22089	BODY, PUMP, SMALL . . . . .						1	
-13	53C22096-2	VALVE, PUMP . . . . .						1	
-14	53A22099	WASHER . . . . .						2	
-15	AN565F428H3	SCREW, SET . . . . .						1	
-16	53A22094	SPRING, HELICAL COMPRESSION, . . . . .						1	
		VALVE, BYPASS							
-17	216-1-12	BALL, ST . . . . .						1	
-18	53A22095	RING, RETAINER, VALVE . . . . .						1	
-19	53A22093	SPRING, HELICAL COMPRESSION, . . . . .						1	
		PRESSURE BALL, VALVE							
-20	216-1-16	BALL, ST . . . . .						2	
-21	53C22092-2	VALVE, PUMP . . . . .						1	
-22	53A22115	NUT, PACKING, PUMP, LARGE . . . . .						1	
-23	53B22036-2	RING, PACKING BACKUP . . . . .						1	
-24	AN6227B-13	PACKING, "O" RING . . . . .						1	
-25	53A22105	PISTON, PUMP, LARGE . . . . .						1	
-26	53A22070	BODY, PUMP, LARGE . . . . .						1	
-27	53C22096-1	VALVE, PUMP . . . . .						1	
-28	53A22099	WASHER . . . . .						2	
-29	AN565F428H3	SCREW, SET . . . . .						1	
-30	53A22094	SPRING, HELICAL, COMPRESSION, . . . . .						1	
		VALVE BYPASS							
-31	216-1-12	BALL, ST . . . . .						1	
-32	53A22095	RING, RETAINER, VALVE . . . . .						1	
-33	53A22093	SPRING, HELICAL COMPRESSION, . . . . .						1	
		PRESSURE BALL, VALVE							
-34	216-1-16	BALL, ST . . . . .						1	
-35	53C22092-1	VALVE, PUMP . . . . .						1	
-36	1961	UNION, ADAPTER (Manufactured by 72064.) . . . . .						1	
-37	53B22097	LINK, PUMP . . . . .						4	
		(ATTACHING PARTS)							
-38	AN395-25	PIN . . . . .						4	
-39	AN380-3-3	PIN, COTTER . . . . .						4	
		---*---							
-40	53A22045	SCREW, ADJUSTING, VALVE PLUG . . . . .						2	
-41	53A22098	GASKET, PUMP ADJUSTING PLUG . . . . .						2	
-42	AN932-4	PLUG . . . . .						1	

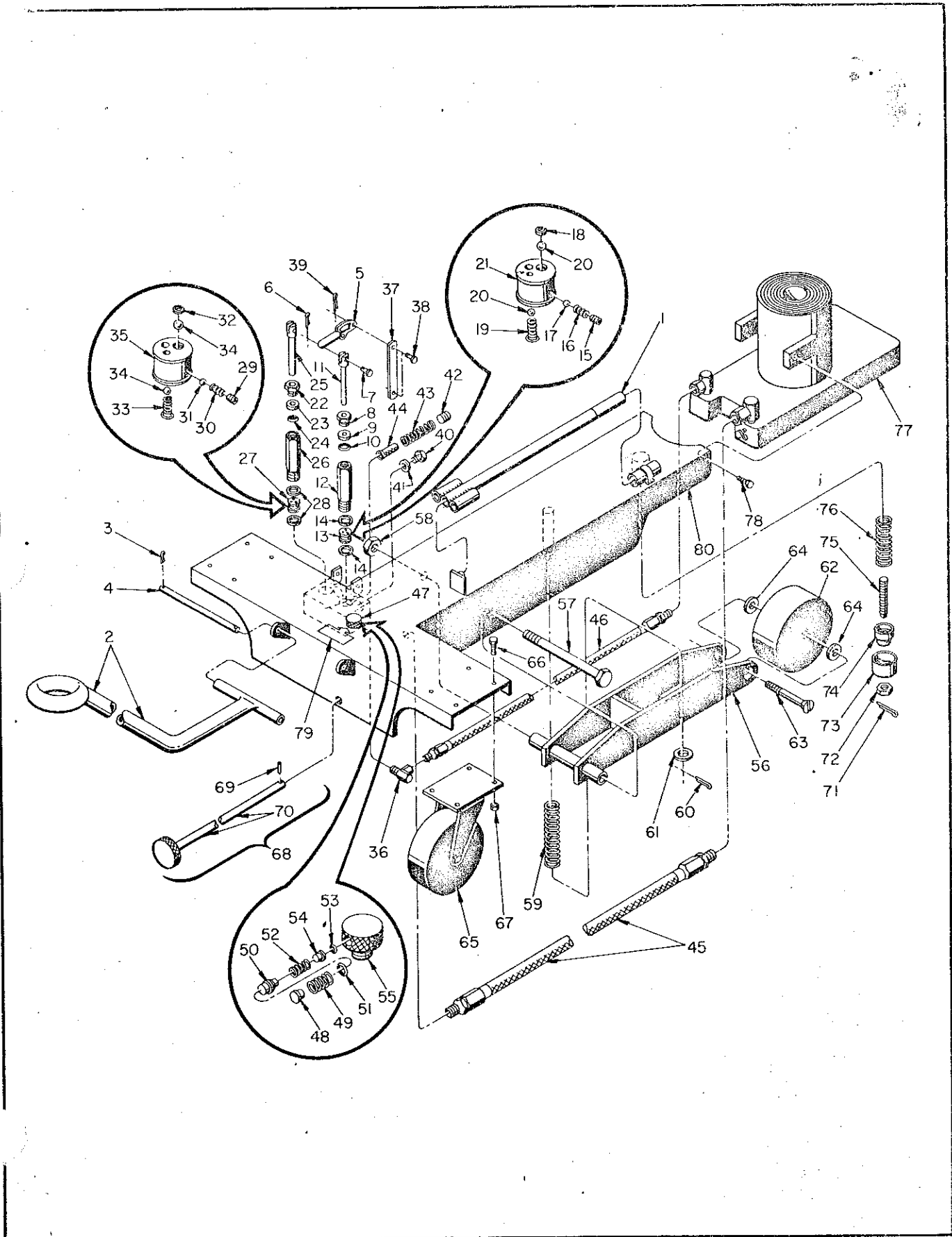


Figure 1. Type F-1, 20 Ton, Capacity Aircraft Hydraulic Axle Hand Jack



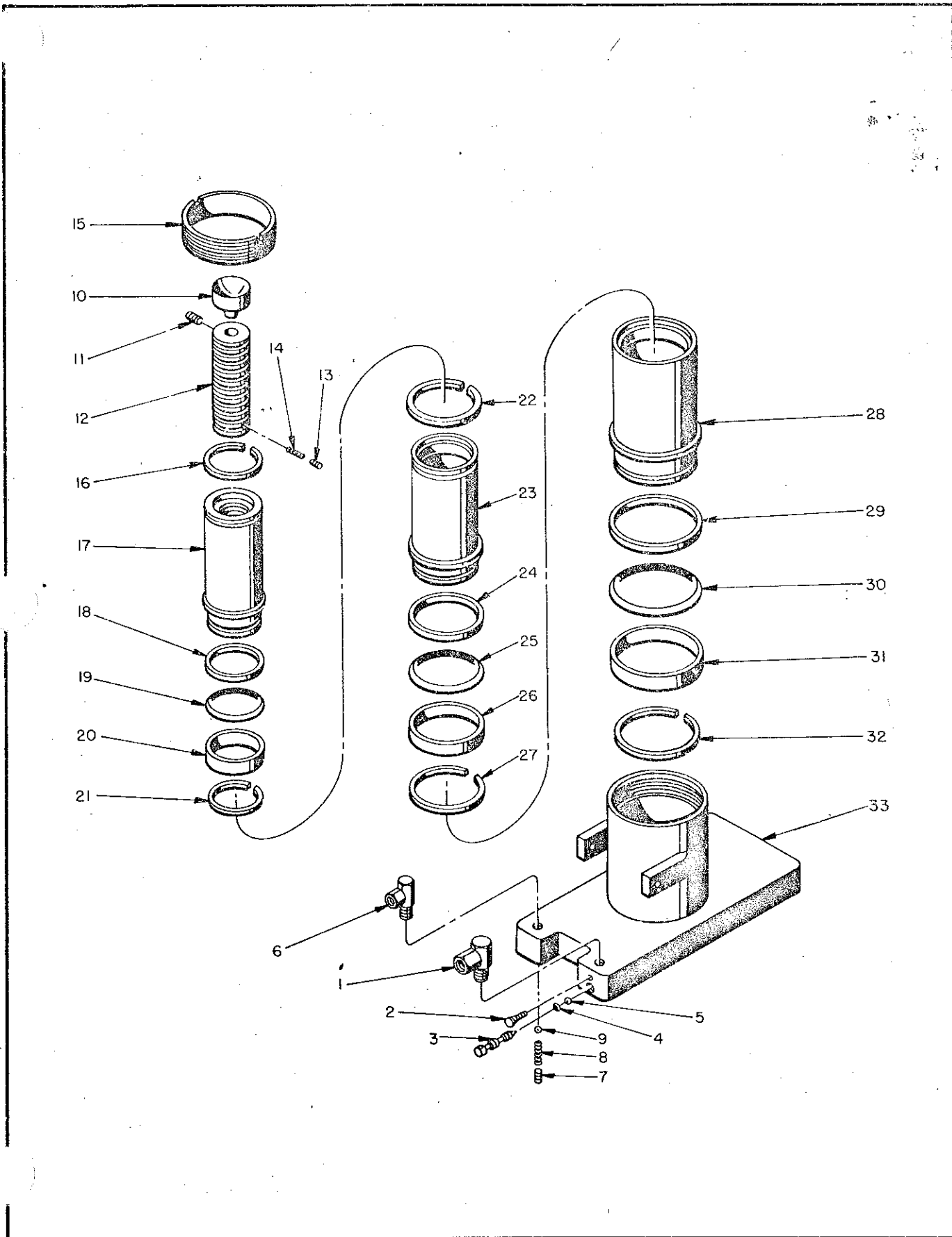


Figure 2. Lift, Exploded View

T. O. 35A2-2-44-4

Section II  
Group Assembly Parts List

Figure & Index No.	Part Number	Description						Units Per Assy	Usable on Code
		1	2	3	4	5	6		
2-	53D22048	LIFT (See figure 1, item 79 for next higher assembly)						REF	
-1	1963	UNION, ADAPTER (Manufactured by 72064.)						1	
-2	53A22043	SCREW, LOCK RELEASE VALVE						1	
-3	53B22042	STEM, RELEASE VALVE						1	
-4	AN6227B-6	PACKING, "O" RING						1	
-5	216-1-24	BALL, ST						1	
-6	1961	UNION, ADAPTER (Manufactured by 72064.)						1	
-7	AN932-2	PLUG						1	
-8	53A22118	SPRING, HELICAL COMPRESSION, CHECK VALVE						1	
-9	216-1-16	BALL, ST						1	
-10	53B22068	SOCKET						1	
		(ATTACHING PARTS)							
-11	AN565D820H8	SCREW						1	
-12	53B22063	SCREW, EXTENSION						1	
-13	53A22041	PLUNGER, EXTENSION SCREW, RETAINER						1	
-14	53A22040	SPRING, HELICAL COMPRESSION, EXTENSION SCREW						1	
-15	53A22064	BUSHING, CYLINDER						1	
-16	53C22035-15	RING, RETAINING						1	
-17	53C22061	RAM, LIFT, THIRD STAGE						1	
-18	53C22069-3	RING, PACKING BACKUP						1	
-19	AN6227B-39	PACKING, "O" RING						1	
-20	53B22067	BEARING, SLEEVE, THIRD STAGE						1	
-21	53C22035-13	RING, RETAINING						1	
-22	53C22035-14	RING, RETAINING						1	
-23	53C22059	RAM, LIFT, SECOND STAGE						1	
-24	53C22069-2	RING, PACKING BACKUP						1	
-25	AN6227B-45	PACKING, "O" RING						1	
-26	53B22066	BEARING, SLEEVE, SECOND STAGE						1	
-27	53C22035-12	RING, RETAINING						1	
-28	53C22058	RAM, LIFT, FIRST STAGE						1	
-29	53C22069-1	RING, PACKING BACKUP						1	
-30	AN6227B-52	PACKING, "O" RING						1	
-31	53B22065	BEARING, SLEEVE, FIRST STAGE						1	
-32	53C22035-11	RING, RETAINING						1	
-33	53D22052	CYLINDER						1	

**SECTION III**  
**NUMERICAL INDEX**

PART NO.	STOCK NO.		FIG. AND INDEX NO.	QTY PER ART.	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
AN10-70A			1-57	1	
AN365-1018			1-58	1	
AN365-820			1-67	8	
AN380-3-3			1-6	8	
AN380-4-5			1-3	2	
AN381-10-32			1-60	2	
AN395-25			1-38	4	
AN395-35			1-7	2	
AN565F428H3			1-15	2	
AN565D820H8			2-11	1	
AN6227B-10			1-10	1	
AN6227B-13			1-24	1	
AN6227B-39			2-19	1	
AN6227B-45			2-25	1	
AN6227B-52			2-30	1	
AN6227B-6			2-4	1	
AN8-14A			1-66	8	
AN932-2			2-7	1	
AN932-4			1-42	1	
AN945-7			1-64	2	
AN960-716			1-61	1	
SCREW			1-63	1	
MR-Q5			1-53	1	
MR-Q7			1-51	1	
MS35458-43			1-78	2	
1961			1-36	2	
			2-6		
1963			2-1	1	
216-1-12			1-17	2	
			1-31		
216-1-16			1-20	5	
			1-34		
			2-9		
216-1-24			2-5	1	
52C6417-7			1-62	3	
			1-65		
53A22038			1-43	1	
53A22040			2-14	1	
53A22041			2-13	1	
53A22043			2-2	1	
53A22044			1-44	1	
53A22045			1-40	2	
53A22064			2-15	1	
53A22070			1-26	1	
53A22083			1-4	1	
53A22089			1-12	1	
53A22090			1-8	1	
53A22093			1-19	2	
			1-33		
53A22094			1-16	2	
			1-30		
53A22095			1-18	3	
			1-32		
			1-57		

Section III  
 Numerical Index

T. O. 35A2-2-44-4

PART NO.	STOCK NO.		FIG. AND INDFX NO.	QTY PER ART	SOURCE CODE
	CLASS CODE	SERIAL OR PART NO.			
53A22099			1-14 1-28	4	
53A22105			1-25	1	
53A22106			1-11	1	
53A22108			1-54	1	
53A22109			1-48	1	
53A22110			1-50	1	
53A22111			1-52	1	
53A22112			1-49	1	
53A22115			1-22	1	
53A22118			2-8	1	
53A22119			1-76	1	
53A22120			1-59	1	
53A22156			1-69	1	
53A22164			1-79	1	
53B22036-1			1-9	1	
53B22036-2			1-23	1	
53B22042			2-3	1	
53B22063			2-12	1	
53B22065			2-31	1	
53B22066			2-26	1	
53B22067			2-20	1	
53B22068			2-10	1	
53B22082-1			1-70	1	
53B22091			1-5	2	
53B22097			1-37	4	
53B22107			1-55	1	
53B22113			1-47	1	
53B22114			1-1	1	
53B22155-1			1-68	1	
53B22158-1			1-45	1	
53B22159-1			1-46	1	
53C22035-11			2-32	1	
53C22035-12			2-27	1	
53C22035-13			2-21	1	
53C22035-14			2-22	1	
53C22035-15			2-16	1	
53C22058			2-28	1	
53C22059			2-23	1	
53C22061			2-17	1	
53C22069-1			2-29	1	
53C22069-2			2-24	1	
53C22069-3			2-18	1	
53C22080			1-56	1	
53C22081			1-2	1	
53C22092-1			1-35	1	
53C22092-2			1-21	1	
53C22096-1			1-27	1	
53C22096-2			1-13	1	
53D22034			1-	1	
53D22048			1-77 2-	1	
53D22052			2-33	1	
53D22073			1-80	1	
56A6205			1-75	1	
56A6206			1-74	1	
56A6207			1-73	1	
56A6208			1-72	1	