MACTECH HEAVY DUTY PORTABLE MILLS

OPERATING MANUAL & PARTS LIST

SERIAL NO. _____

TABLE OF CONTENTS

Section	Page
SAFETY INSTRUCTIONS:	2
INTRODUCTION	
Machine Specifications Functions, Tooling, Drive Picture of Heavy Duty Portable Mill Illustration of Heavy Duty Portable Mill	3 3 & 4 4 5
MACHINE SET-UP	
Assembly Procedure Installing Motor Hydraulic Power Set Up	6 6 & 7 7
MACHINE OPERATION	
Hole Drilling, Boring, and Chamfering Resurfacing and Milling Machine Maintenance, Record of Use	8 9 10
APPENDIX: PARTS/DIAGRAMS	
Heavy Duty Portable Mill Servo Drive Heavy Duty Portable Mill Quill Housing	11 12 13

SAFETY INSTRUCTIONS

- Wear protective clothing, including safety glasses and steel toe boots.
- **DO NOT** allow loose clothing or long hair near machine operations.
- Keep work site and machine clean. Use brush to remove chips. **DO NOT** use hands or air hose.
- Ensure adequate clearance around pipe before mounting milling machine.
- Support machining surface for total machine weight.
- **DO NOT** rush the job. Read this manual and understand the operating procedure before attempting any cutting operation. Call our toll free number (1-800-328-1488) if any problems arise.
- Before connecting the hoses to the machine, be sure the following components are tightly secured: slide, tool bits, motor mount, and vertical feed support angle bracket.
- Be sure the mill is completely secured to the work surface *before* starting the machine.
- During actual machine operation, **DO NOT** touch or rest your hand on or near any moving parts or sharp edges.
- Disconnect air hose or hydraulic power source **BEFORE** dismounting lathe from pipe.
- NEVER MOVE MACHINE WHILE CONNECTED TO AIR OR HYDRAULIC SUPPLY. ALWAYS turn off control valve and disconnect hoses BEFORE attempting to move the machine.

INTRODUCTION

General Description

Mactech Heavy Duty Portable Mills are designed to make on-site, close tolerance machining cost effective. Our mills can be clamped, bolted, or magnetically attached directly onto the workpiece and mounted in any direction. Infinitely variable power feed is available on the vertical feed slide assembly.

MACHINE SPECIFICATIONS

Capabilities & Functions

Capabilities

- Drilling
- Chamfering
- Boring
- Tapping

Functions

Mactech Heavy Duty Portable Mill are used to perform gamma plug installation, stud removal, thermoweld installation, and numerous other milling jobs.

The milling machine can machine steel and various alloys, stainless steel, aluminum, copper-nickel, nickel-copper-iron, and bronze.

Tooling

High speed tool steel bits, drill bits and milling bits or different sizes are available for most machining operations. Mactech stocks many standard tool bit configurations.

Frame Components

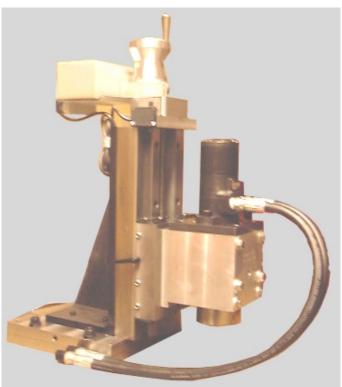
The milling head assembly feeds vertically along the cast iron feed support angle bracket into the work piece. The bracked is attached to the steel base plates, which can be positioned for precise alignment. Both the extra and super duty models include additional bracket supports.

Vertical Slide

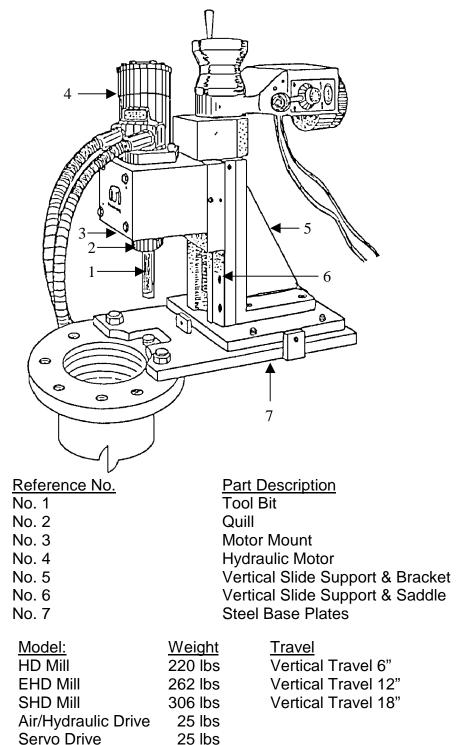
The slide is made of cast iron, comprised of ways and saddles with adjustable gibs, and a full length feed screw.

Drive Assembly

- In-Line Air Drive (97 RPM max), also includes air caddy.
- Hydraulic drive (137 RPM max).



Mactech Heavy Duty Portable Mill



View of Heavy Duty Portable Mill powered by hydraulic drive. Hand crank provides vertical feed.

MACHINE SET-UP

Read **SAFETY INSTRUCTIONS** on Page 1.

Assembly Procedure

Clear worksite of all obstructions and clean area.

Assemble aluminum base components (if needed) and install on working surface (see below).

Installation on Curved Surface (In-Line Pipe):

- Attach aluminum saddle to steel base by wrapping chains around pipe.
 Note: Have partner hold base while connecting chains around pipe.
- 2. Square and level base to pipe surface (if necessary).
- 3. Attach cast iron vertical support bracket and slide to the steel base.
- 4. Square and level base (if necessary).

Installation on Flat Surface:

- 1. Attach vertical support bracket to steel base and/or flat surface (bolt, tack weld, clamp, or magnetically attach).
- 2. Square and level base.

Installing Motor

CAUTION! Control Valve must be turned *OFF* before installation of motor.

- 1. Insert motor so that keyed shaft aligns with the quill keyway. Tighten motor mount screws.
- 2. With control valve off, connect hoses to power supply/air supply. Test run motor to check speed.

HYDRAULIC POWER SUPPLY SET-UP

** NOTE: See "Mactech Hydraulic Power Supply Handbook" for further information.

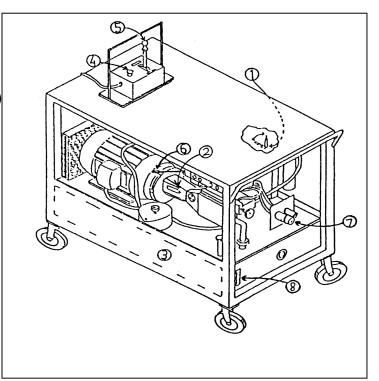
1. Select 230 or 460 outlet. See inside electric control box for directions on how to change voltage connections.

** CAUTION: All electrical work must be performed by a qualified electrician.

- 2. Connect hoses to couplings (#7).
- 3. With pendant knob (#4) off and control lever (#5) neutral, turn off main switch.
- 4. While viewing direction indicator (#2), turn on pendant knob. Shaft should spin in the direction of the arrow. If not, turn off pendant knob and main switch, change wiring rotation, and re-attempt step #3. When spinning properly, the power supply is ready to use.

SPECIFIED COMPONENTS

- 1. Main Switch (Control Box)
- 2. Motor Direction Indicator
- 3. Hydraulic Fluid Reservoir
- 4. Pendant On/Off Knob
- 5. Pendant Control Lever
- 6. Pressure Release Lever
- 7. Couplings, Female/Male
- 8. Fluid Sight Glass



Hydraulic Power Supply & Remote Control

MACHINE OPERATION

Read SAFETY INSTRUCTIONS on Page 1.

Note: The hand crank should offer some resistance while turning. If it is too loose or tight, the jam nuts may be slightly adjusted. Do not allow "slop" in the slides.

Drilling and Sawing Holes

- Follow Set-Up procedures. Attach air or hydraulic supply to the motor while control valve is OFF. Insert drill chuck into quill and secure. Insert center drill bit, regular drill bit, spade bit or hole saw into chuck and secure. Open control valve slowly to check function and speed.
- Use control valve to control cutting speed. To avoid chatter, do not allow saddles to extend beyond supporting slides. If chatter vibration occurs, reduce speed. If tool bit(s) chip or become dull, replace them. Use coolant when possible.

CAUTION! The cutting operation is continuous until terminated by the operator. To stop machine during cutting, back bit away from material, then close control valve. This will reduce tool pressure and potential gouging.

3. Close control valve to stop motor. Disconnect hoses. Back tool to FULL OUT POSITION.

Boring Holes

Follow above procedures, with following exception: Replace drill chuck with boring bar and bit. If desired, use dial indicator for precise hole alignment.

Chamfering Holes

Follow above procedures, with following exception: Replace drill chuck with boring bar and angled chamfering tool. If desired use dial indicator for precise hole alignment. Step cut to desired depth and chamfer.

Tapping Holes

Follow above procedure, with following exception: Replace drill bit with tapping bit. Use dial indicator for precise hole alignment.

Facing Flat Surfaces (longitudinal and cross slides required)

- 1. Follow drilling set-up procedures, but replace drill chuck with facing mill or fly cutter and bit. Open control valve slowly to check function and speed.
- 2. Turn crank on vertical slide to bring bit down to surface. To avoid chatter, do not allow saddles to extend beyond supporting slides.
- Use control valve to control cutting speed. If chatter or vibration occurs, reduce speed. If tool bit(s) chip or become dull, replace them. Use coolant when possible.

CAUTION! The cutting operation is continuous until terminated by the operator. To stop machining process during cutting, back bit away from material, then close control valve. This will reduce tool pressure and potential gouging.

4. Close control valve to stop motor. Disconnect hoses. Back tool to FULL OUT POSITION.

Milling Flat Surfaces (longitudinal and cross slides required)

Follow above procedures, with following exception: Replace cutter with tool shank holder and end mill or another appropriate tool.

Operation Completion

Close control valve. Disconnect air or hydraulic supply. To remove portable mill follow set-up directions in reverse.

Machine Maintenance

Prevent corrosion by cleaning machine exterior with a solvent, then apply rust inhibitors and store in a dry area. Grease internal gears regularly, depending on use.

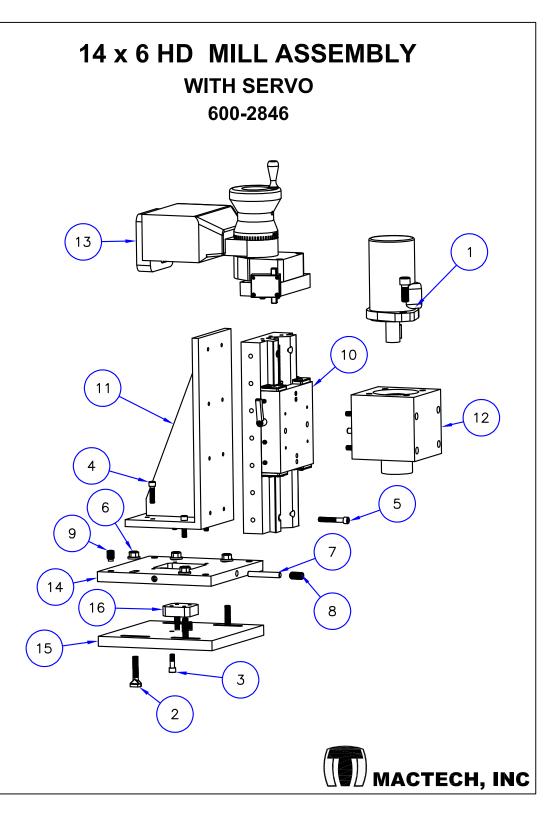
NOTE: Mactech recommends sending the machine to our service facility after every 250 machining hours for inspection and tune-up (nominal fee applies).

	RECORD OF MACHINING					
Date	<u>Hours</u>	Date	<u>Hours</u>	Date	<u>Hours</u>	
TOTAL		TOTAL		TOTAL		

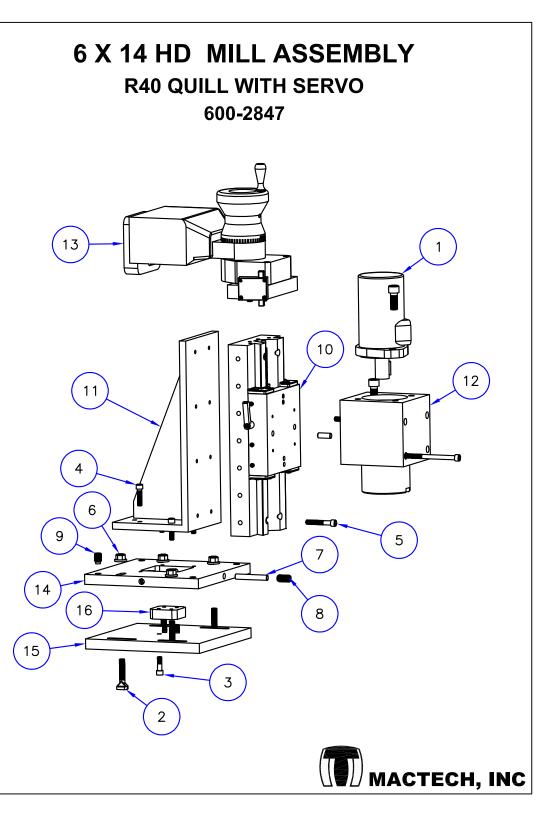
Parts Information

Use the attached parts diagrams to order replacement parts. When ordering parts please include the following information: type of machine, serial number, contact person, phone/fax number, shipping address, date of purchase, and payment information.

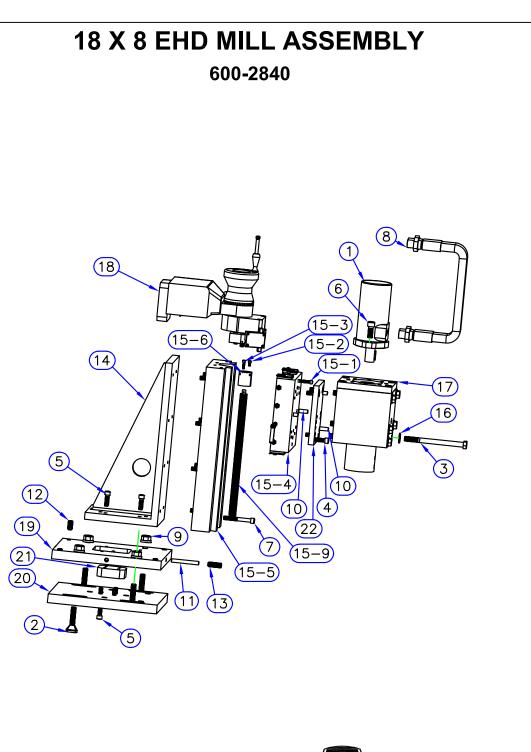
ITEM	PART NO.	QTY	DESCRIPTION
1	011-1001	1	HYD MOTOR 101-1028
2	030-0007	4	3/8-16 X 2 T-SLOT BOLT
3	070-0006	4	5/16-18 X 1" SHCS
4	070–0007	4	5/16–18 X 1–1/4 SOCKET HEAD CAP SCREW
5	070-0040	8	5/16-18 X 2 SHCS
6	170-0025	4	3/8-16 FLANGE NUT
7	200-0077	4	3/8 x 2-1/2" HARDENED DOWEL PIN
8	340-0025	4	1/2-13 X 1 CUP POINT SET SCREW
9	340-0037	4	1/2–13 X 3/4 BRASS TIPPED SET SCREW
10	387-0084 MOD-В	1	ND6 SLIDE ASSEMBLY – MODIFIED FOR SERVO
11	387-0120	1	NDA6 RIGHT ANGLE BRACKET
12	600-0922	1	QUILL HGS ASSY – HD 1" QUILL ND6 SADDLE
13	600-2844	1	SERVO FEED ASSY – ND6 2:1 GEARING
14	620-4150	1	SHIFT PLATE TOP – NDA6
15	620-4151	1	MILL SHIFT PLATE BOTTOM – NDA6
16	620-4152	1	SHIFT PLATE PUSH BLOCK



ITEM	PART NO.	QTY	DESCRIPTION
1	011-1001	1	HYD MOTOR 101-1028
2	030-0007	4	3/8-16 X 2 T-SLOT BOLT
3	070-0006	4	5/16-18 X 1" SHCS
4	070-0007	4	5/16-18 X 1-1/4 SOCKET HEAD CAP SCREW
5	070-0040	8	5/16-18 X 2 SHCS
6	170-0025	4	3/8-16 FLANGE NUT
7	200-0077	4	3/8 x 2-1/2" HARDENED DOWEL PIN
8	340-0025	4	1/2-13 X 1 CUP POINT SET SCREW
9	340-0037	4	1/2–13 X 3/4 BRASS TIPPED SET SCREW
10	387-0084 MOD-B	1	ND6 SLIDE ASSEMBLY - MODIFIED FOR SERVO
11	387-0120	1	NDA6 RIGHT ANGLE BRACKET
12	600-0923	1	QUILL HGS ASSY ND6 - R40 QUILL
13	600-2844	1	SERVO FEED ASSY – ND6 2:1 GEARING
14	620-4150	1	SHIFT PLATE TOP – NDA6
15	620-4151	1	MILL SHIFT PLATE BOTTOM – NDA6
16	620-4152	1	SHIFT PLATE PUSH BLOCK – NDA6

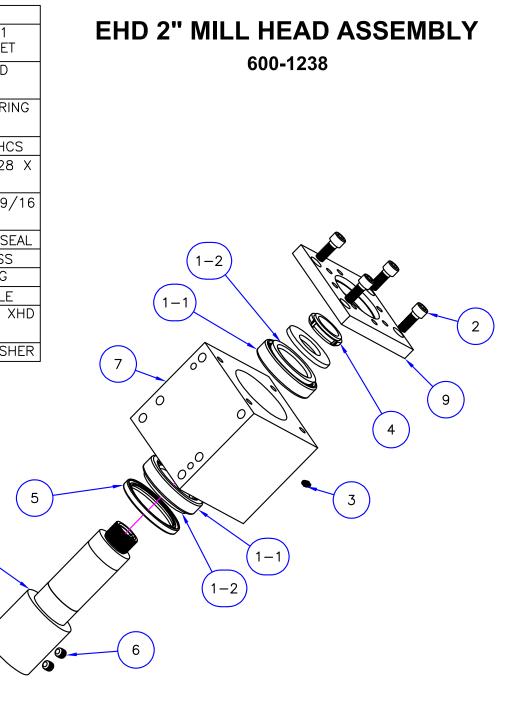


ITEM	PART NO.	QTY	DESCRIPTION
1	011-1003	1	HYD MOTOR 101-1032
2	030-0019	4	T-SLOT BOLT, 1/2-13 X 2-1/2
3	031-0004	6	1/2-13 X 6-1/2 HEX BOLT
4	070-0014	4	3/8-16 x 1 SHCS
5	070-0021	8	3/8-16 X 1-1/4 SHCS
6	070-0035	2	1/2-13 X 1-1/4 SHCS
7	070-0041	8	3/8-16 X 3 SOCKET HEAD CAP SCREW
8	128-0005	2	36" L 1/2" NPT HYD HOSE ASSY
9	170-0006	4	1/2-13 FLANGE NUT
10	200-0017	4	3/8 x 1" DOWEL PIN
11	200-0075	4	3/8 X 3 HARDENED DOWEL PIN
12	340-0025	4	1/2-13 X 1 CUP POINT SET SCREW
13	340-0029	4	1/2-13 X 1-1/2 CUP POINT SET SCREW
14	387-0065	1	RA BRACKET 8 X 18 – NDA8
15	387-0066	1	8 X 18 SLIDE ASSY
15–1	070-0009	2	1/4-20 X 1-1/4 SHCS
15–2	070-0075	1	10–24 X 3/8 SOCKET HEAD CAP SCREW
15–3	070–0080	1	10–24 X 3/4 SOCKET HEAD CAP SCREW
15-4	387-0067 MOD-A	1	ND8 SADDLE – MODIFIED
15–5	387-0068	1	ND8 SLIDE
15–6	387-0069	1	ND8-DC8 3/4-10 LC ACME FEED NUT
15-7	387-0070	2	ND8 WIPER ASSY - RIGHT
15–8	387-0071	2	ND8 WIPER ASSY - LEFT
15–9	387-0072	1	ND8 FEED SCREW - 3/4-10 LH
15–10	387-0073	1	ND8 FEED SCREW SHAFT END
15–11	387-0074	1	ND8 GIB
15–12	387-0075	3	ND8 GIB TIGHTENING SCREW
15–13	387-0076	1	GIB LOCKING SCREW ASSY
15–14	170-0047	3	1/4–28 HEX JAM NUT
16	480-1005	6	1/2 SAE WASHER 1/16 THICK
17	600-1238	1	XHD 2" MILL HEAD ASSY
18	600-2841	1	SERVO FEED ASSY - ND8 1:2 GEARING
19	620-4050	1	SHIFT PLATE TOP – ND8
20	620-4051	1	MILL SHIFT PLATE BOTTOM - ND8
21	620-4052	1	SHIFT PLATE PUSH BLOCK
22	620-4053	1	ND8 ADAPTOR PLATE – XHD HEAD

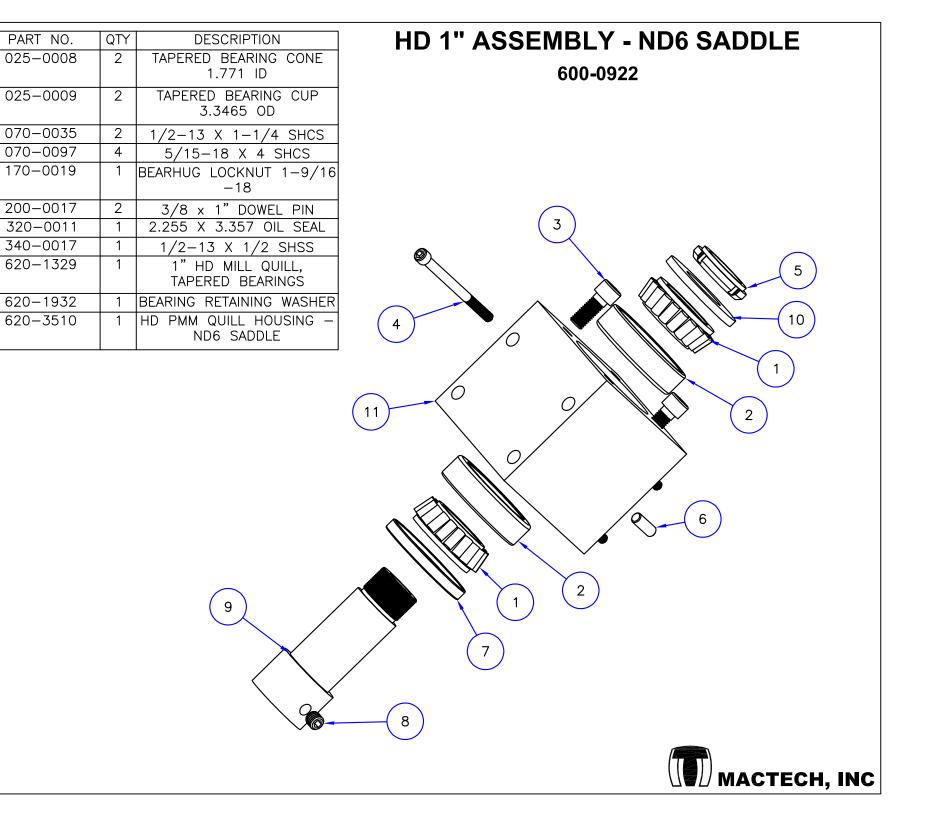




· ITEM	PART NO.	QTY	DESCRIPTION
1	025-0006-0007 SET	2	2.25 X 3.8125 X 1 TAPERED BEARING SET
1-1	025-0007	2	3.8125 OD TAPERED BEARING CUP
1-2	025-0006	2	2.25 ID TAPERED BEARING CONE
2	070-0035	4	1/2-13 X 1-1/4 SHCS
3	142-0001	1	GREASE FITTING 1/4–28 X 33/64 LONG
4	170-0019	1	BEARHUG LOCKNUT 1-9/16 -18
5	320-0010	1	3.25 X 3.875 X 3/8 SEAL
6	340-0017	2	1/2-13 X 1/2 SHSS
7	620-1925	1	EHD QUILL HOUSING
8	620-1926	1	HD 2" MILL SPINDLE
9	620-1927	1	MOTOR HOUNT PLATE- XHD MILLS
10	620-1932	1	BEARING RETAINING WASHER

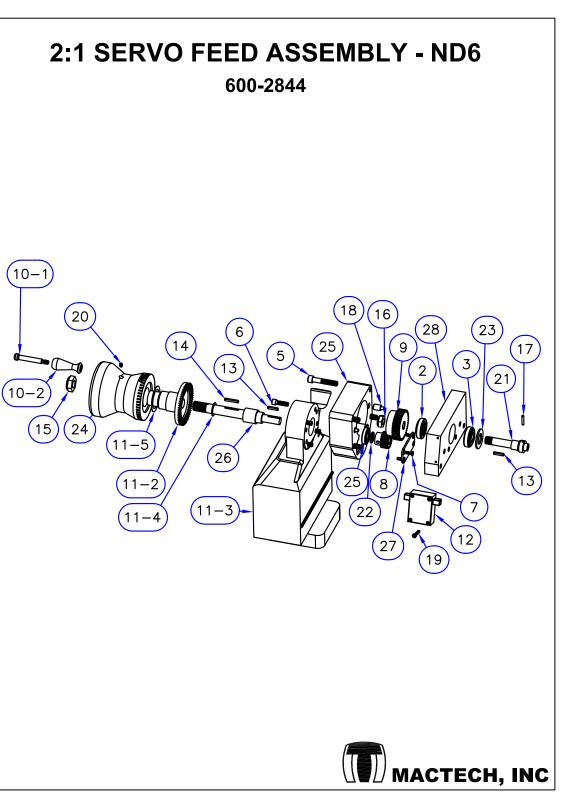






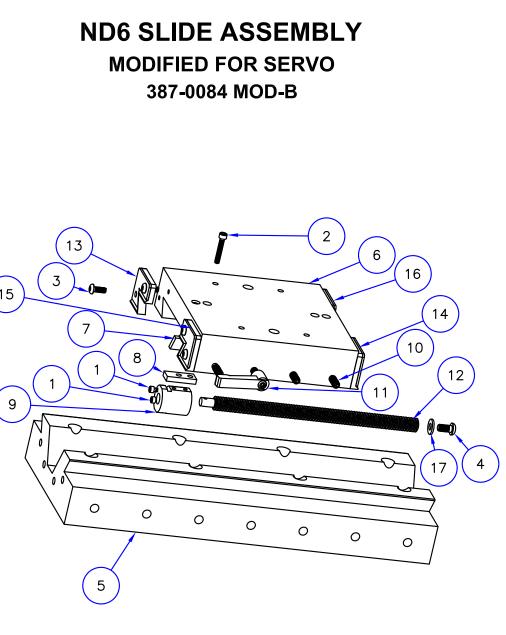
ITEM

1-1/4 X 2 020-0131 1 TAPERED BEARIN 3 020-0137 1 TAPERED BEARIN 5 070-0062 4 5/16-18 X 1-3 CAP S 6 070-0072 4 1/4-20 X 7 071-0031 4 8-32 X 8 100-0103 1 SPUR GEAR - 20 PD W/I 9 100-0237 1 SPUR GEAR - 20 W/K 10-1 061-0027 1 5/16 X 1.75 S 10-2 HANDLE 1 2" HA 11 130-0210 1 WORKHORSE S 11-1 130-0210 1 BEVEL G 11-3 130-0210 1 SERVO TOP H 11-4 130-0210 1 SERVO TOP H 11-4 130-0210 1 SERVO TOP H 11-5 130-0210 1 I6MM SPAC A0100-04_ 1 16MM SPAC EN 14 150-0034 2 1/8 SQ X 7/8 14 150-0054	ITEM	PART NO.	QTY	DESCRIPTION
2 020-0131 1 TAPERED BEARIN TAPERED BEARIN 5 3 020-0137 1 TAPERED BEARIN 5 5 070-0062 4 5/16-18 X 1-3 CAP 5 6 070-0072 4 1/4-20 X 7 7 071-0031 4 8-32 X 1 8 100-0103 1 SPUR GEAR - 2 PD W/I 9 100-0237 1 SPUR GEAR - 2 W/KE 10 120-0038 1 REVOLVING HANI 10-2 HANDLE 1 2" HANDLE 11 130-0210 1 WORKHORSE S 11-1 130-0210 1 BEVEL G A0100-01 1 SERVO TOP H 11-4 130-0210 1 AMM SPACI A0100-02_ 1 16MM SPACI A0100-04_ 12 130-0210 LIMIT SWITCH 1 LIMIT S 13 150-0034 2 1/8 SQ X 7/8 EN 14 150-0057 1 1/2-20 JAM 15 170-0030 1 5/8-11 JAM	1	020-0089	1	RADIAL BALL BEARING 1/2 X 1–1/4 X .25 WIDE
3 020-0137 1 TAPERED BEARIN 5 070-0062 4 5/16-18 X 1-3 CAP S 6 070-0072 4 1/4-20 X 7 071-0031 4 8-32 X 8 100-0103 1 SPUR GEAR - 2 PD W/I 9 100-0237 1 SPUR GEAR - 2 W/KE 10 120-0038 1 REVOLVING HANI 10-1 061-0027 1 5/16 X 1.75 SI 10-2 HANDLE 1 2" HA 11 130-0210 1 WORKHORSE G A0100-01 1 BEVEL G 11-3 130-0210 A0100 1 SERVO TOP H 11-4 130-0210 A0100 1 SERVO TOP H 11-4 130-0210 LIMIT SWITCH 1 LIMIT S 12 130-0210 LIMIT SWITCH 1 LIMIT S 13 150-0034 2 1/8 SQ X 7/8 EN 14 150-0054 1 1/8 X 1 KEY, 15 170-0030 1 5/8-1	2	020-0131	1	TAPERED BEARING, .5 X 1.378
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				TAPERED BEARING, .625 X 1.378
7 071-0031 4 8-32 x 8 100-0103 1 SPUR GEAR - 2/ PD W/I 9 100-0237 1 SPUR GEAR 2 W/KE 10 120-0038 1 REVOLVING HANI To -1 10-1 061-0027 1 5/16 X 1.75 St 7/16 X 1.75 St 7/17 11-1 130-0210 1 WORKHORSE St 8/11-1 2" HA 11-1 130-0210 1 BEVEL G 11-3 130-0210 P01025 1 BEVEL G 11-4 130-0210 A0100 1 SERVO TOP H 11-4 130-0210 LIMIT A0100-04_ 1 16MM SPACI A0100-04_ 12 130-0210 LIMIT SWITCH 1 LIMIT S 13 150-0034 2 1/8 SQ X 7/8 EN 14 150-0054 1 1/8 X 1 KEY, 15 170-0057 1 1/2-20 JAM LOCK 16 170-0057 1 SPRING PIN A00-0105 2 17 200-0076 1 SPRING PIN MACHINE	5		4	5/16-18 X 1-3/4 SOCKET HEAD CAP SCREW
7 071-0031 4 $8-32 \times 1$ 8 100-0103 1 SPUR GEAR - 21 PD W/1 9 100-0237 1 SPUR GEAR 2 W/KE 10 120-0038 1 REVOLVING HAND 10-1 061-0027 1 5/16 X 1.75 SH 10-2 HANDLE 1 2" HA 11 130-0210 1 WORKHORSE SD 11-1 130-0210 1 BEVEL 11-3 130-0210 A0100 1 SERVO TOP H 11-4 130-0210 A0100 1 SERVO TOP H 11-5 130-0210 LIMIT A0100-04_ 1 16MM SPACI 12 130-0210 LIMIT SWITCH 1 LIMIT S 13 150-0034 2 1/8 SQ X 7/8 EN 14 150-0054 1 1/8 X 1 KEY, 15 170-0030 1 5/8-11 JAM LOCK 16 170-0057 1 1/2-20 JAM SLOCK 17 200-0076 1 SPRING PIN 18 200-0084	6	070-0072	4	1/4-20 X 7/8 SHCS
8 100-0103 1 SPUR GEAR - 2/ PD W/I 9 100-0237 1 SPUR GEAR 2 W/KE 10 120-0038 1 REVOLVING HANI 10-1 061-0027 1 5/16 X 1.75 SI 10-2 HANDLE 1 2" HA 11 130-0210 1 WORKHORSE SI 11-1 130-0210 P01025 1 BEVEL 11-3 130-0210 A0100 1 SERVO TOP H 11-4 130-0210 A0100 1 SERVO TOP H 11-4 130-0210 A0100 1 SERVO TOP H 11-5 130-0210 A0100 1 SERVO TOP H 11-5 130-0210 A0100 1 SERVO TOP H 11-5 130-0210 A0100 1 LIMIT S 12 130-0210 A0100 1 LIMIT S 13 150-0034 2 1/8 SQ X 7/8 EN 14 150-0054 1 1/8 X 1 KEY, 15 170-0030 1 S/8-11 JAM LOCK 16 170-0057	7	071-0031	4	8-32 X 1/2 FHCS
Image: Market Structure Image: Market	8		1	SPUR GEAR - 20 DP, 20 PA, 1" PD W/KEYWAY
$10-1$ $061-0027$ 1 $5/16 \times 1.75$ Si $10-2$ HANDLE1 $2"$ HA 11 $130-0210$ 1WORKHORSE Si $11-1$ $130-0210$ P010251BEVEL Gi $11-2$ $130-0210$ P010251BEVEL $11-3$ $130-0210$ A01001SERVO TOP H $11-4$ $130-0210$ 1 34 MM SPAC $A0100-02_{-}$ 116MM SPAC $11-5$ $130-0210$ 116MM SPAC $A0100-04_{-}$ 116MM SPAC 12 $130-0210$ 11 13 $150-0034$ 2 $1/8$ SQ X 7/8 14 $150-0054$ 1 $1/8$ X 1 KEY, 15 $170-0030$ 1 $5/8-11$ JAM 1000 $1000000000000000000000000000000000000$	9	100-0237	1	SPUR GEAR 2" PD, 20 DP W/KEYWAY
10-2HANDLE12" HA11130-02101WORKHORSE 311-1130-02101BEVEL G11-2130-0210 P010251BEVEL11-3130-0210 A01001SERVO TOP H11-4130-0210134MM SPACA0100-02_116MM SPAC11-5130-0210116MM SPACA0100-04_116MM SPAC12130-0210 LIMIT1LIMIT 5SWITCH11/8 SQ X 7/813150-003421/8 SQ X 7/814150-005411/8 X 1 KEY,15170-003015/8-11 JAMLOCK16170-005711/2-20 JAM18200-00761SPRING PIN18200-008423/16 TO 3/8 L20340-0053110-24 X 1/4 N21387-01251ND6 FEEDSCRE22480-10501STEEL SHIM WASI23480-105113/4 X 1.365 X24620-13491SERVO GEARBOX26620-40541SERVO GEARBOX27620-40571SERVO GEARBOX	10	120-0038	1	REVOLVING HANDLE – 2" LONG
1 130-0210 1 WORKHORSE Norkhorse Norkhorse <td>10-1</td> <td>061-0027</td> <td>1</td> <td>5/16 X 1.75 SHOULDER SCREW</td>	10-1	061-0027	1	5/16 X 1.75 SHOULDER SCREW
11-1130-0210 A0100-011BEVEL G11-2130-0210 P010251BEVEL11-3130-0210 A01001SERVO TOP H11-4130-0210 A0100-02_134MM SPACH11-5130-0210 A0100-04_116MM SPACH12130-0210 LIMIT SWITCH1LIMIT S13150-003421/8 SQ X 7/8 EN14150-005411/8 X 1 KEY,15170-003015/8-11 JAM LOCK16170-005711/2-20 JAM S LOCK19300-010526-32 X 1 PAN MACHINE20340-0053110-24 X 1/4 N SCF21387-01251ND6 FEEDSCRE 2223480-105113/4 X 1.365 X WAS24620-13491SERVO GEARBOX 2627620-40571SERVO GEARBOX	10-2	HANDLE	1	2" HANDLE
A0100-01Image: A0100-0111-2130-0210 P010251BEVEL11-3130-0210 A01001SERVO TOP H11-4130-0210134MM SPACA0100-02_116MM SPAC11-5130-0210 LIMIT116MM SPACA0100-04_116MM SPAC12130-0210 LIMIT1LIMIT S13150-003421/8 SQ X 7/8 EN14150-005411/8 X 1 KEY,15170-003015/8-11 JAM16170-005711/2-20 JAM S17200-00761SPRING PIN18200-008423/16 TO 3/8 L20340-0053110-24 X 1/4 N21387-01251ND6 FEEDSCRE22480-10501STEEL SHIM WASS24620-13491SERVO GEARBOX26620-40541SERVO GEARBOX26620-40551SERVO GEARBOX			1	WORKHORSE SERVO MOTOR
11-3130-0210 A01001SERVO TOP H11-4130-0210134MM SPACA0100-02_134MM SPAC11-5130-0210116MM SPACA0100-04_116MM SPAC12130-0210 LIMIT1LIMIT S13150-003421/8 SQ X 7/814150-005411/8 X 1 KEY,15170-003015/8-11 JAM16170-005711/2-20 JAM LOCK17200-00761SPRING PIN18200-008423/16 TO 3/8 L20340-0053110-24 X 1/4 N21387-01251ND6 FEEDSCRE22480-10501STEEL SHIM WASI23480-10511SERVO GEARBOX26620-40541SERVO GEARBOX27620-40571SERVO GEARBOX	11-1		1	BEVEL GEAR NUT
11-4130-0210 A0100-02_134MM SPAC11-5130-0210 A0100-04_116MM SPAC12130-0210 LIMIT SWITCH1LIMIT S13150-003421/8 SQ X 7/8 EN14150-005411/8 X 1 KEY,15170-003015/8-11 JAM LOCK16170-005711/2-20 JAM LOCK17200-00761SPRING PIN MACHINE18200-008423/16 TO 3/8 L SCF20340-0053110-24 X 1/4 N SCF21387-01251ND6 FEEDSCRE SCF22480-10501STEEL SHIM WASI MAS24620-13491SERVO GEARBOX WORKH26620-40541SERVO ADAPT WORKH27620-40571SERVO GEARBOX	11-2 1	130-0210 P01025	1	BEVEL GEAR
A0100-02_111-5130-0210116MM SPACIA0100-04_116MM SPACI12130-0210 LIMIT1LIMIT S13150-003421/8 SQ X 7/814150-005411/8 X 1 KEY,15170-00301 $5/8-11$ JAM16170-00571 $1/2-20$ JAM S17200-00761SPRING PIN18200-00842 $3/16$ TO $3/8$ L19300-01052 $6-32$ X 1 PAN20 $340-0053$ 1 $10-24$ X $1/4$ N21 $387-0125$ 1ND6 FEEDSCRE22 $480-1050$ 1STEEL SHIM WASI23 $480-1051$ 1 $3/4$ X 1.365 X24 $620-1349$ 1SERVO GEARBOX26 $620-4054$ 1SERVO GEARBOX27 $620-4057$ 1SERVO GEARBOX	11-3	130-0210 A0100	1	SERVO TOP HOUSING BODY
A0100-04 12 130-0210 LIMIT SWITCH 1 LIMIT S 13 150-0034 2 1/8 SQ X 7/8 EN 14 150-0054 1 1/8 X 1 KEY, IS 15 170-0030 1 5/8-11 JAM LOCK 16 170-0057 1 1/2-20 JAM LOCK 17 200-0076 1 SPRING PIN LOCK 18 200-0084 2 3/16 TO 3/8 L MACHINE 20 340-0053 1 10-24 X 1/4 N SCF 21 387-0125 1 ND6 FEEDSCRE 22 480-1050 1 STEEL SHIM WASI TH 23 480-1051 1 3/4 X 1.365 X WAS 24 620-1349 1 SERVO GEARBOX 26 620-4054 1 SERVO ADAPH WORKH 27 620-4057 1 SERVO GEARBOX	11-4		1	34MM SPACING WASHER
SWITCH 13 150–0034 2 1/8 SQ X 7/8 EN 14 150–0054 1 1/8 SQ X 7/8 EN 14 150–0054 1 1/8 X 1 KEY, 15 170–0030 1 5/8–11 JAM LOCK 16 170–0057 1 1/2–20 JAM 3 LOCK 17 200–0076 1 SPRING PIN LOCK 18 200–0084 2 3/16 TO 3/8 L MACHINE 20 340–0053 1 10–24 X 1/4 N SCF 21 387–0125 1 ND6 FEEDSCRE 22 480–1050 1 STEEL SHIM WASI TH 23 480–1051 1 3/4 X 1.365 X WAS 24 620–4054 1 SERVO GEARBOX 26 620–4055 1 SERVO ADAPH WORKH 27 620–4057 1 SERVO GEARBOX	11-5		1	16MM SPACING WASHER
14 150-0054 1 1/8 x 1 kEY, 15 170-0030 1 5/8-11 JAM LOCK 16 170-0057 1 1/2-20 JAM LOCK 17 200-0076 1 SPRING PIN LOCK 19 300-0105 2 6-32 X 1 PAN MACHINE 20 340-0053 1 10-24 X 1/4 N SCF 21 387-0125 1 ND6 FEEDSCRE 22 480-1050 1 STEEL SHIM WASI TH 23 480-1051 1 3/4 X 1.365 X WAS 24 620-4054 1 SERVO GEARBOX 26 620-4055 1 SERVO GEARBOX 27 620-4057 1 SERVO GEARBOX	12		1	LIMIT SWITCH
15 170-0030 1 5/8-11 JAM LOCK 16 170-0057 1 1/2-20 JAM LOCK 17 200-0076 1 SPRING PIN LOCK 18 200-0084 2 3/16 TO 3/8 L 19 300-0105 2 6-32 X 1 PAN MACHINE 20 340-0053 1 10-24 X 1/4 N SCF 21 387-0125 1 ND6 FEEDSCRE 22 480-1050 1 STEEL SHIM WASI TH 23 480-1051 1 3/4 X 1.365 X WAS 24 620-4054 1 SERVO GEARBOX 26 620-4055 1 SERVO ADAPT WORKH 27 620-4057 1 SERVO GEARBOX	13	150-0034	2	1/8 SQ X 7/8 KEY, ROUNDED ENDS
15 170-0030 1 5/8-11 JAM LOCK 16 170-0057 1 1/2-20 JAM LOCK 17 200-0076 1 SPRING PIN LOCK 18 200-0084 2 3/16 TO 3/8 L 19 300-0105 2 6-32 X 1 PAN MACHINE 20 340-0053 1 10-24 X 1/4 N SCF 21 387-0125 1 ND6 FEEDSCRE 22 480-1050 1 STEEL SHIM WASI TH 23 480-1051 1 3/4 X 1.365 X WASS 24 620-4054 1 SERVO GEARBOX 26 620-4055 1 SERVO ADAPT WORKH 27 620-4057 1 SERVO GEARBOX	14	150-0054	1	1/8 X 1 KEY, ROUNDED ENDS
17 200–0076 1 SPRING PIN 18 200–0084 2 3/16 TO 3/8 L 19 300–0105 2 6–32 X 1 PAN MACHINE 20 340–0053 1 10–24 X 1/4 N SCF 21 387–0125 1 ND6 FEEDSCRE 22 480–1050 1 STEEL SHIM WASI TH 23 480–1051 1 3/4 X 1.365 X WAS 24 620–1349 1 SERVO HAN 25 620–4054 1 SERVO ADAPH 26 620–4055 1 SERVO GEARBOX 27 620–4057 1 SERVO GEARBOX	15	170-0030	1	5/8-11 JAM STYLE ELASTIC LOCKNUT
18 200–0084 2 3/16 TO 3/8 L 19 300–0105 2 6–32 X 1 PAN MACHINE 20 340–0053 1 10–24 X 1/4 N SCF 21 387–0125 1 ND6 FEEDSCRE 22 480–1050 1 STEEL SHIM WASI TH 23 480–1051 1 3/4 X 1.365 X WAS 24 620–4054 1 SERVO HAN 25 620–4054 1 SERVO ADAPT WORKH 27 620–4057 1 SERVO GEARBOX	16	170-0057	1	1/2–20 JAM STYLE ELASTIC LOCKNUT
18 200–0084 2 3/16 TO 3/8 L 19 300–0105 2 6–32 X 1 PAN MACHINE 20 340–0053 1 10–24 X 1/4 N SCF 21 387–0125 1 ND6 FEEDSCRE 22 480–1050 1 STEEL SHIM WASI TH 23 480–1051 1 3/4 X 1.365 X WASS 24 620–1349 1 SERVO HAN 25 620–4054 1 SERVO ADAPT WORKH 27 620–4057 1 SERVO GEARBOX	17	200-0076	1	SPRING PIN 1/8 X 3/4
19 300-0105 2 6-32 X 1 PAN MACHINE 20 340-0053 1 10-24 X 1/4 N SCF 21 387-0125 1 ND6 FEEDSCRE 22 480-1050 1 STEEL SHIM WASI TH 23 480-1051 1 3/4 X 1.365 X WAS 24 620-1349 1 SERVO HAN 25 620-4054 1 SERVO ADAPT WORKH 27 620-4057 1 SERVO GEARBOX	18	200-0084	2	3/16 TO 3/8 LOCATING DOWEL
21 387-0125 1 ND6 FEEDSCRE 22 480-1050 1 STEEL	19	300-0105	2	6–32 X 1 PAN HEAD PHILLIPS MACHINE SCREW
22 480-1050 1 STEEL SHIM WASI TH 23 480-1051 1 3/4 X 1.365 X WAS 24 620-1349 1 SERVO HAN 25 620-4054 1 SERVO GEARBOX 26 620-4055 1 SERVO ADAPT WORKH 27 620-4057 1 SERVO GEARBOX	20	340-0053	1	10-24 X 1/4 NYLON TIPPED SET SCREW
22 480-1050 1 STEEL SHIM WASI TH 23 480-1051 1 3/4 X 1.365 X WAS 24 620-1349 1 SERVO HAN 25 620-4054 1 SERVO GEARBOX 26 620-4055 1 SERVO ADAPT WORKH 27 620-4057 1 SERVO GEARBOX	21	387-0125	1	ND6 FEEDSCREW SHAFT END
WAS 24 620–1349 1 SERVO HAN 25 620–4054 1 SERVO GEARBOX 26 620–4055 1 SERVO ADAPT 27 620–4057 1 SERVO GEARBOX			1	STEEL SHIM WASHER 1/2 X .062 THK
25 620-4054 1 SERVO GEARBOX 26 620-4055 1 SERVO ADAPT 27 620-4057 1 SERVO GEARBOX	23	480-1051	1	3/4 X 1.365 X .088 SPACING WASHER
26 620-4055 1 SERVO ADAPT WORKI 27 620-4057 1 SERVO GEARBOX	24	620-1349	1	SERVO HANDLE BODY
27 620–4057 1 SERVO GEARBO	25	620-4054	1	SERVO GEARBOX – WORKHORSE
	26	620-4055	1	SERVO ADAPTOR SHAFT – WORKHORSE
	27	620-4057	1	SERVO GEARBOX COVER PLATE
	28	620-4059	1	SERVO MTG PLATE – GILMAN ND6 & DC6
4 070-0006 4 5/16-18 2	4	070-0006	4	5/16-18 X 1" SHCS



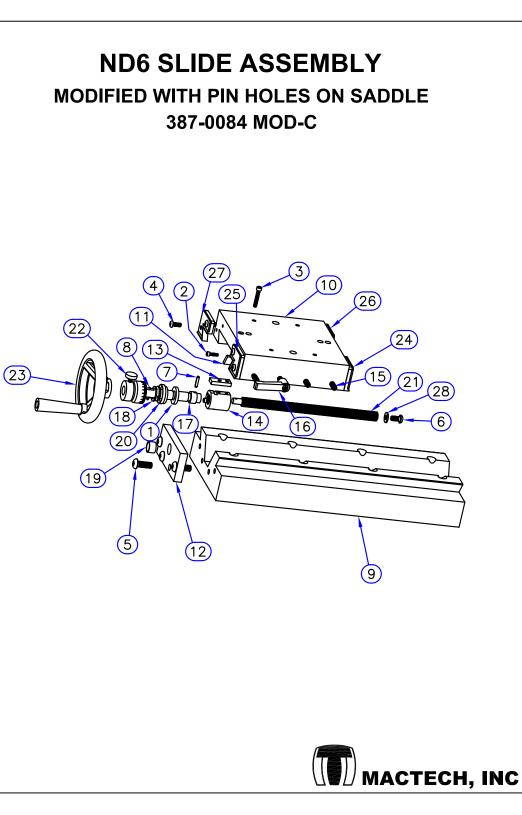
19 387-0096 1 ND6 FEEDSCREW BUSHING 20 387-0097 1 THRUST BEARING COVER 21 387-0098 1 ND6 FEEDSCREWM 1/2-10 22 387-0099 1 ND6 GRADUATED COLLAR 23 387-0100 1 ND6 4" HAND WHEEL 24 387-0101 1 ND6 FRONT WIPER ASSY - 25 387-0102 1 ND6 REAR WIPER ASSY - 26 387-0103 1 ND6 FRONT WIPER ASSY 27 387-0104 1 ND6 REAR WIPER ASSY	ITEM	PART NO.	QTY	DESCRIPTION	
2 070-0066 2 6/32 X 1/Z SHCS 3 070-0101 2 8-32 x 1 SHCS 4 072-0011 10-2 X 1/Z BHCS 5 072-0018 4 5/16-18 X 7/8 BHCS 6 072-0019 1 1/4-20 X 1/2 BHCS 7 200-0012 1 1/8 X 5/8 SLOTED 8 237-0020 2 RETAINING RING EXTERNAL - 9/16 SHAFT 9 387-0086 MOD-A 1 10 387-0088 1 ND6 SADDLE WolfFLD WITH RA BRACKET HOLES ND6 GIB 12 387-0089 1 13 387-0089 1 14 387-0093 1 15 387-0093 1 18 387-0093 1 14 387-0093 1 17 387-0093 1 18 387-0093 1 19 337-0093 1 10 FEED SCREW BUSHING 23 387-0101 1 19 337-0103 1 ND6 GIB SIDE <	1	020-0030	2		
3 070-0101 2 2-32 x 1 sHCS 4 072-0011 6 10-24 x 1/2" BHCS 5 072-0018 4 5/16-18 X 7/8 BHCS 6 072-0019 1 1/4-20 x 1/2" BHCS 7 200-0012 1 1/4-20 x 1/2 BHCS 387-0084 MOD-A 7 200-0012 1 ND6 SHAFT - 9/16 SHAFT 9 387-0086 MOD-A 1 ND6 SADDLE w/pin 8 237-0087 MOD-A 1 Old SADDLE w/pin 11 387-0087 MOD-A 1 OB FEED SCREW 12 387-0088 1 ND6 GIB 12 12 387-0099 1 ND6 FEED SCREW PLATE 14 387-0092 3 ND6 GIB ICCNIN' SPACER 15 387-0092 3 ND6 GE IGHTENING SCREW ACME 16 387-0093 1 ND6 FEED SCREW ACME 17 387-0093 1 ND6 FEED SCREW PLATE 18 387-0093 1 ND6 FEED SCREW PLATE 18 387-0099 1 ND6					
4 072-0001 8 10-24 x 1/2" BHCS 5 072-0018 4 5/16-18 x 7/8 BHCS 6 072-0011 1 1/4-20 x 1/2 BHCS 7 200-0012 1 1/8 x 5/8 SLOTTED SPRING PIN SPRING PIN 8 237-0020 2 RETAINING RING EXTERNAL - 9/16 SHART 9/16 SHART 9 387-0086 MOD-A 1 IDAG SLIDE MODIFED WITH RA BRACKET HOLES 10 387-0087 MOD-A 1 GILMAN ND6 SADDLE w/pin holes 10 387-0088 1 ND6 GIB Cluman ND6 FEED SCREW 20 11 7 20 10 325/202 2 RETAINING SCREW 13 387-0090 1 ND6 FEED NUT 1/2-10 LH ASSY 357 10 ND6 GIB LOCKING SCREW 14 387-0093 1 ND6 GFED SCREW UPLATE 10 357 10 ND6 FEED SCREW 17 387-0094 1 ND6 FEED SCREW UPLATE 10 10 S 20 18 5 20 18 5 20 18 5 20 18 5 20 18 5	2				MODIFIED WITH PIN HOLES & SLIDE MTG HOLES
5 072-0018 4 5/16-18 × 7/8 BHCS 6 072-0019 1 1/4-20 × 1/2 BHCS 7 200-0012 1 7/8 5/8 5UTED 8 237-0020 2 RETAINING RING EXTERNAL -9 387-0086 MOD-A 1 ND6 SADDLE w/pin 10 387-0087 MOD-A 1 GILMAN ND6 SADDLE w/pin 11 387-0088 1 ND6 GIB 12 387-0090 1 ND6 FEED SCREW 14 387-0091 1 ND6 FEED SCREW 14 387-0092 3 ND6 GIB ICHTENING SCREW 16 387-0093 1 ND6 FEED SCREW 17 387-0094 1 ND6 FEED SCREW 18 387-0095 2 ND6 FEEDSCREW RETAINING 19 387-0096 1 ND6 FEEDSCREW RETAINING 19 387-0097 1 ND6 FEEDSCREW 19 387-0098 1 ND6 FEEDSCREW 19 387-0098 1 ND6 FEEDSCREW 20 387-0097 1 ND6 FEEDSCREW 21 387					
6 072-0019 1 1/4-20 X 1/2 BHCS 7 200-0012 1 1/8 X 5/8 SLOTEN 8 237-0020 2 RETAINING RING EXTERNAL - 9/16 SHAFT 9 387-0086 MOD-A 1 ROBE AND THE NAT RABRACKET HOLES 10 387-0087 MOD-A 1 GILMAN ND6 SADDLE w/pin holes 11 387-0088 1 INDE GIB 12 387-0090 1 ND6 FEED SCREW END PLATE 13 387-0091 1 ND6 FEED SCREW EXTENSION/SOCKET 14 387-0093 1 ND6 FEED SCREW EXTENSION/SOCKET 18 387-0098 1 ND6 FEED SCREW BUSHING CLIP 19 387-0098 1 ND6 FEED SCREW BUSHING CLIP 19 387-0098 1 ND6 FEED SCREW BUSHING CLIP 19 387-0098 1 ND6 FEED SCREW BUSHING CLIP 23 387-0099 1 ND6 FEED SCREW BUSHING CLIP 23 387-0102 1 ND6 FEED SCREW BUSHING CLIP 23 387-0102 1 ND6 FEED SCREW BUSHING CLIP 23 387-0102 1 ND6 FEED SCREW BUSHING CLIP <td></td> <td></td> <td></td> <td>· · · · · · · · · · · · · · · · · · ·</td> <td>387-0084 MOD-A</td>				· · · · · · · · · · · · · · · · · · ·	387-0084 MOD-A
7 200-0012 1 1/8 X 5/8 SOTTED SPRING PIN SPRING PIN 8 237-0020 2 RETAINING RING EXTERNAL - 9/16 -9/16 SHAFT 9 387-0086 MOD-A 1 ND6 SLDE MODIFED WITH RA BRACKET HOLES 10 387-0087 MOD-A 1 GILMAN ND6 SADDLE w/pin holes 11 387-0087 MOD-A 1 GILMAN ND6 FEED SCREW END PLATE 13 387-0090 1 ND6 FEED NUT 1/2-10 LH ACME - 14 387-0091 1 ND6 FEED NUT 1/2-10 LH ACME - 15 387-0092 3 ND6 GIB TICHTENING SCREW EXTENSION/SOCKET - 16 387-0093 1 ND6 FEED SCREW EXTENSION/SOCKET - 18 587-0095 2 ND6 FEEDSCREW BUSHING CLP - 19 387-0096 1 ND6 FEEDSCREW WERTAINING CLP - - 19 387-0096 1 ND6 FEEDSCREW MU/2-10 LH ACME - - - 20 387-0101 1 ND6 FRONT WIPER ASSY - GIB SIDE - - - - - 2			4	· · ·	
Image: second	6		1	· · · ·	
9 387-0086 MOD-A 1 ND6 SLIDE MODIFIED WITH RA BRACKET HOLES 10 387-0087 MOD-A 1 GILMAN ND6 SADDLE w/pin holes 11 387-0088 1 ND6 GIB 12 387-0099 1 GILMAN ND6 FEED SCREW END PLATE 13 387-0090 1 ND6 FEED NUT SPACER PLATE 14 387-0091 1 ND6 GIB LOCKING SCREW ESTED NUT 1/2-10 LH ACME 15 387-0092 3 ND6 GIB LOCKING SCREW EXTENSION/SOCKET 16 387-0094 1 ND6 FEED SCREW EXTENSION/SOCKET 17 387-0096 1 ND6 FEED SCREW RETAINING CLIP 20 387-0096 1 ND6 FEEDSCREW RETAINING CLIP 21 387-0098 1 ND6 FEEDSCREW BUSHING 22 387-0101 1 ND6 FRONT WIPER ASSY - GIB SIDE 22 387-0102 1 ND6 FRONT WIPER ASSY - GIB SIDE 25 387-0103 1 ND6 FRA WIPER ASSY - GIB SIDE 26 387-0104 1 ND6 FRA WIPER ASSY	/		1	SPRÍNG PIN	
RA BRACKET HOLES 10 387-0087 MOD-A 1 GILMAN ND6 SADDLE w/pin holes 11 387-0088 1 ND6 GIB 12 387-0089 1 GILMAN ND6 FEED SCREW END PLATE 13 387-0090 1 ND6 FEED NUT SPACER PLATE 14 387-0092 3 ND6 GIB TICHTENING SCREW 16 387-0093 1 ND6 FEED SCREW EXTENSION/SOCKET 18 387-0094 1 ND6 FEED SCREW RETAINING CLIP 19 387-0095 2 ND6 FEEDSCREW RETAINING CLIP 19 387-0096 1 ND6 FEEDSCREW RETAINING CLIP 20 387-0093 1 ND6 FEEDSCREW BUSHING CLIP 21 387-0096 1 ND6 FEEDSCREW BUSHING CLIP 22 387-0100 1 ND6 FRONT WIPER ASSY - GIB SIDE 24 387-0102 1 ND6 FRONT WIPER ASSY - GIB SIDE 25 387-0103 1 ND6 FRONT WIPER ASSY - GIB SIDE 26 387-0104 1 ND6 REAR WIPER ASSY - GIB SIDE	8	237-0020	2		
10 387-0087 MOD-A 1 GILMAN ND6 SADDLE w/pin holes 11 387-0088 1 ND6 GIB 12 387-0089 1 GILMAN ND6 FEED SCREW END PLATE 13 387-0090 1 ND6 FEED NUT SPACER PLATE 14 387-0092 3 ND6 GIB TIGHTENING SCREW ACME 16 387-0093 1 ND6 GIB TIGHTENING SCREW ACSY 16 387-0094 1 ND6 FEED SCREW EXTENSION/SOCKET 18 387-0096 1 ND6 FEEDSCREW BUSHING CLIP 19 387-0096 1 ND6 FEEDSCREW BUSHING CLIP 22 387-0100 1 ND6 FEEDSCREW BUSHING CLIP 23 387-0100 1 ND6 FEEDSCREW BUSHING CLIP 23 387-0100 1 ND6 FRONT WIPER ASSY - GIB SIDE 24 387-0102 1 ND6 FRONT WIPER ASSY - GIB SIDE 26 387-0103 1 ND6 FRONT WIPER ASSY - GIB SIDE 27 387-0104 1 ND6 REAW WIPER ASSY	9	387-0086 MOD-A	1		(19) (4) (27) (1)
12 337-0089 1 GILMAN ND6 FEED SCREW END PLATE 13 387-0090 1 ND6 FEED SCREW PLATE 14 387-0091 1 ND6 FEED NUT 1/2-10 LH ACME 15 387-0092 3 ND6 GIB TICHTENING SCREW ASSY 16 387-0093 1 ND6 FEED SCREW ASSY 17 387-0094 1 ND6 FEED SCREW ASSY 18 387-0095 2 ND6 FEEDSCREW RETAINING CLIP 19 387-0096 1 ND6 FEEDSCREW BUSHING CLIP 20 387-0096 1 ND6 FEEDSCREW BUSHING CLIP 21 387-0098 1 ND6 FEEDSCREW BUSHING CLIP 23 387-0100 1 ND6 FEEDSCREW BUSHING CLIP 24 387-0101 1 ND6 FRONT WIPER ASSY - GIB SIDE 25 387-0102 1 ND6 REAR WIPER ASSY - GIB SIDE 26 387-0103 1 ND6 REAR WIPER ASSY - GIB SIDE 27 387-0104 1 ND6 REAR WIPER ASSY	10	387-0087 MOD-A	1		
END PLATE 13 387-0090 1 ND6 FEED NUT SPACER PLATE 14 387-0091 1 ND6 FEED NUT 1/2-10 LH ACME 15 387-0092 3 ND6 GIB TIGHTENING SCREW ASSY 16 387-0093 1 ND6 FEED SCREW EXTENSION/SOCKET 18 387-0094 1 ND6 FEED SCREW EXTENSION/SOCKET 18 387-0095 2 ND6 FEEDSCREW BUSHING CLIP 19 387-0096 1 ND6 FEEDSCREW BUSHING CLIP 19 387-0097 1 THRUST BEARING COVER 21 387-0098 1 ND6 FEEDSCREW BUSHING CLIP 23 387-0100 1 ND6 FEEDSCREW BUSHING CLIP 23 387-0100 1 ND6 FEEDSCREW BUSHING CLIP 24 387-0101 1 ND6 FRONT WIPER ASSY - GIB SIDE 25 387-0102 1 ND6 FRONT WIPER ASSY NON-GIB SIDE 26 387-0103 1 ND6 FRAR WIPER ASSY NON-GIB SIDE 26 387-0104 1 ND6 REAR WIPER ASSY	11	387-0088	1	ND6 GIB	(1) (8)
13 387-0090 1 ND6 FEED NUT SPACER PLATE 14 387-0091 1 ND6 FEED NUT 1/2-10 LH ACME 15 387-0092 3 ND6 GIB TIGHTENING SCREW ASSY 16 387-0093 1 ND6 FEED SCREW EXTENSION/SOCKET 18 387-0095 2 ND6 FEEDSCREW RETAINING CLIP 19 387-0096 1 ND6 FEEDSCREW BUSHING CLIP 21 387-0097 1 HRUST BEARING COVER 21 387-0098 1 ND6 FEEDSCREW M 1/2-10 LH ACME 22 387-0100 1 ND6 FRONT WIPER ASSY - GIB SIDE 25 387-0102 1 ND6 FRONT WIPER ASSY - GIB SIDE 26 387-0103 1 ND6 FRANT WIPER ASSY - GIB SIDE 27 387-0104 1 ND6 FREAK WIPER ASSY	12	387-0089	1		
14 387-0091 1 ND6 FEED NUT 1/2-10 LH ACME 15 387-0092 3 ND6 GIB TIGHTENING SCREW ASSY 16 387-0093 1 ND6 FEED SCREW ASSY 17 387-0094 1 ND6 FEED SCREW EXTENSION/SOCKET 18 387-0095 2 ND6 FEEDSCREW RETAINING CLIP 19 387-0096 1 ND6 FEEDSCREW BUSHING CLIP 20 387-0096 1 ND6 FEEDSCREW BUSHING CLIP 21 387-0098 1 ND6 GRADUATED COLLAR LH ACME 22 387-0100 1 ND6 GRADUATED COLLAR GIB SIDE 24 387-0101 1 ND6 FRONT WIPER ASSY - GIB SIDE 25 387-0102 1 ND6 FRONT WIPER ASSY - GIB SIDE 26 387-0103 1 ND6 FRONT WIPER ASSY 26 387-0104 1 ND6 REAR WIPER ASSY	13	387-0090	1		
16 387-0093 1 ND6 GIB LOCKING SCREW ASSY 17 387-0094 1 ND6 FEED SCREW EXTENSION/SOCKET 18 387-0095 2 ND6 FEEDSCREW RETAINING CLIP 19 387-0096 1 ND6 FEEDSCREW BUSHING CLIP 20 387-0096 1 ND6 FEEDSCREW BUSHING CLIP 21 387-0098 1 ND6 FEEDSCREWM 1/2-10 LH ACME 22 387-0099 1 ND6 FRONT WIPER ASSY - GIB SIDE 25 387-0100 1 ND6 FRONT WIPER ASSY - GIB SIDE 26 387-0103 1 ND6 FRONT WIPER ASSY - GIB SIDE 27 387-0104 1 ND6 REAR WIPER ASSY	14	387-0091	1		
ASSY 17 387-0094 1 ND6 FEED SCREW EXTENSION/SOCKET 18 387-0095 2 ND6 FEEDSCREW RETAINING CLIP 19 387-0096 1 ND6 FEEDSCREW BUSHING 20 387-0097 1 THRUST BEARING COVER 21 387-0098 1 ND6 FEEDSCREW 1/2-10 LH ACME 22 387-0100 1 ND6 GRADUATED COLLAR 23 387-0100 1 ND6 FRONT WIPER ASSY - GIB SIDE 25 387-0102 1 ND6 REAR WIPER ASSY - GIB SIDE 26 387-0103 1 ND6 REAR WIPER ASSY - GIB SIDE 27 387-0104 1 ND6 REAR WIPER ASSY	15	387-0092	3	ND6 GIB TIGHTENING SCREW	
17 387-0094 1 ND6 FEED SCREW 18 387-0095 2 ND6 FEEDSCREW RETAINING 19 387-0096 1 ND6 FEEDSCREW BUSHING 20 387-0097 1 THRUST BEARING COVER 21 387-0098 1 ND6 FEEDSCREWM 1/2-10 LH ACME 22 387-0099 1 24 387-0100 1 ND6 FRONT WIPER ASSY - 25 387-0102 1 ND6 FRONT WIPER ASSY - 26 387-0103 1 ND6 FRONT WIPER ASSY 26 387-0104 1 ND6 FRONT WIPER ASSY 27 387-0104 1 ND6 REAR WIPER ASSY	16	387-0093	1		
18 387-0095 2 ND6 FEEDSCREW RETAINING CLIP 19 387-0096 1 ND6 FEEDSCREW BUSHING 20 387-0097 1 THRUST BEARING COVER 21 387-0098 1 ND6 FEEDSCREWM 1/2-10 LH ACME 22 387-0109 1 ND6 GRADUATED COLLAR 23 387-0100 1 ND6 4" HAND WHEEL 24 387-0101 1 ND6 FRONT WIPER ASSY - GIB SIDE 25 387-0102 1 ND6 FRONT WIPER ASSY - GIB SIDE 26 387-0103 1 ND6 FRONT WIPER ASSY NON-GIB SIDE 27 387-0104 1 ND6 REAR WIPER ASSY	17	387-0094	1		
13 387-0030 1 INDO FIELDSCREW DOSINING 20 387-0097 1 THRUST BEARING COVER 21 387-0098 1 ND6 FEEDSCREWM 1/2-10 LH ACME 22 387-0099 1 ND6 GRADUATED COLLAR 23 387-0100 1 ND6 4" HAND WHEEL 24 387-0101 1 ND6 FRONT WIPER ASSY - GIB SIDE 25 387-0102 1 ND6 FRONT WIPER ASSY - GIB SIDE 26 387-0103 1 ND6 FRONT WIPER ASSY NON-GIB SIDE 27 387-0104 1 ND6 REAR WIPER ASSY	18	387-0095	2		
20 387-0097 1 THRUST BEARING COVER 21 387-0098 1 ND6 FEEDSCREWM 1/2-10 LH ACME 22 387-0099 1 ND6 GRADUATED COLLAR 23 387-0100 1 ND6 4" HAND WHEEL 24 387-0101 1 ND6 FRONT WIPER ASSY - GIB SIDE 25 387-0102 1 ND6 REAR WIPER ASSY - GIB SIDE 26 387-0103 1 ND6 FRONT WIPER ASSY NON-GIB SIDE 27 387-0104 1 ND6 REAR WIPER ASSY	19	387-0096	1	ND6 FEEDSCREW BUSHING	
21 367<0000			1	THRUST BEARING COVER	
23387-01001ND6 4" HAND WHEEL24387-01011ND6 FRONT WIPER ASSY - GIB SIDE25387-01021ND6 REAR WIPER ASSY - GIB SIDE26387-01031ND6 FRONT WIPER ASSY NON-GIB SIDE27387-01041ND6 REAR WIPER ASSY	21	387-0098	1		
24387-01011ND6 FRONT WIPER ASSY - GIB SIDE25387-01021ND6 REAR WIPER ASSY - GIB SIDE26387-01031ND6 FRONT WIPER ASSY NON-GIB SIDE27387-01041ND6 REAR WIPER ASSY	22		1	ND6 GRADUATED COLLAR	\sim
GIB SIDE 25 387-0102 1 ND6 REAR WIPER ASSY - GIB SIDE 26 387-0103 1 ND6 FRONT WIPER ASSY NON-GIB SIDE 27 387-0104 1 ND6 REAR WIPER ASSY	23		1		
GIB SIDE 26 387-0103 1 ND6 FRONT WIPER ASSY NON-GIB SIDE 27 387-0104 1 ND6 REAR WIPER ASSY	24	387-0101	1		
NON-GIB SIDE 27 387-0104 1 ND6 REAR WIPER ASSY	25	387-0102	1		
	26	387-0103	1		
	27	387-0104	1	NON-GIB SIDE	
28 480-1014 1 WASHER255 X .56 X .062 THICK	28	480-1014	1		MACTECH, INC

ITEM	PART NO.	QTY	DESCRIPTION	
1	070-0066	2	6/32 X 1/2 SHCS	
2	070-0101	2	8-32 x 1 SHCS	
2 3 4	072-0001	8	10-24 X 1/2" BHCS	
	072-0019	1	1/4-20 X 1/2 BHCS	
5	387-0086 MOD-A	1	GILMAN ND6 SLIDE W/MTG HOLES	
6	387-0087 MOD-A	1	GILMAN ND6 SADDLE w/pin holes	
7	387-0088	1	ND6 GIB	
8	387-0090	1	ND6 FEED NUT SPACER PLATE	
9	387-0091	1	ND6 FEED NUT 1/2-10 LH ACME	
10	387–0092	3	ND6 GIB TIGHTENING SCREW	(1
11	387-0093	1	ND6 GIB LOCKING SCREW ASSY	
12	387–0098	1	ND6 FEEDSCREWM 1/2-10 LH ACME	
13	387-0104	1	ND6 REAR WIPER ASSY NON-GIB SIDE	(
14	387-0101	1	ND6 FRONT WIPER ASSY - GIB SIDE	
15	387-0102	1	ND6 REAR WIPER ASSY – GIB SIDE	
16	387-0103	1	ND6 FRONT WIPER ASSY NON-GIB SIDE	
17	480-1014	1	WASHER – .255 X .56 X .062 THICK	





ITEM	PART NO.	QTY	DESCRIPTION
1	020-0030	2	THRUST ROLLER BEARING 1/2 X 15/16
2	070-0066	2	
3	070-0101	2	6/32 X 1/2 SHCS 8-32 x 1 SHCS
4	072-0001	8	10-24 X 1/2" BHCS
5	072-0018	4	5/16-18 X 7/8 BHCS
6	072-0019	1	1/4-20 X 1/2 BHCS
7	200-0012	1	1/8 X 5/8 SLOTTED SPRING PIN
8	237–0020	2	RETAINING RING EXTERNAL – 9/16 SHAFT
9	387-0086	1	ND6 SLIDE
10	387-0087 MOD-A	1	GILMAN ND6 SADDLE w/pin holes
11	387-0088	1	ND6 GIB
12	387–0089	1	GILMAN ND6 FEED SCREW END PLATE
13	387-0090	1	ND6 FEED NUT SPACER PLATE
14	387-0091	1	ND6 FEED NUT 1/2-10 LH ACME
15	387-0092	3	ND6 GIB TIGHTENING SCREW
16	387-0093	1	ND6 GIB LOCKING SCREW ASSY
17	387–0094	1	ND6 FEED SCREW EXTENSION/SOCKET
18	387-0095	2	ND6 FEEDSCREW RETAINING CLIP
19	387-0096	1	ND6 FEEDSCREW BUSHING
20	387-0097	1	THRUST BEARING COVER
21	387-0098	1	ND6 FEEDSCREWM 1/2-10 LH ACME
22	387-0099	1	ND6 GRADUATED COLLAR
23	387-0100	1	ND6 4" HAND WHEEL
24	387-0101	1	ND6 FRONT WIPER ASSY - GIB SIDE
25	387-0102	1	ND6 REAR WIPER ASSY – GIB SIDE
26	387–0103	1	ND6 FRONT WIPER ASSY NON-GIB SIDE
27	387-0104	1	ND6 REAR WIPER ASSY NON-GIB SIDE
28	480-1014	1	WASHER – .255 X .56 X .062 THICK



ITEM 1 2 3	PART NO. 020-0089	QTY 0	DESCRIPTION
2	020-0089		
		1	RADIAL BALL BEARING 1/2 X 1–1/4 X .25 WIDE
3	020-0131	1	TAPERED BEARING, .5 X 1.378
	020-0137	1	TAPERED BEARING, .625 X 1.378
4	070-0014	4	3/8-16 x 1 SHCS
5	070-0062	4	5/16–18 X 1–3/4 SOCKET HEAD CAP SCREW
6	070-0072	4	1/4-20 X 7/8 SHCS
7	071–0031	4	8-32 X 1/2 FHCS
8	100-0103	1	SPUR GEAR – 20 DP, 20 PA, 1" PD W/KEYWAY
9	100-0237	1	SPUR GEAR 2" PD, 20 DP W/KEYWAY
10	120-0038	1	REVOLVING HANDLE - 2" LONG
10-1	061-0027	1	5/16 X 1.75 SHOULDER SCREW
10-2	HANDLE	1	2" HANDLE
11	130-0210	1	WORKHORSE SERVO MOTOR
11-1	130-0210 P01025	1	BEVEL GEAR
11-2	130-0210 A0100	1	SERVO TOP HOUSING BODY
11–3	130-0210 A0100-02_	1	34MM SPACING WASHER
11-4	130-0210 A0100-04_	1	16MM SPACING WASHER
12	130-0210 LIMIT SWITCH	1	LIMIT SWITCH
13	150-0034	2	1/8 SQ X 7/8 KEY, ROUNDED ENDS
14	150-0054	1	1/8 X 1 KEY, ROUNDED ENDS
15	170-0030	1	5/8-11 JAM STYLE ELASTIC LOCKNUT
16	170-0057	1	1/2–20 JAM STYLE ELASTIC LOCKNUT
17	200-0017	2	3/8 x 1" HARDENED DOWEL PIN
18	200-0076	1	SPRING PIN 1/8 X 3/4
19	300-0105	2	6-32 X 1 PAN HEAD PHILLIPS MACHINE SCREW
20	340-0053	1	10-24 X 1/4 NYLON TIPPED SET SCREW
21	387-0073 MOD-A	1	FEEDSCREW SHAFT END
22	480-1050	1	STEEL SHIM WASHER 1/2 X .062 THK
23	480-1051	1	3/4 X 1.365 X .088 SPACING WASHER
24	620-1349	1	SERVO HANDLE BODY
25	620-4054	1	SERVO GEARBOX - WORKHORSE
26	620-4055	1	SERVO ADAPTOR SHAFT - WORKHORSE
27	620-4056	1	SERVO MTG PLATE – GILMAN ND8
28	620-4057	1	SERVO GEARBOX COVER PLATE

