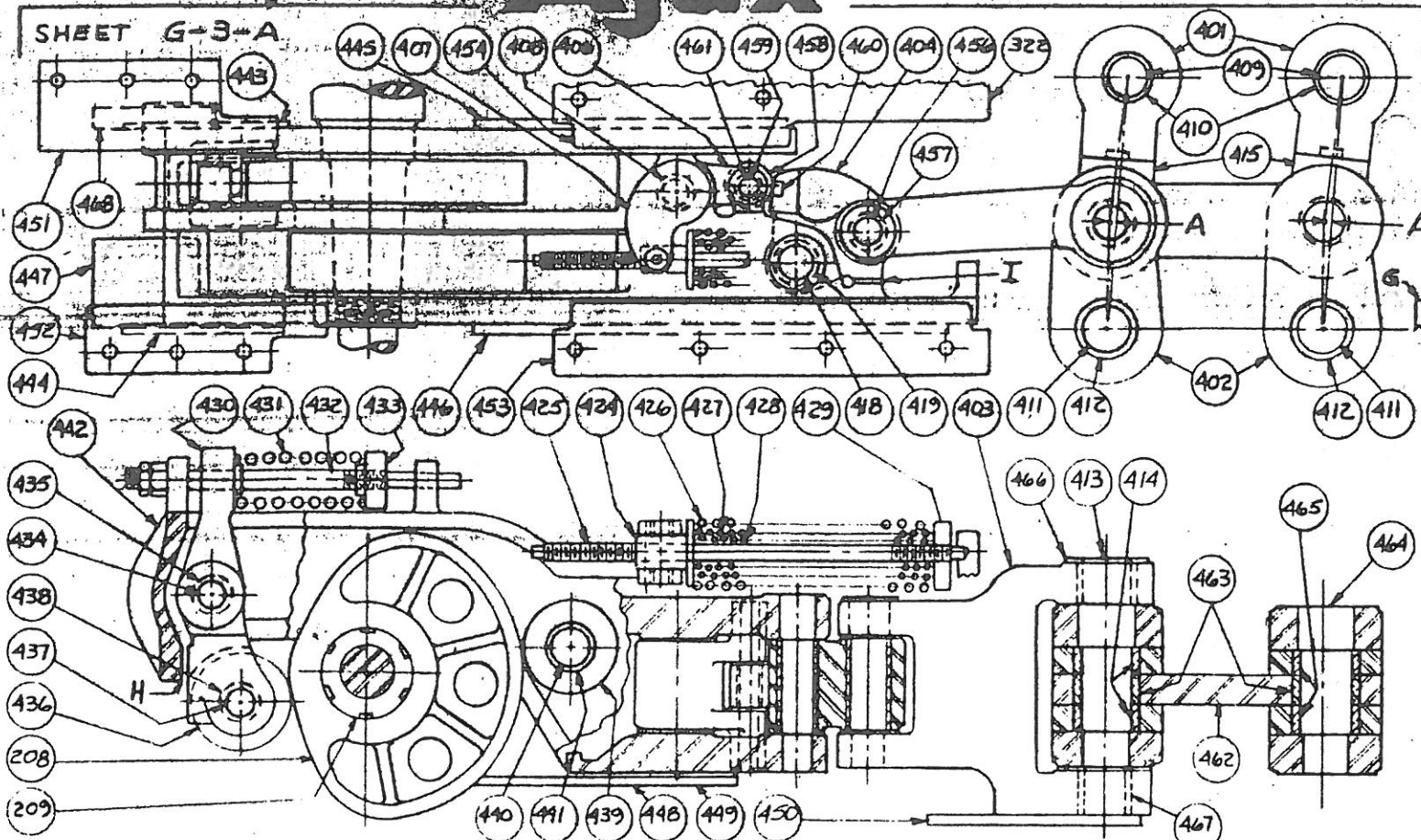




WHEN ORDERING REPLACEMENTS STATE SERIAL NUMBER AND SIZE STAMPED ON NAMEPLATE OF MACHINE AND DESIGNATE PART BY BOTH NAME AND NUMBER.

322 HDR. SL. CAM SL. DIE SL. COVER PLATE
 401 DIE SLIDE KNUCKLE
 402 BED KNUCKLE
 403 CAM SLIDE CONNECTING LINK
 404 RELIEF KNUCKLE
 406 RELIEF LEVER
 407 RELIEF ARM & PIN WITH CAP
 408 BUSHINGS FOR 407
 409 DIE SLIDE & KNUCKLE PIN
 410 BUSHING FOR 409
 411 BED & KNUCKLE PIN
 412 BUSHING FOR 411
 413 DIE SLIDE KNUCKLE INTERMEDIATE PIN
 414 BUSHINGS FOR 413
 415 DIE SLIDE KNUCKLE THRUST BUSHINGS
 418 RELIEF KNUCKLE FULCRUM PIN
 419 BUSHING FOR 418
 424 RELIEF SPRING TRUNNION
 425 RELIEF SPRING ROD
 426 OUTER RELIEF SPRING
 427 MIDDLE RELIEF SPRING
 428 INNER RELIEF SPRING
 429 RELIEF SPRING ROD NUT
 430 RETURN CAM ROLLER LEVER
 431 RETURN CAM ROLLER SPRING
 432 RETURN CAM ROLLER SPRING ROD
 433 RETURN CAM ROLLER SPRING ROD NUT
 434 RETURN CAM ROLLER LEVER PIN
 435 BUSHING FOR 434
 436 RETURN CAM ROLLER
 437 RETURN CAM ROLLER PIN
 438 BUSHING FOR 437
 439 FORWARD CAM ROLLER

440 FORWARD CAM ROLLER PIN
 441 ROLLER BEARING FOR 440
 442 CAM SLIDE
 443 CAM SLIDE SIDE LINER - RIGHT REAR
 444 CAM SLIDE SIDE LINER - LEFT REAR
 445 CAM SLIDE SIDE LINER - RIGHT FRONT
 446 CAM SLIDE SIDE LINER - LEFT FRONT
 447 CAM SLIDE REAR BOTTOM LINER
 448 CAM SLIDE BOTTOM LINER - RIGHT FRONT
 449 CAM SLIDE BOTTOM LINER - LEFT FRONT
 450 CAM SLIDE CONN. LINK BOTTOM LINER
 451 CAM SLIDE COVER PLATE - RIGHT REAR
 452 CAM SLIDE COVER PLATE - LEFT REAR
 453 CAM SLIDE COVER PLATE - LEFT FRONT
 454 CAM SLIDE TOP LINER - RIGHT FRONT
 456 RELIEF KNUCKLE PIN
 457 BUSHING FOR 456
 458 RELIEF THROWOUT ROLLER
 459 BUSHING FOR 458
 460 RELIEF KNUCKLE INSERT
 461 RELIEF ROLLER PIN
 462 DIE SLIDE KNUCKLE CONN. LINK
 463 BUSHINGS FOR 462
 464 FRONT KNUCKLE PIN
 465 BUSHINGS FOR 464
 466 CAM SL. CONN. LINK TOP BUSHING
 467 CAM SL. CONN. LINK BOTTOM BUSHING
 468 CAM SLIDE REAR LIP LINER

208 DIE CLOSING CAM
 209 DIE CLOSING CAM RETAINING NUT

THE CAM OPERATED DIE GRIPPING MECHANISM SHOULD FUNCTION SMOOTHLY AND QUIETLY AT ALL TIMES, IF KNOCK OR POUND IS EVIDENT IMMEDIATELY INVESTIGATE. TOO TIGHTLY PACKED DIES, UNDERSIZED GRIPS, OR OVERSIZED STOCK DEVELOPE EXCESSIVE PRESSURES, NOT SUFFICIENT TO THROWOUT THE RELIEF KNUCKLE (404), BUT ENOUGH TO COMPRESS THE RETURN CAM ROLLER SPRING (431) DURING DIE OPENING AND CAUSE THE FORWARD CAM ROLLER (439) TO LEAVE ITS SURFACE OF THE CAM (208). INVESTIGATE, AND CORRECT ANY ONE OF THESE CAUSES, AND, IF NECESSARY, TIGHTEN THE SPRING (431) BY UNCLAMPING THE NUT (433) AND TURNING THE SPRING ROD (432). *

WEAR, DEVELOPED THROUGH LONG SERVICE, IN THE FORWARD ROLLER (439), PIN (440) AND BEARING (441) MAY ALSO CAUSE SUCH A POUND, EITHER ON THE CAM (208) OR FROM THE DIE SLIDE (501) OVERTRAVELLING AGAINST ITS STOP "G". WEAR MAY ALSO CAUSE A DECREASE IN GRIPPING POWER THROUGH FAILURE TO BRING THE DIE SLIDE KNUCKLE INTERMEDIATE PIN (413) UP TO PRESCRIBED DISALIGNMENT "A" AS LISTED BELOW. TO CORRECT THIS CONDITION MAY REQUIRE REPLACEMENT OF THE FORWARD CAM ROLLER PIN (440), ITS BEARING (441), OR THE FORWARD CAM ROLLER (439). THE CORRECT DIAMETER OF THE FORWARD CAM ROLLER (439) CAN BEST BE DETERMINED BY RELEASING THE RETURN CAM ROLLER SPRING (431), THEN JACKING THE CAM SLIDE FORWARD UNTIL STUDS SCREWED INTO PINS (409), (411), AND (413) ARE IN THE PRESCRIBED DISALIGNMENT "A", THEN CALIPER THE DISTANCE BETWEEN THE FORWARD ROLLER PIN (440) AND THE HIGH DWELL OF THE CAM (208).

AFTER A NEW ROLLER (439) IS INSTALLED, CHECK THE DISTANCE BETWEEN THE RETURN CAM ROLLER LEVER (430) AND ITS STOP "H". IF NOT BETWEEN $\frac{1}{16}$ " AND $\frac{1}{8}$ "*, MACHINE THE OUTER DIAMETER OF THE RETURN CAM ROLLER (436), OR REPLACE IT WITH ONE OF THE CORRECT DIAMETER AFTER CHECKING THE WEAR OF PIN (437) AND BUSHING (438). BOTH ROLLERS MUST TURN FREELY AT ALL TIMES. INSPECT LUBRICATION LINES FREQUENTLY.

*NOTE: CLEARANCE "H" MAY BE MADE BETWEEN $\frac{1}{16}$ " AND $\frac{1}{8}$ " TO ELIMINATE KNOCK BY ATTACHING A SHIM TO BACK OF RETURN CAM ROLLER LEVER (430)

THE TREADS OF THE CAM (208) CAN BE PROTECTED AND THEIR LIFE CONSIDERABLY PROLONGED THROUGH FREQUENT APPLICATION OF A HEAVY LUBRICANT OF THE "GEAR SHIELD" TYPE. THE CAM (208) HAS A TAPERED FIT ON THE CRANKSHAFT (201), AND IS SECURED BY A RETAINER NUT (209) WITH A LEFT HAND THREAD.

ADJUSTMENT FOR GRIPPING PRESSURE

THE RELIEF SPRINGS (426), (427), AND (428) HAVE LIMITED ADJUSTMENT FOR INCREASING THE POWER OF THE GRIP BY UNCLAMPING THE SPRING ROD NUT (429) AND TURNING THE SPRING ROD (425) AND RECLAMPING. IF RELIEF CONTINUES TO THROWOUT, CHECK THE DIES FOR OVERPACKING, THE STOCK FOR SIZE, AND THE DISALIGNMENT "A" OF PIN (413). NEVER INSTALL WASHERS ON THE ROD (425) SINCE THE SPRINGS (426), (427), AND (428) WILL GO SOLID AND SERIOUS DAMAGE WILL RESULT.

THE STOP PLATE "I" FOR RELIEF KNUCKLE (404) SHOULD BE OF JUST THE RIGHT THICKNESS TO CONTACT AT THE SAME TIME AS THE STOP ON THE RELIEF LEVER (406) CONTACTS THE CAM SLIDE (442).

INTERMEDIATE PIN (413) DISALIGNMENT "A"

MACHINE SIZE		12"			
DISALIGNMENT "A"	MIN.	$\frac{5}{8}$ "			
	MAX.	$\frac{3}{4}$ "			