

TURRET HEAD INSTALLATION

INSTALLATION INSTRUCTIONS:

THE HANGER BRACKETS WELDED ON THE BACK OF THE ATTACHMENT CONFORM TO THE SPECIFICATIONS OF THE MAST. INSTALL THE MAST ROLLER BEARING KIT ACCORDING TO THE MAST MANUFACTURER'S MANUAL. MEASURE THE INSIDE DIMENSIONS OF THE MAST CHANNEL AND THE OUTSIDE DIMENSIONS OF THE ROLLER BEARINGS AND SHIM THE BEARINGS TO THE MANUFACTURER'S SPECIFICATIONS.

THE THRUST BEARINGS THAT ROLL ON THE OUTSIDE OR INSIDE OF THE MAST RAIL SHOULD BE LOOSENED AND ADJUSTED AWAY FROM THE MAST RAIL FOR INSTALLATION.

BEFORE INSTALLING THE TURRET HEAD, CHECK THE HYDRAULIC SUPPLY GROUP INSTALLED INTERNALLY OR EXTERNALLY ON THE MAST FOR COMPATIBILITY WITH THE ATTACHMENT. HYDRAULIC PRESSURE MUST NOT EXCEED 2500 P.S.I. THE PIVOT CIRCUIT REQUIRES ONLY 1 GPM FOR PROPER ACTIVATION BUT WILL WORK WELL UP TO 5 GPM. THE SIDE SHIFT CIRCUIT REQUIRES A MINIMUM OF 5 GPM AND WORKS WELL UP TO 10 GPM. CONNECT THE HOSES FOR COMPATIBILITY TO THE DIRECTIONAL MARKINGS ON THE CONTROL VALVE HANDLES. AFTER ALL CONNECTIONS ARE COMPLETED ADJUST THE THRUST BEARINGS TO TOUCH THE MAST RAIL.

AFTER ALL CONNECTIONS HAVE BEEN SECURED RAISE THE MAST TO CHECK FOR INTERFERENCE BETWEEN THE ATTACHMENT AND MAST PARTS. AFTER ALL CONNECTIONS ARE CHECKED FOR SAFE OPERATION, REMOVE ANY FOREIGN PARTICLES OF DEBRIS FROM THE ATTACHMENT BEARING TRACKS. LOWER THE ATTACHMENT TO A SAFE WORKING LEVEL AND OPERATE WITHOUT A LOAD TO ELIMINATE ANY AIR IN THE HYDRAULIC CIRCUITS. RECHECK ALL CONNECTIONS FOR POSSIBLE HYDRAULIC LEAKS OR MECHANICAL INTERFERENCE. LOAD THE ATTACHMENT AND OPERATE BOTH HYDRAULIC FUNCTIONS AND CHECK FOR HYDRAULIC LEAKS OF MECHANICAL PROBLEMS.

OPERATING THE ATTACHMENT:

- CHECK THE ATTACHMENT SPECIFICATIONS (CAPACITY, LOAD SIZE)
- CHECK THE LOAD SPECIFICATIONS TO INSURE COMPATIBILITY WITH THE TRUCK/ATTACHMENT COMBINATIONS. YOUR FORKS SHOULD NOT EXCEED THE LENGTH OF YOUR LOAD AND SHOULD BE ADJUSTED AS WIDE APART AS YOUR LOAD WILL ACCEPT.

OPERATIONAL RECOMMENDATIONS:

- TRAVEL WITH THE LOAD IN A LOWERED POSITION. THIS WILL INCREASE THE TRUCK STABILITY AND OPERATOR VISIBILITY.
- OPERATE THE ROTATION AND SIDE SHIFTING FUNCTIONS AT LOW SPEED.
- STORE THE HEAVIEST LOADS IN THE LOWER STORAGE POSITIONS.
- DO NOT SIDE SHIFT THE ATTACHMENT WHEN LOADED UNLESS THE LIFT TRUCK IS IN A STORAGE RACK AREA OR IN A LOWERED POSITION.
- DO NOT ROTATE THE TURRET ATTACHMENT WHEN LOADED UNLESS YOUR LOAD IS IN A LOWERED POSITION.

ADJUSTMENTS:

1. TRAVERSE CHAIN ADJUSTMENT
SEE TRAVERSE CHAIN-ADJUST SHEET.
2. ADJUST THE ROTATION SPEED BY MEANS OF THE FLOW VALVES AT THE TOP OF THE PIVOT HEAD AREA. RECOMMENDED SPEED 6 TO 8 SECONDS.
3. THE DOUBLE PILOT LOCK VALVE IS FIXED THEREFORE ADJUSTMENT IS NOT REQUIRED.

MAINTENANCE:

THE TURRET HEAD ATTACHMENT IN MOST APPLICATIONS NEEDS TO BE SERVICED AFTER 200 HOURS. IT IS HIGHLY RECOMMENDED TO VISUALLY CHECK THE ATTACHMENT DAILY FOR OBVIOUS PROBLEMS. ALWAYS INSPECT THE ATTACHMENT AFTER ANY COLLISIONS, SHOCKS, OR UNUSUAL NOISES.

A. 200 HOUR OR MONTHLY CHECK

- OBSERVE ALL BEARINGS AND TRACKS
- HYDRAULIC HOSES AND TRACK ASSEMBLY
- CHECK TRAVERSE CHAIN ADJUSTMENT
- CHAIN TENSIONS DURING ROTATION
SEE ROTATION ASSEMBLY DRAWING

B. 1000 HOUR OR 6 MONTH CHECK

- PERFORM ALL OPERATIONS PARAGRAPH (A)
- CLEAN ALL MOVING PARTS
- CLEAN THE ROTATION CHAIN. INSPECT THE CONDITION OF THE CHAIN AND CONNECTION LINKS. LUBRICATE WITH OIL OR LIGHT GREASE. *
- CLEAN AND INSPECT THE TRAVERSE CHAIN ASSEMBLY
- LOCATE THE GREASE FITTING FOR THE PIVOT SHAFT AND GREASE. *
- GREASE THE EIGHT MAIN LOAD BEARINGS. *
- CHECK ALL STRUCTURAL ASSEMBLIES AND THE BOLT ON PARTS FOR TIGHTNESS.

*REFER TO SPECIFICATION PAGE

*SEE LUBRICATION CHART

C. 2000 HOUR OR ONE YEAR CHECK

- PERFORM ALL OPERATIONS ON PARAGRAPH (A) AND (B).
- INSPECT THE CHAIN, ANY EXCESSIVE WEAR IN THE PIN CONNECTION REQUIRES REPLACEMENT.
- INSPECT ALL ROLLER BEARINGS, ANY SURFACE IMPERFECTION OR NOISE DURING OPERATION REQUIRES REPLACEMENT.
- INSPECT ROTATION ASSEMBLY, ANY EXCESSIVE WEAR WILL REQUIRE THE REPLACEMENT OF THE BUSHINGS.
- INSPECT FORKS. ANY CRACKS IN THE FORK REQUIRES REPLACEMENT. PAY PARTICULAR ATTENTION IN THE AREA OF THE HEEL AND HOOKS. INSPECT FOR WEAR ON THE BOTTOM OF THE HEEL. 10 PERCENT WEAR REDUCES CAPACITY 50 PERCENT. WELDING CANNOT REPAIR FORKS. ONLY REPLACEMENT IS ACCEPTABLE.
- INSPECT ALL HYDRAULIC CONNECTIONS AND COMPONENTS. FOR SPECIFIC REPAIR, REFER TO INDIVIDUAL REPAIR INSTRUCTION SHEETS.



THE CHAIN TENSION ADJUSTMENT IS PROVIDED BY AN ADJUSTABLE CHAIN ANCHOR ON ONE END OF THE CHAIN LOCATED ON THE BACKSIDE OF THE BOOM. LOOSEN THE TWO LOCKING NUTS AND TURN THE $\frac{3}{4}$ " NUT CLOCKWISE, LOOKING FROM THE END OF THE CHAIN ANCHOR, TO INCREASE THE CHAIN TENSION OR COUNTER CLOCKWISE TO REDUCE THE CHAIN TENSION.

THE PROPER ADJUSTMENT IS ATTAINED WHEN THE CHAIN IS STRAIGHT FROM END TO END AND DOES NOT HAVE ANY SLACK. AFTER THIS POSITION IS AQUIRED, TURN THE ADJUSTING NUT ONE FULL ROUND CLOCKWISE TO SET ADJUSTMENT. LIGHTLY TIGHTEN THE LOCK NUT. OPERATE THE UNIT SEVERAL TIMES EACH WAY. RE-CHECK ADJUSTMENT AND TIGHTEN LOCK NUT.

NEW ATTACHMENTS OR CHAINS MAY REQUIRE ADJUSTMENT AFTER THE FIRST FEW HOURS OF BREAK-IN.

LUBRICATION CHART

THE FOLLOWING LUBRICANTS ARE RECOMMENDED:

MANUFACTURER

SHELL
EXXON
TEXACO
MOBIL
UNION
SUN

BEARINGS

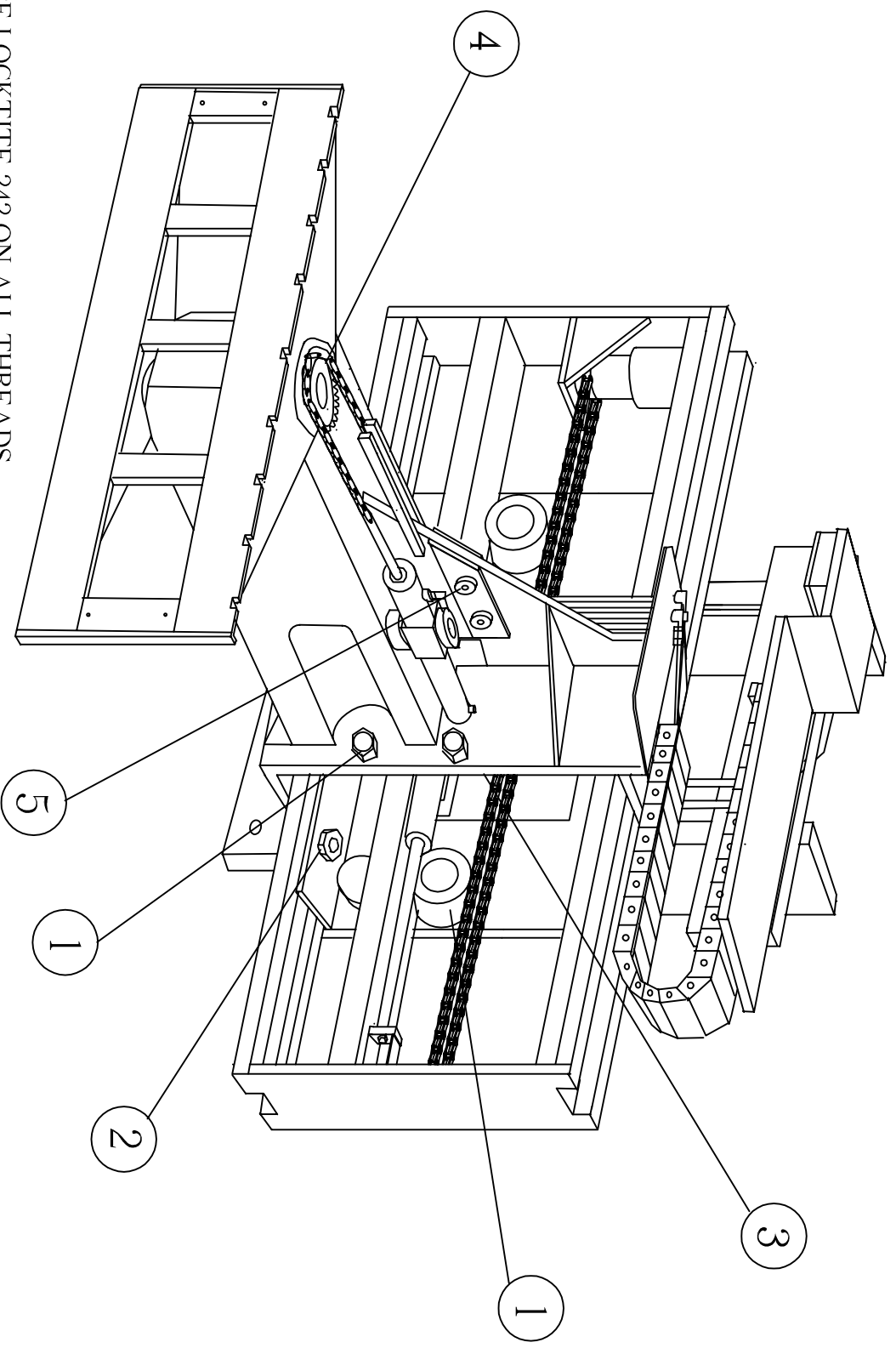
ALVANIA EP2
RONEX WB
MULTIFAX EP2
MOBILUX EP2
UNOBA EP2
PRESTIGE 742 EP

LUBRICANTS OF THE SAME QUALITY BY OTHER MANUFACTURERS MAY ALSO BE USED.

(MOTOR OIL, HYDRAULIC OIL)
ANY LIGHT OIL CAN BE USED FOR LIGHTLY LUBRICATING CHAIN PIVOT POINTS

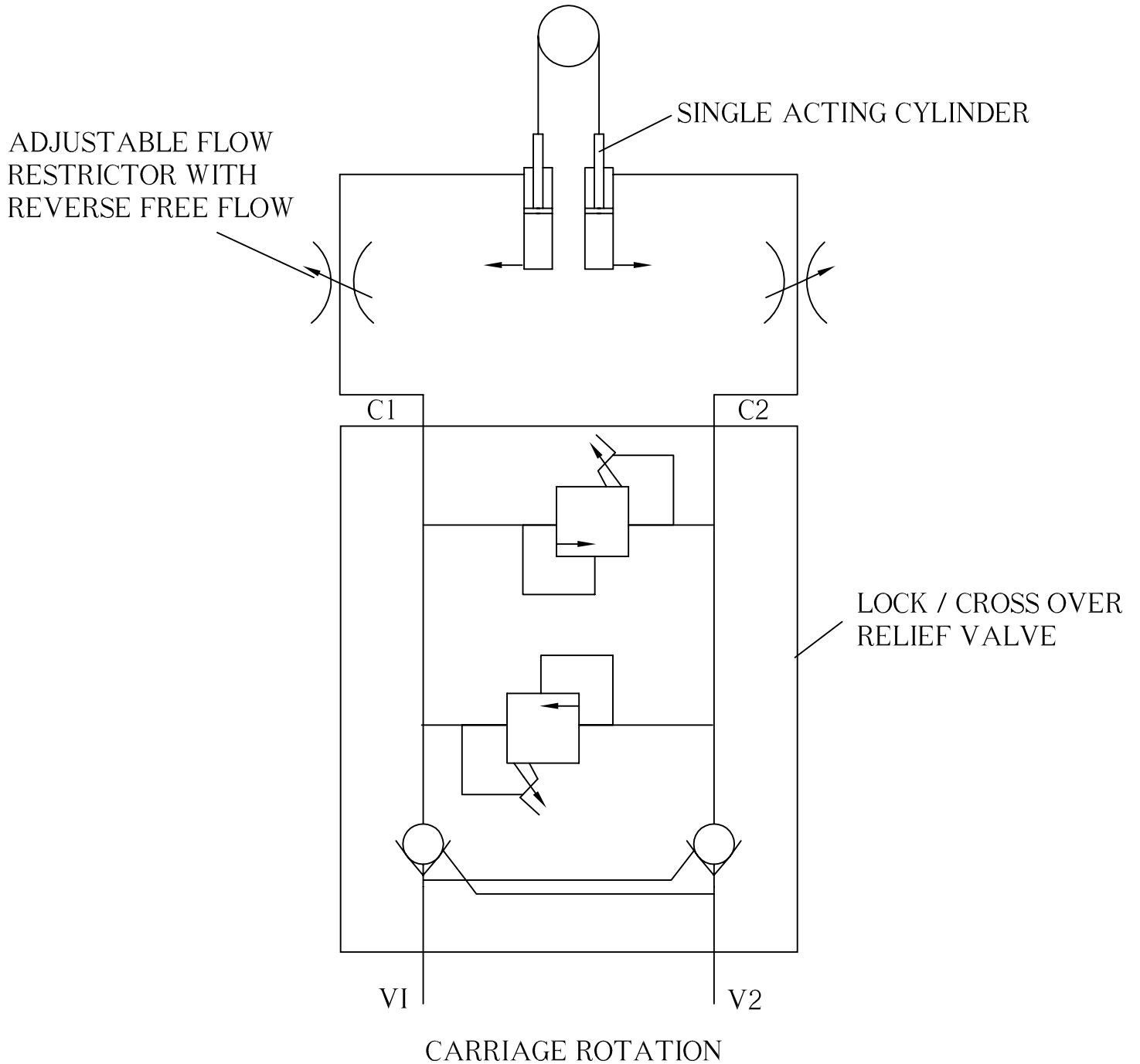
TORQUE SPECIFICATIONS

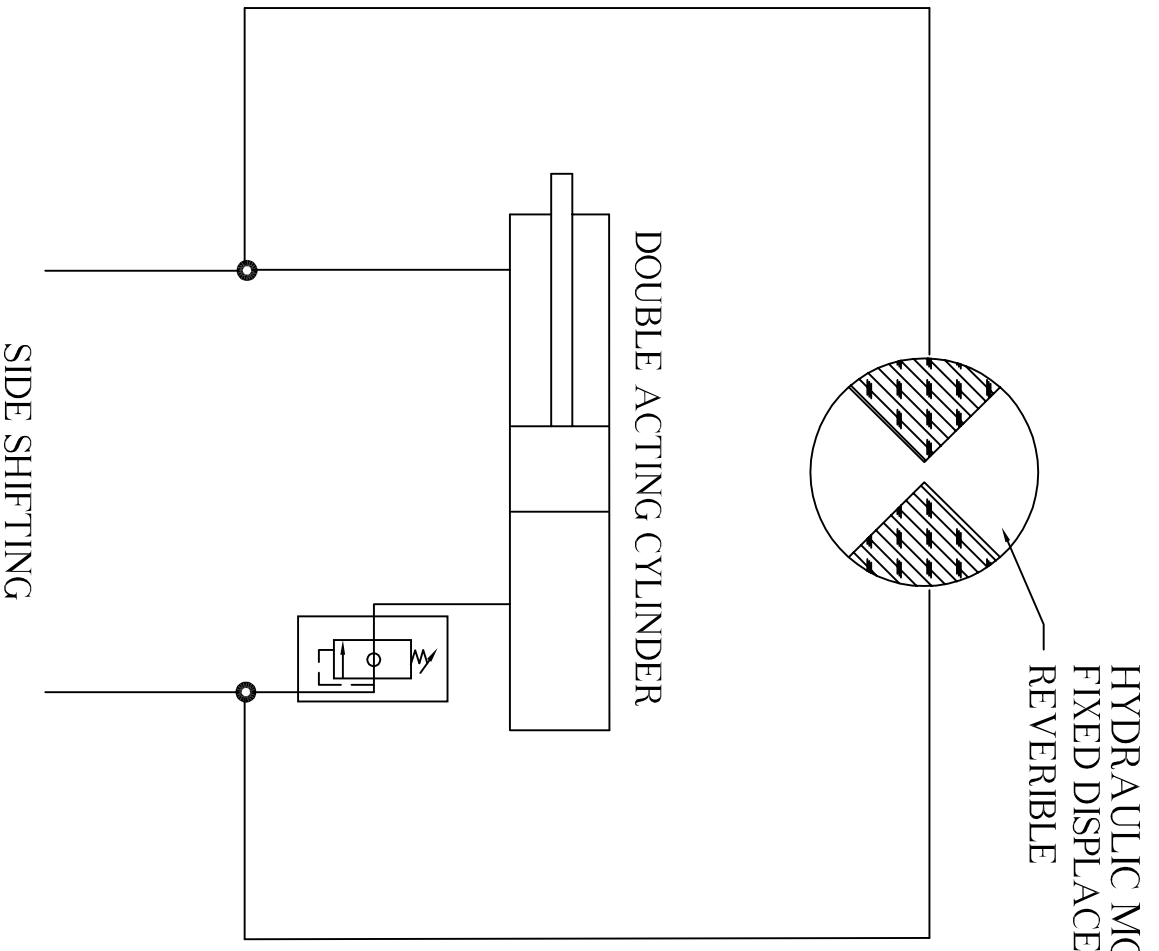
| ITEM NO. | QUANTITY | DESCRIPTION | TORQUE |
|----------|----------|-----------------------------|-------------|
| 1 | 8 | MAIN LOAD BEARINGS | 425 FT.LBS. |
| 2 | 14 | SECONDARY LOAD BEARINGS | 235 FT.LBS. |
| 3 | 4 | MOTOR SUPPORT BOLTS | 45 FT.LBS. |
| 4 | 2 | PIVOT SHAFT ALIGNMENT BOLTS | 65 FT.LBS. |
| 5 | 2 | PIVOT CYLINDER MOUNT BOLTS | 50 FT.LBS. |



NOTE: USE LOCKTITE 242 ON ALL THREADS

HYDRAULIC CIRCUITS



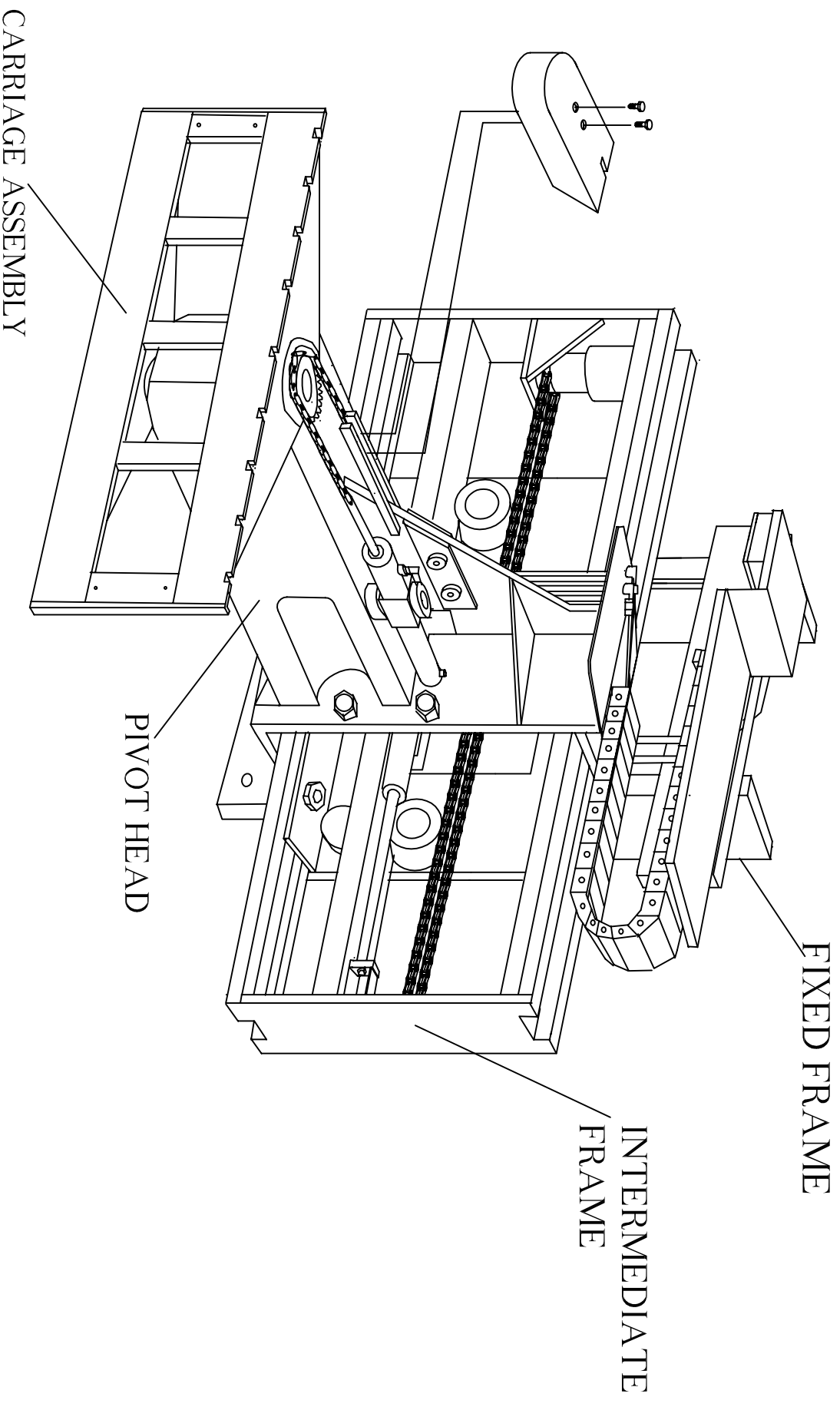


HYDRAULIC MOTOR
 FIXED DISPLACEMENT
 REVERIBLE

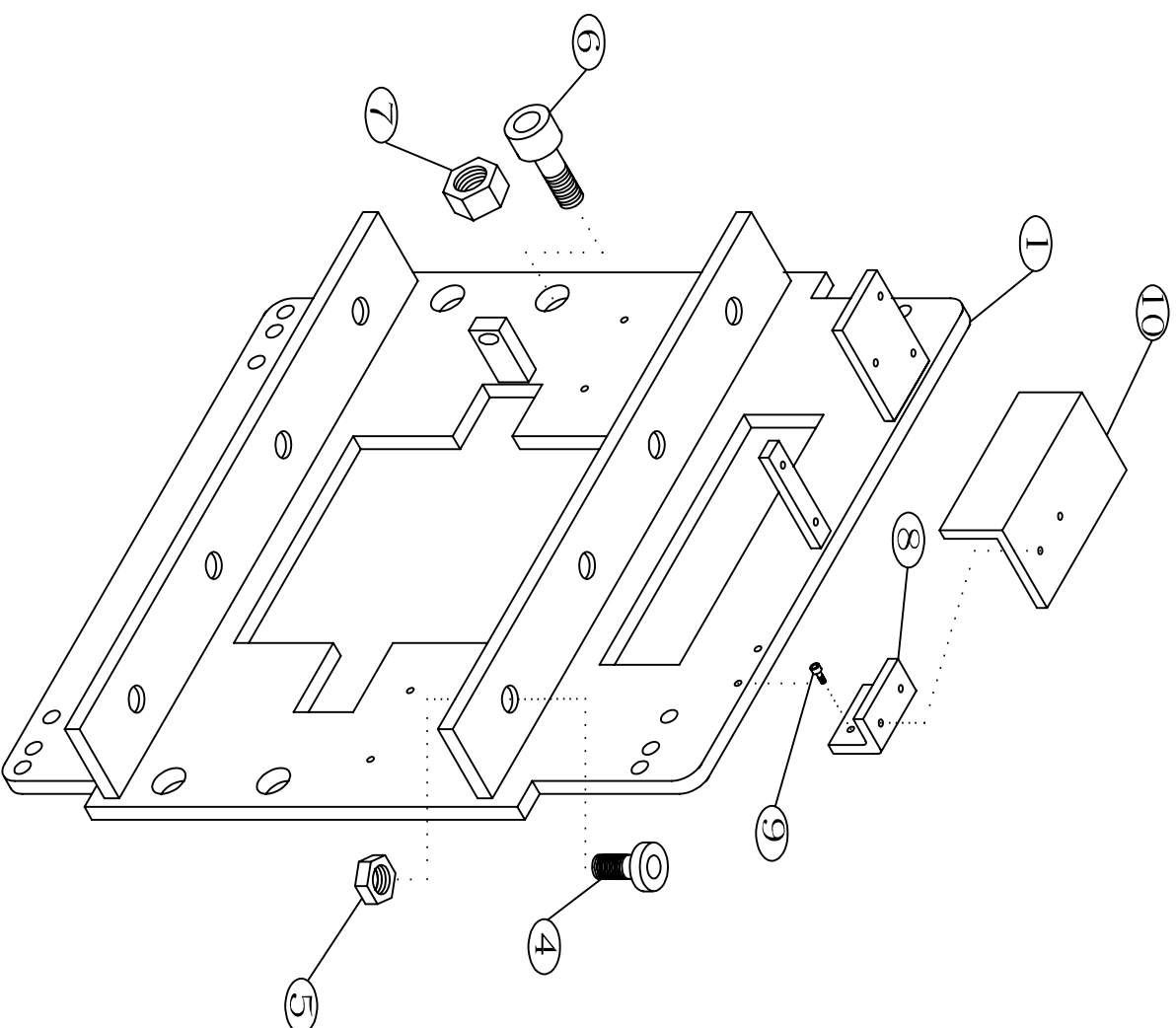
DOUBLE ACTING CYLINDER

SIDE SHIFTING

TURRET HEAD ASSEMBLIES



FIXED FRAME ASSEMBLY

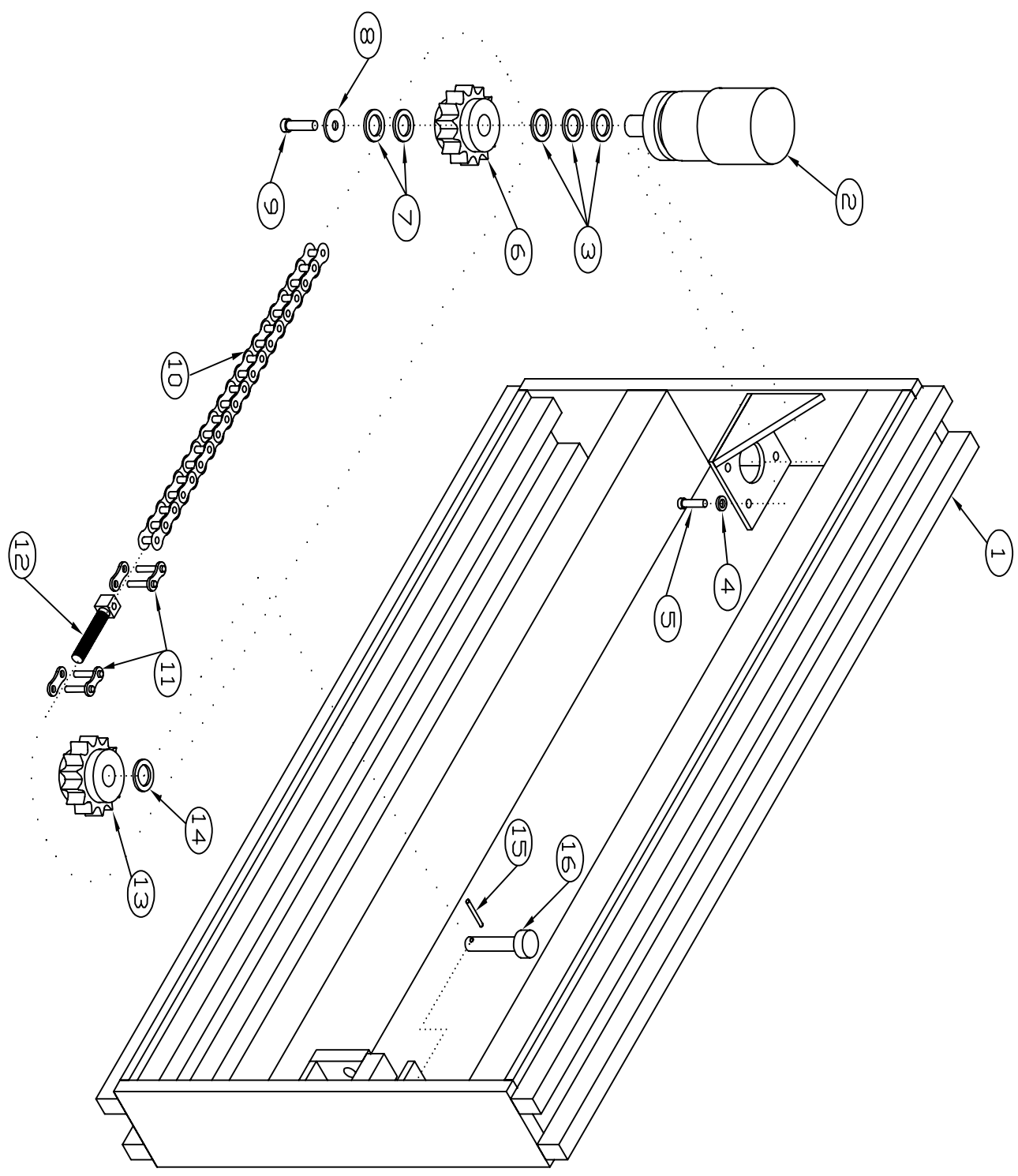


FIXED FRAME ASSEMBLY

| <u>ITEM NO.</u> | <u>REQ'D</u> | <u>PART NO.</u> | <u>DESCRIPTION</u> |
|-----------------|--------------|-----------------|---------------------|
| 1 | 1 | 8204 | FIXED FRAME |
| 2 | 4 | 8362* | THRUST BEARING |
| 2A | 4 | 8360* | THRUST BEARING STUD |
| 2A | 4 | 8360S* | THRUST BEARING STUD |
| 3 | 6 | 9109* | NUT |
| 4 | 8 | 8357 | ROLLER BEARING |
| 5 | 8 | 9110 | NUT |
| 6 | 4 | 8355 | LOAD BEARING |
| 7 | 4 | 9104 | NUT |
| 8 | 1 | 8328D | GUARD MOUNT |
| 9 | 2 | .375STDx1.00 | BOLTS |
| 10 | 1 | 8328C | GUARD w/ BOLTS |

*EXTERNAL SIDE THRUST NOT USED IN ALL APPLICATIONS, MUST HAVE SERIAL NUMBER OF UNIT

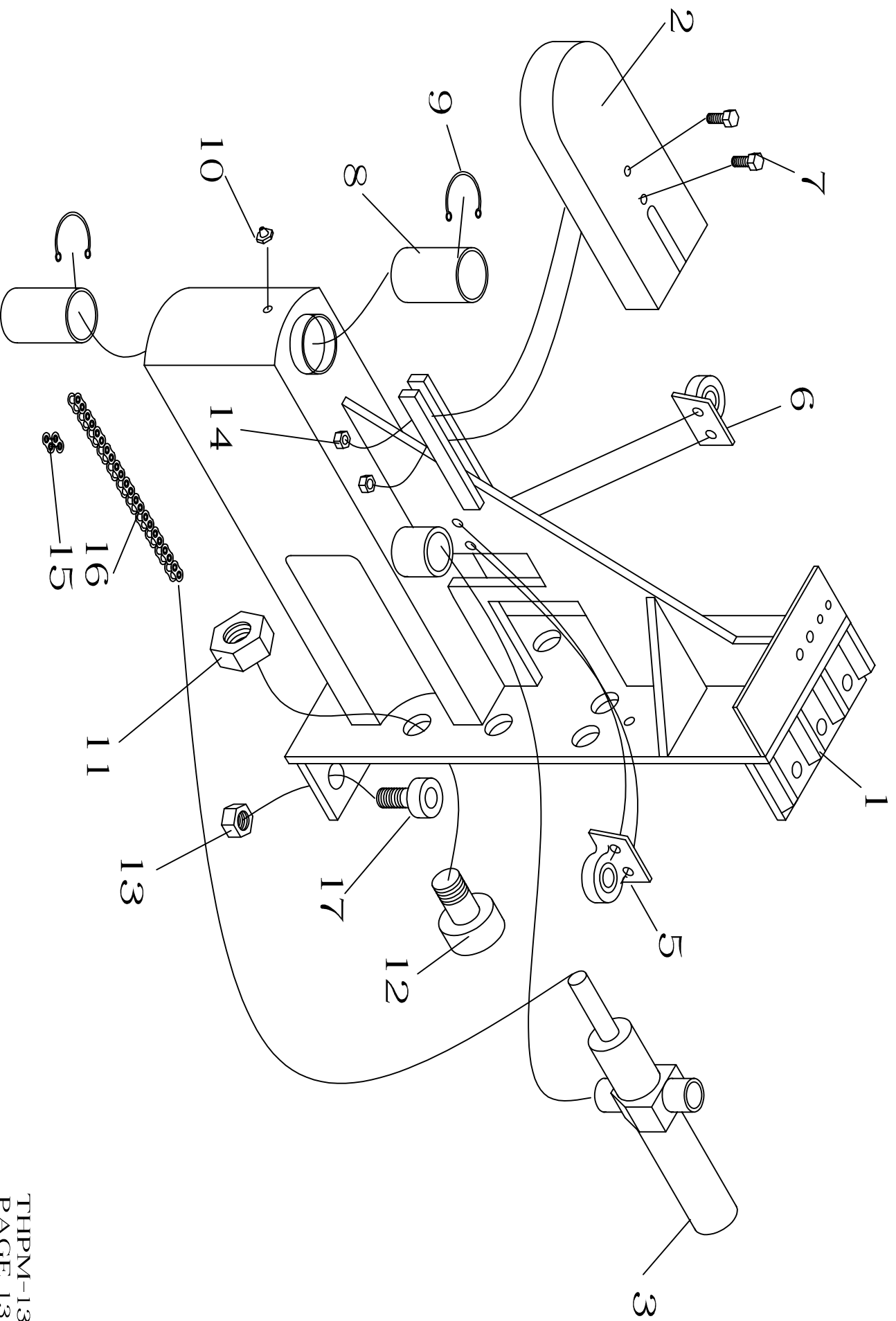
INTERMEDIATE FRAME TRAVERSE DRIVE COMPONENTS



INTERMEDIATE FRAME

| <u>ITEM NO.</u> | <u>REQ'D</u> | <u>PART NO.</u> | <u>DESCRIPTION</u> |
|-----------------|--------------|-----------------|-----------------------|
| 1 | 1 | 8201 | INT. FRAME 48" STROKE |
| 1 | 1 | 820140 | INT. FRAME 40" STROKE |
| 1 | 1 | 820142 | INT. FRAME 42" STROKE |
| 1 | 1 | 820154 | INT. FRAME 54" STROKE |
| 1 | 1 | 820160 | INT. FRAME 60" STROKE |
| 2 | 1 | 306399C | HYDRAULIC MOTOR |
| 3 | 1 | SE1002 | THRUST BEARING KIT |
| 4 | 4 | 91134 | WASHER |
| 5 | 4 | 9113 | BOLT |
| 6 | 1 | 8376A | MOTOR DRIVE SPROCKET |
| 7 | 2 | 91131 | WASHERS |
| 8 | 1 | 91132 | WASHERS |
| 9 | 1 | 91133 | BOLT |
| 10 | 1 | 8386 | DRIVE CHAIN |
| 11 | 2 | 60M | MASTER LINKS |
| 12 | 1 | 8385 | CHAIN ADJUSTER |
| 13 | 1 | 8501 | IDLER SPROCKET |
| 14 | 1 | 83862 | SPACER |
| 15 | 1 | 8384 | ROLL PIN |
| 16 | 1 | 8381 | SPROCKET PIN |

PIVOT HEAD ASSEMBLY



PIVOT HEAD ASSEMBLY

| <u>ITEM NO.</u> | <u>REQ'D</u> | <u>PART NO.</u> | <u>DESCRIPTION</u> |
|-----------------|--------------|-----------------|--------------------------|
| 1 | 1 | 9008 | PIVOT ASSY. 40"-48" LOAD |
| 2 | 1 | 8380 | CHAIN GUARD |
| 3 | 2 | 8326 | PIVOT CYLINDER |
| 5 | 1 | 8354 | CYLINDER BRACKET |
| 6 | 1 | 8353 | CYLINDER BRACKET |
| 7 | 2 | 9107 | FASTENER |
| 8 | 2 | 8394 | BUSHING |
| 9 | 2 | 9103 | SNAP RING |
| 10 | 1 | 8393 | GREASE FITG (ZERK) |
| 11 | 4 | 9104 | NUT |
| 12 | 4 | 8355 | LOAD BEARING |
| 13 | 6 | 9105 | NUT |
| 14 | 2 | 9106 | NUT |
| 15 | 2 | 8352 | CONNECTING LINK |
| 16 | 1 | 8351 | PIVOT CHAIN |
| 17 | 6 | 8357 | ROLLER BRG |

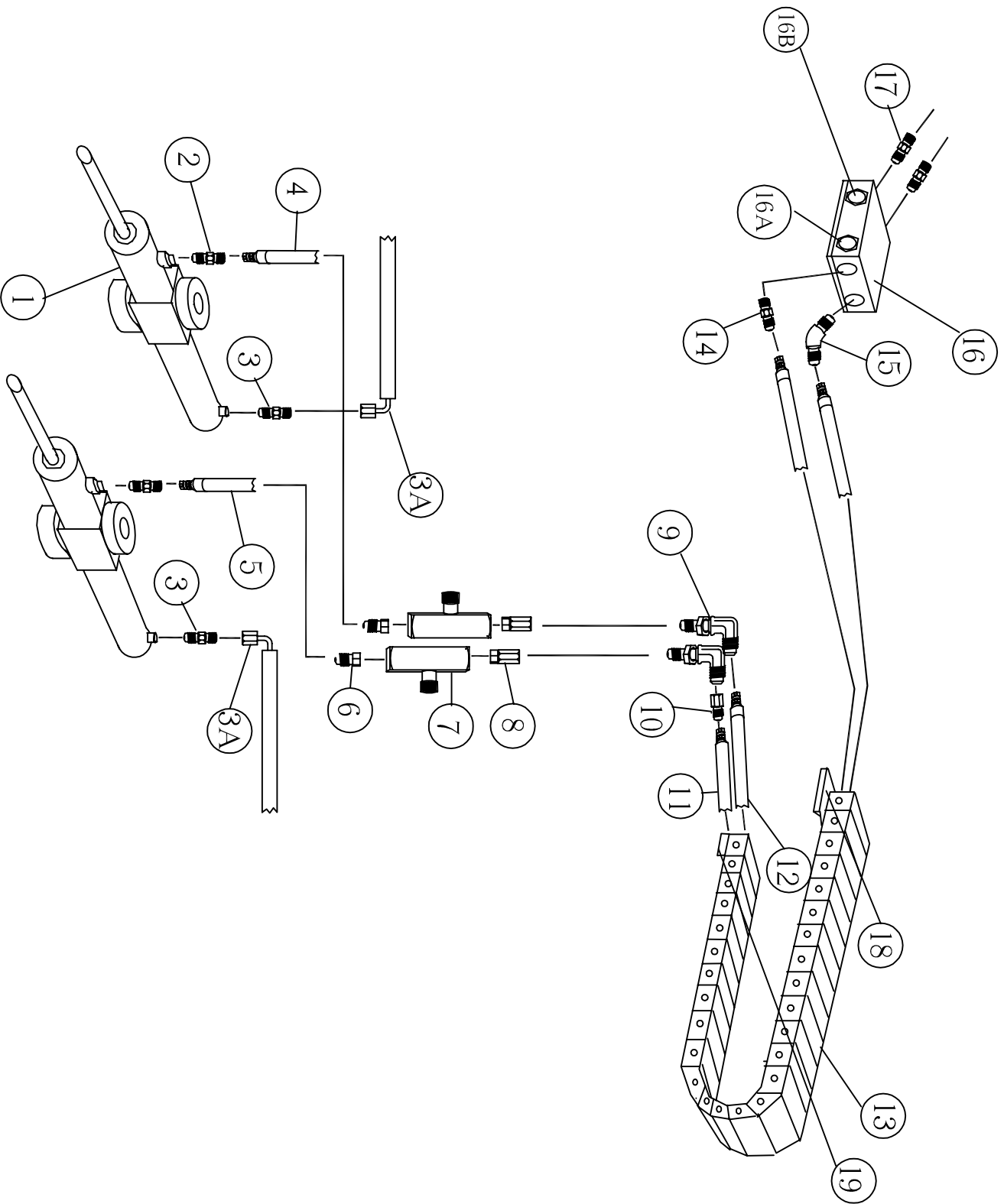
NOTES

*ITEMS 18-24 NOT SHOWN

*ITEMS 20-24 ARE FOR TURRET HEAD WITH TILT CARRIAGE

PIVOT HYDRAULICS FOR TURRET HEAD

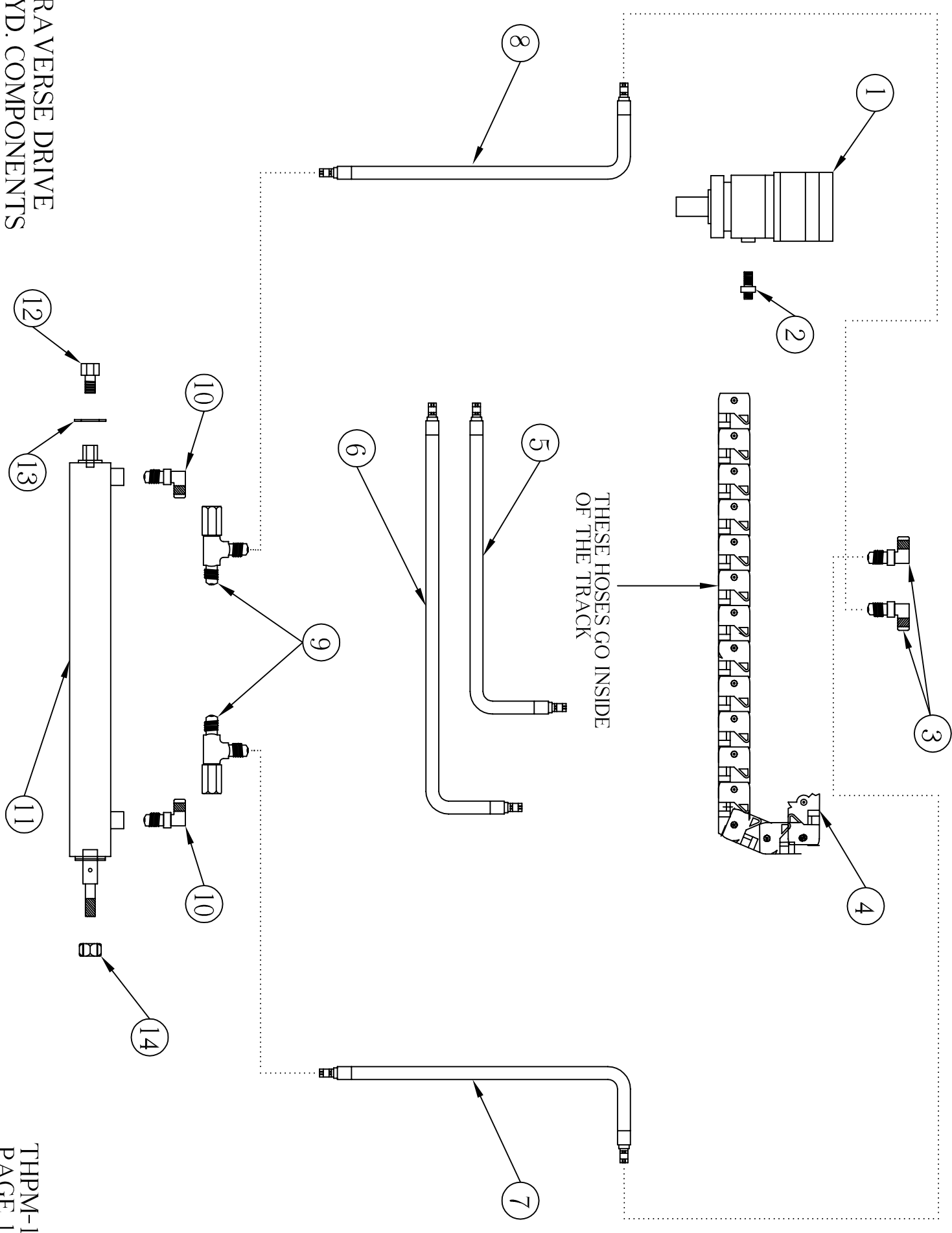
SEE BACK VIEW OF HYDRAULICS



PIVOT HYDRAULIC SYSTEM PARTS

| <u>ITEM NO.</u> | <u>REQ'D</u> | <u>PART NO.</u> | <u>DESCRIPTION</u> |
|-----------------|--------------|-----------------|------------------------|
| 1 | 2 | 8326 | PIVOT CYLINDER |
| N/A | N/A | 8326SK | PIVOT CYL. SEAL KIT |
| 2 | 2 | 8322 | ADAPTER FITTING |
| 3 | 2 | 8331 | ADAPTER FITTING |
| 3A | 2 | 8336 | HOSE ASSEMBLY |
| 4 | 1 | 8301 | R/HAND PIVOT CYL. HOSE |
| 5 | 1 | 8302 | L/HAND PIVOT CYL. HOSE |
| 6 | 2 | 8311 | ADAPTER FITTING |
| 7 | 2 | 8321 | FLOW CONTROL VALVE |
| 8 | 2 | 8332 | ADAPTER FITTING |
| 9 | 2 | 8318 | ADAPTER FITTING |
| 10 | 1 | 8319 | ADAPTER |
| 11 | 1 | 8304 | HOSE ASSY. |
| 12 | 1 | 8303 | HOSE ASSY. |
| 13 | 1 | 8328A | CABLE TRACK |
| 14 | 1 | 8312 | ADAPTER FITTING |
| 15 | 1 | 8322 | ADAPTER |
| 16 | 1 | 8324 | CHECK VALVE ASSY. |
| 16A | 2 | 8324A | RELIEF VALVE |
| 16B | 2 | 8324B | CHECK VALVE |
| 17 | 2 | 8399 | ADAPTER |
| 18 | 1 | 8329A | FIXED BRACKET |
| 19 | 1 | 8330A | SWIVEL BRACKET |

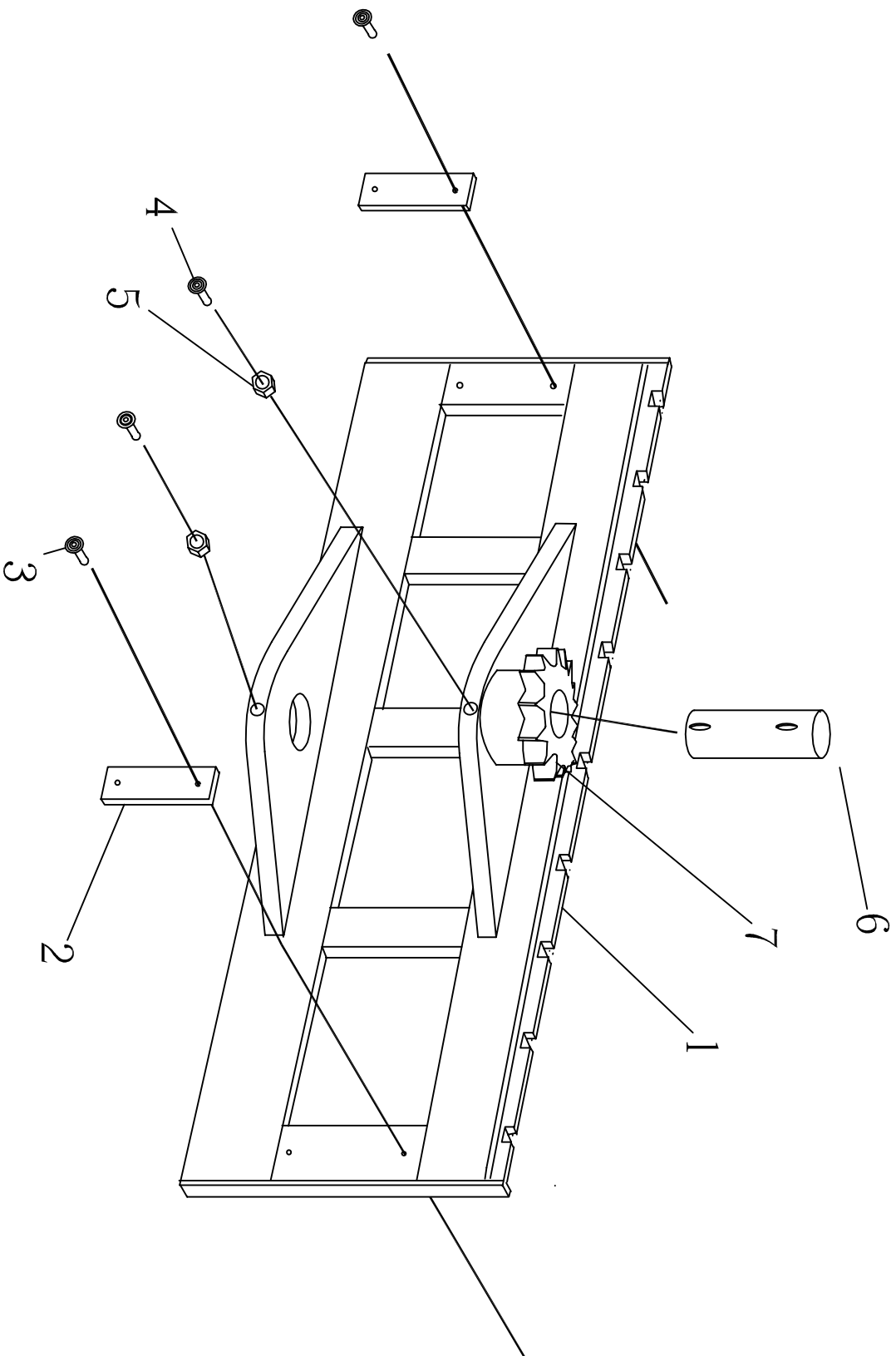
TRAVERSE DRIVE
HYD. COMPONENTS



TRAVERSE DRIVE PARTS

| <u>ITEM NO.</u> | <u>REQ'D</u> | <u>PART NO.</u> | <u>DESCRIPTION</u> |
|-----------------|--------------|-----------------|--------------------|
| 1 | 1 | 306399C | HYD. MOTOR |
| 2 | 2 | 8319 | ADAPTOR |
| 2 | 2 | 8323 | ADAPTOR |
| 3 | 2 | 8340 | ADAPTOR |
| 4 | 1 | 8349 | HOSE TRACK |
| 5 | 1 | 8343 | HOSE ASSY |
| 6 | 1 | 8348 | HOSE ASSY |
| 7 | 1 | 8342 | HOSE ASSY |
| 8 | 1 | 8341 | HOSE ASSY |
| 9 | 2 | 8338 | ADAPTOR |
| 10 | 2 | 8317 | ADAPTOR |
| 11 | 1 | 8327 | CYLINDER |
| 12 | 1 | 304449 | BOLT |
| 13 | 1 | 304448 | WASHER |
| 14 | 1 | 304464 | LOCK NUT |

CARRIAGE ASSEMBLY

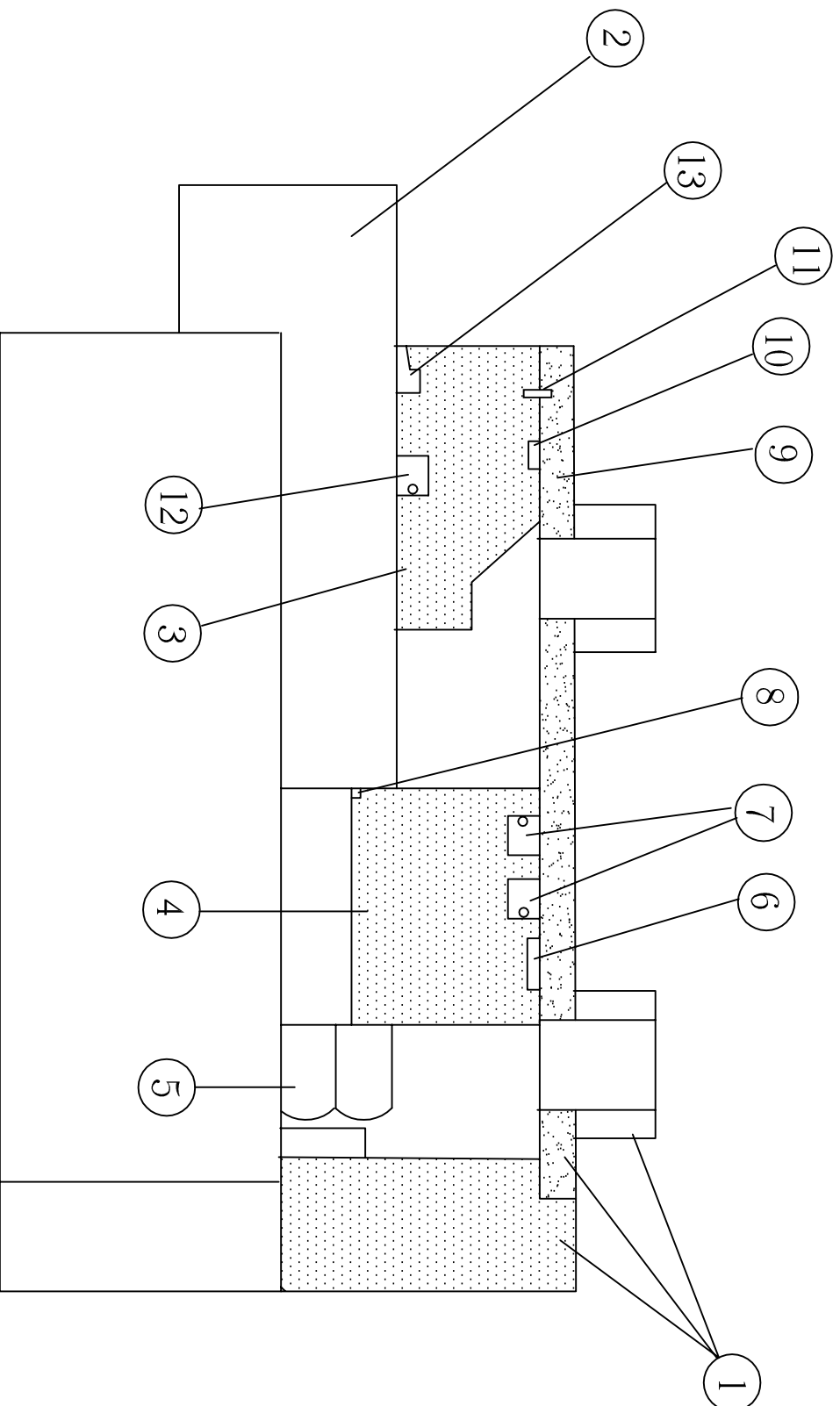


CARRIAGE ASSEMBLY

| <u>ITEM NO.</u> | <u>REQ'D</u> | <u>PART NO.</u> | <u>DESCRIPTION</u> |
|-----------------|--------------|-----------------|--------------------|
| 1 | 1 | 8206 | CARRIAGE ASSY. |
| 2 | 2 | 8374 | STOP BLOCK |
| 3 | 4 | 9108 | FASTENER |
| 4 | 2 | 9101 | LOCKING BOLT |
| 5 | 2 | 9102 | JAM NUT |
| 6 | 1 | 8382 | PIVOT SHAFT |
| 7 | 1 | 9500 | SPROCKET |

*REFER TO FIELD BULLETIN FOR SPROCKET REPLACEMENT
WELDING PROCEDURE INSTRUCTIONS.

PIVOT CYLINDER ASSEMBLY

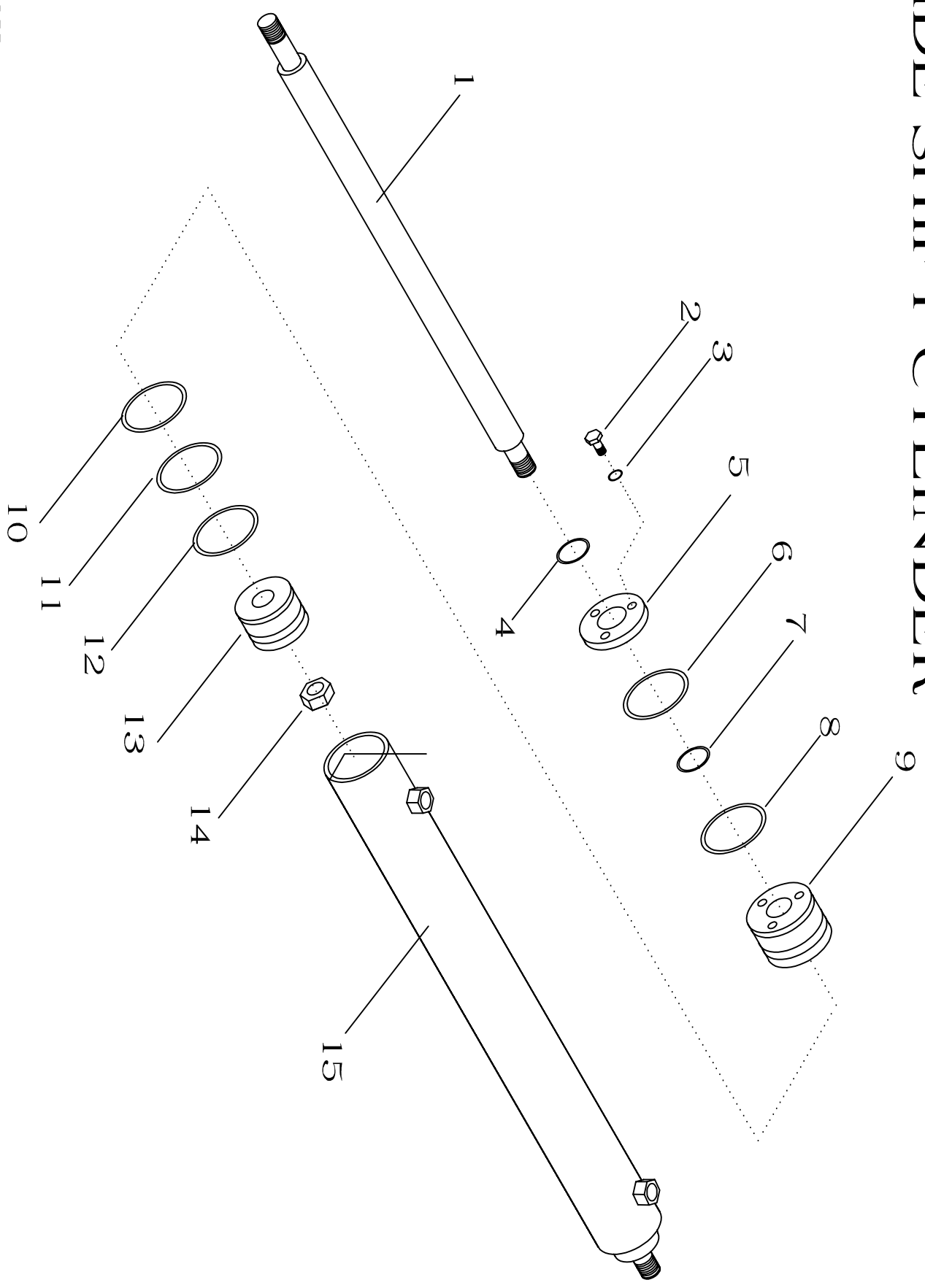


PIVOT CYLINDER 8326

PARTS

| <u>REF. NO.</u> | <u>REQ'D</u> | <u>PART NO.</u> | <u>DESCRIPTION</u> |
|-----------------|--------------|-----------------|--------------------|
| 1 | 1 | 51385 | TUBE ASSY. |
| 2 | 1 | 51368 | ROD ASSY. |
| 3 | 1 | 51390 | HEAD |
| 4 | 1 | 51389 | PISTON |
| 5 | 1 | 51391 | NUT |
| 6 | 1 | 51394* | WEAR BAND |
| 7 | 2 | 51395* | PISTON SEAL |
| 8 | 1 | 51396* | O-RING |
| 9 | 1 | 51397* | O-RING |
| 10 | 1 | 51398* | BACKUP RING |
| 11 | 1 | 51399* | SNAP RING |
| 12 | 1 | 51337* | ROD SEAL |
| 13 | 1 | 51338* | ROD WIPER |
| 14 | 1 | 8326SK | SEAL KIT |

SIDE SHIFT CYLINDER



M. LUSK

5/30/97

8327 SIDE SHIFT CYLINDER

PARTS

| <u>REF. NO.</u> | <u>REQ'D</u> | <u>PART NO.</u> | <u>DESCRIPTION</u> |
|-----------------|--------------|-----------------|--------------------|
| 1 | 1 | 51384 | ROD |
| 2 | 3 | 51161 | S/H CAP SCREW |
| 3 | 3 | 51986 | LOCK WASHER |
| 4 | 1 | 51782* | ROD WIPER |
| 5 | 1 | 51262 | RETAINER |
| 6 | 1 | 51409 | RETAINING RING |
| 7 | 1 | 51662* | ROD SEAL |
| 8 | 1 | 51462 | HEAD O'RING |
| 9 | 1 | 51387 | HEAD |
| 10 | 2 | 51369* | BACKUP |
| 11 | 1 | 51437* | PISTON O'RING |
| 12 | 2 | 51369* | BACKUP |
| 13 | 1 | 51386 | PISTON |
| 14 | 1 | 51308 | NUT S/LOCKING |
| 15 | 1 | 51137 | TUBE ASSY. |
| * | 1 | 8327SK | SEAL KIT |

*PART NUMBER 8327SK CONTAINS ALL ITEMS MARKED WITH AN ASTERISK

RECOMMENDED SPARE PARTS LIST
TURRET HEAD

| <u>PART NO.</u> | <u>DESCRIPTION</u> | <u>1-2</u> | <u>3-5</u> | <u>6-10</u> |
|-----------------|----------------------|------------|------------|-------------|
| 8351 | ROTATION CHAIN | 1 | 1 | 2 |
| 8352 | MASTER LINK | 2 | 4 | 6 |
| 8326 | PIVOT CYLINDER | 0 | 1 | 2 |
| 8326SK | PIVOT CYL. SEAL KIT | 1 | 1 | 2 |
| 8327 | SIDE SHIFT CYL. | 0 | 1 | 2 |
| 8327SK | SS CYLINDER SEAL KIT | 1 | 1 | 2 |
| 8324A | PIVOT CHECK VALVE | 1 | 2 | 3 |
| 8324B | PIVOT RELIEF VALVE | 1 | 2 | 3 |
| 8349 | HOSE TRACK INNER | 1 | 1 | 2 |
| 8328A | HOSE TRACK OUTER | 1 | 1 | 2 |
| 8394 | PIVOT BUSHING | 2 | 2 | 4 |
| 9103 | SNAP RINGS | 4 | 4 | 6 |
| 8355 | MAIN LOAD BEARING | 1 | 2 | 4 |
| 8357 | SECONDARY BEARING | 1 | 2 | 4 |
| 306399C | HYDRAULIC MOTOR | 0 | 1 | 2 |
| SE1000B | HYD. MOTOR SEAL KIT | 1 | 1 | 2 |
| 8382 | PIVOT SHAFT | 0 | 1 | 1 |
| 8374 | STOP BLOCK | 2 | 4 | 6 |
| 8206 | CARRIAGE | 0 | 0 | 1 |
| 8380 | CHAIN GUARD | 0 | 1 | 1 |