

Wadkin

80" KNIFE GRINDER TYPE N.P.

PRINCIPAL DIMENSIONS AND CAPACITIES.

MAXIMUM LENGTH OF KNIFE	80"
MAXIMUM KNIFE SECTION	5.7/8" x 1"
MAXIMUM KNIFE SECTION (SLOTTED KNIVES)	8" x 1"
MINIMUM KNIFE SECTION	1" x 1/8"
BEVEL ANGLE	0 TO 45 90°
HOLLOW GRINDING	0 TO 30°
SPEED OF CARRIAGE TRAVERSE	20FT./MIN.
H.P. OF TRAVERSE MOTOR	1/2
H.P. OF WHEEL HEAD MOTOR	6
WHEEL SIZE	12" DIA.
WHEEL SPEED	1440 G.P.M.
DOWN FEED OF WHEEL HEAD0005" AND .001"
		PER RETURN STROKE
FLOOR SPACE	11'6" x 3'4"

DETAILS INCLUDED WITH THE MACHINE

SET OF SPANNERS
 KNIFE SETTING BLOCKS
 GREASE GUN, No.2.

ONE LB. TIN OF GREASE L.6.
 12" CUP GRINDING WHEEL No.UGW,155
 CLAMP PLATES : CLAMP BOLTS, NUTS AND WASHERS.

WADKIN LTD., GREEN LANE WORKS, LEICESTER. TELEPHONE : LEICESTER 0116 2769111 (4 LINES).

INSTALLATION

THE MACHINE IS DESPATCHED FROM OUR WORKS WITH ALL BRIGHT SURFACES GREASED TO PREVENT RUSTING. THIS MUST BE REMOVED BY APPLYING A CLOTH DAMPED WITH PARAFFIN.

FOUNDATIONS

5/8" DIA. FOUNDATION BOLTS SHOULD BE USED TO BOLT MACHINE DOWN TO THE FLOOR. IF MILL FLOOR CONSISTS OF 6" SOLID CONCRETE NO SPECIAL FOUNDATION IS NECESSARY. RAG TYPE HOLDING DOWN BOLTS MAY BE USED AND WORKING FROM FOUNDATION PLAN 6" TO 8" SQUARE HOLES SHOULD BE CUT IN CONCRETE FOR THESE BOLTS. AFTER THE MACHINE HAS BEEN CAREFULLY LEVELLED IT SHOULD BE GROUTED IN POSITION WITH LIQUID CEMENT. SEE PARAGRAPH BELOW UNDER LEVELLING.

WIRING

SEE PAGES 12 AND 13 FOR DETAILS AND WIRING DIAGRAM.

GRINDING COOLANT

THE TANK SHOULD BE FILLED WITH A COOLANT CONSISTING OF SOLUBLE OIL AND WATER. THE RECOMMENDED MIXTURE IS 5 PINTS OF SOLUBLE OIL, WADKIN GRADE L. 10, TO 40 GALL. OF WATER. ADD THE OIL TO THE WATER AND THOROUGHLY MIX. THE OLD COOLANT SHOULD BE DRAINED OFF THE TANK AND REPLACED BY FRESH COOLANT EVERY 2-4 WEEKS.

A DRAIN TAP IS PROVIDED TO EMPTY THE TANK.

LEVELLING

OPERATION 1. PLACE A STRAIGHT EDGE AND CLINOMETER (SPIRIT LEVEL) ACROSS THE TOP EDGE OF THE TANK AT THE RIGHT HAND END OF THE MACHINE AND LEVEL BY ADJUSTING THE TWO JACK SCREWS IN THE END LEG.

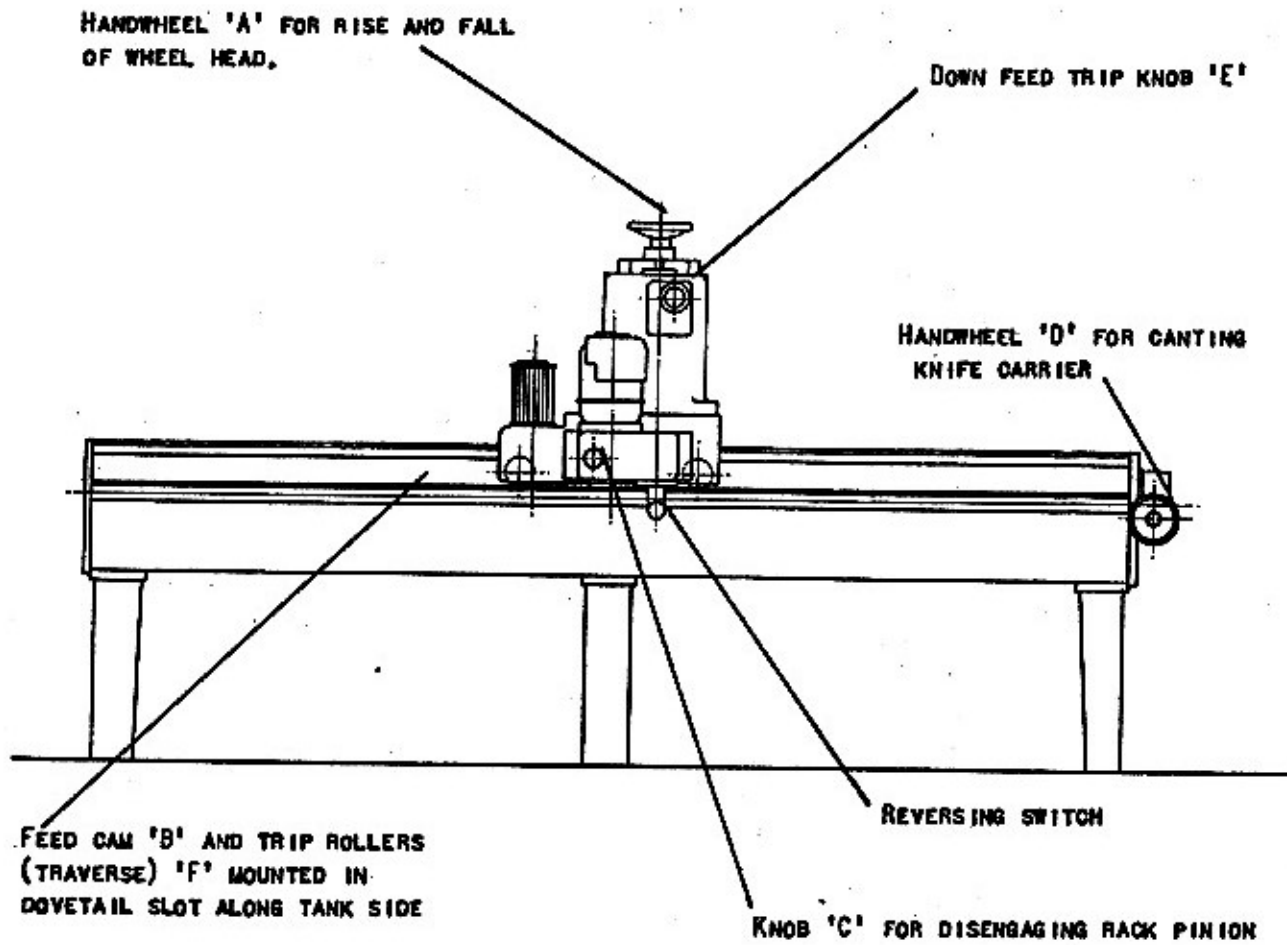
OPERATION 2. SET THE KNIFE CARRIER TO READ ZERO ON SCALE, PLACE CLINOMETER ON CARRIER AND LEVEL THE MACHINE FROM END TO END BY ADJUSTING THE TWO JACK SCREWS AT THE LEFT HAND END OF THE MACHINE.

OPERATION 3. REPEAT OPERATION 1. AT THE LEFT HAND END OF THE MACHINE.

OPERATION 4. PLACE A 5'0" LONG STRAIGHT EDGE ON THE KNIFE CARRIER AND ADJUST THE TWO JACK SCREWS IN THE CENTRE LEG UNTIL THE MAXIMUM FEELER GAP AT ANY ONE POINT UNDER THE STRAIGHT EDGE IS .002".

OPERATION 5. REPEAT OPERATION 1 IN CENTRE OF TANK.

OPERATION 6. REPEAT OPERATIONS 4 AND 5 UNTIL MACHINE IS FINALLY LEVEL.



THE WHEEL HEAD

AN ARRANGEMENT OF THE WHEEL HEAD SPINDLE IS SHOWN IN FIG.3. THE WHEEL HEAD IS MOUNTED ON A TRUNNION TO ENABLE THE SPINDLE TO BE CANTED FOR HOLLOW GRINDING. THE OUTSIDE DIA. OF THE TRUNNION FORMS THE FACE FOR A SPLIT BUSH LOCK, SEE FIG.2. THIS LOCK MAY BE ADJUSTED, IF NECESSARY, BY REMOVING SCREW "G" AND TURNING NUT "H" UNTIL SCREW CAN BE ENGAGED IN NEXT TAPPING HOLE IN BUSH "J." TO REMOVE A GRINDING WHEEL THE SPINDLE IS CANTED HORIZONTAL.

IMPORTANT. BEFORE USING A NEW WHEEL IT MUST BE CAREFULLY EXAMINED TO MAKE SURE IT HAS NOT BEEN DAMAGED IN TRANSIT.

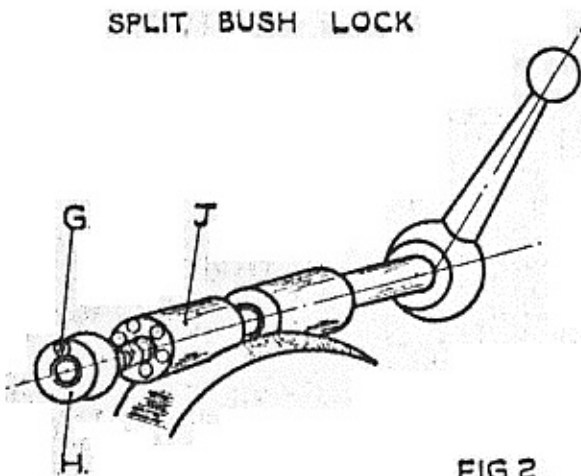
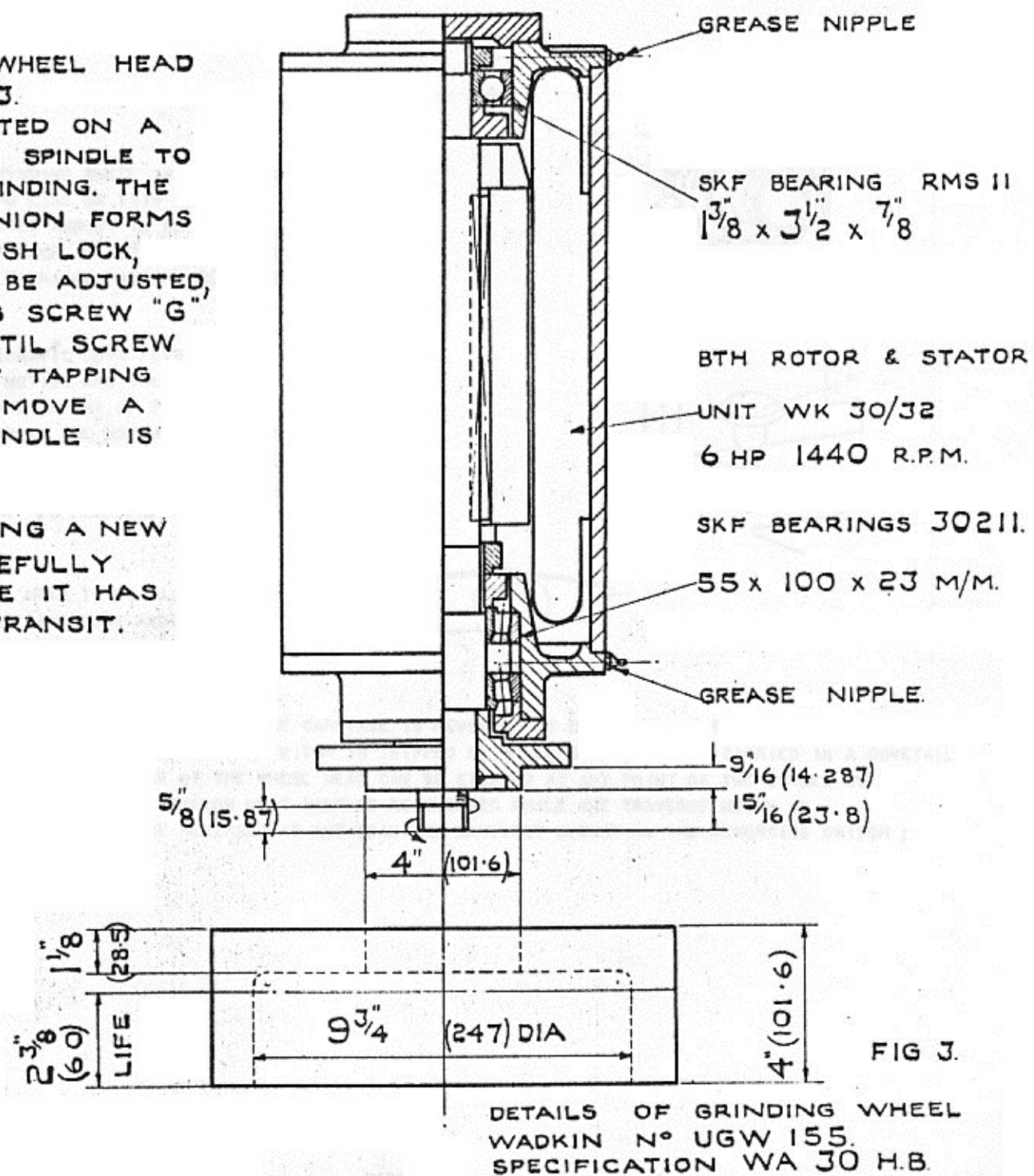


FIG 2.



THE WHEEL HEAD DOWN FEED

INITIAL SETTING OF THE GRINDING WHEEL IS BY HANDWHEEL 'A', SEE FIG.1. THE ZERO LINE ON TRIP KNOB 'E' IS THEN SET ON SCALE 'K' TO REQUIRED AMOUNT TO BE REMOVED, SEE FIG.4., E.G., IF TRIP KNOB IS SET AT .004" DOWN FEED WILL BE AUTOMATICALLY TRIPPED AFTER .004" HAS BEEN REMOVED.

TO SELECT THE RATE OF AUTOMATIC DOWN FEED THE MACHINE SHOULD BE SET IN MOTION AND THE SCREW KNOB 'L' ADJUSTED UNTIL THE AMOUNT OF FEED PER RETURN STROKE IS INDICATED BY THE MOVEMENT OF TRIP KNOB 'E' AGAINST SCALE 'K'. THE TWO RATES OF FEED ARE .0005" AND .001" PER RETURN STROKE, I.E., EACH TIME THE CARRIAGE CONTACTS THE FEED CAM 'B'.

THE WHEEL HEAD TRAVERSE

THE TRAVERSE OF THE WHEEL HEAD IS BY RACK AND PINION, THE RACK IS MOUNTED ON THE TANK SIDE AND THE RACK PINION IS DRIVEN THROUGH A WORM REDUCTION UNIT BY A $\frac{1}{2}$ H.P. MOTOR. THE TRAVERSE MOTOR IS MOUNTED DIRECT ON THE WORM BOX AND THE WHOLE UNIT IS BOLTED TO THE FRONT OF THE WHEEL HEAD CARRIAGE, THE CARRIAGE IS REVERSED BY ELECTRICALLY REVERSING THE MOTOR THROUGH A SWITCH MOUNTED IN THE WORM BOX. THIS SWITCH IS TRIPPED BY ROLLERS 'F', FIG.1, CARRIED IN A DOVETAIL SLOT ALONG THE TANK SIDE. THE TRAVERSE OF THE WHEEL HEAD CAN BE STOPPED AT ANY POINT OF THE STROKE BY DISENGAGING THE RACK PINION. THE RACK PINION MUST ONLY BE RE-ENGAGED WHILE THE TRAVERSE MOTOR IS STATIONARY. THE WHEEL HEAD CAN ALSO BE REVERSED AT ANY POINT BY MANUALLY OPERATING THE REVERSING SWITCH ;

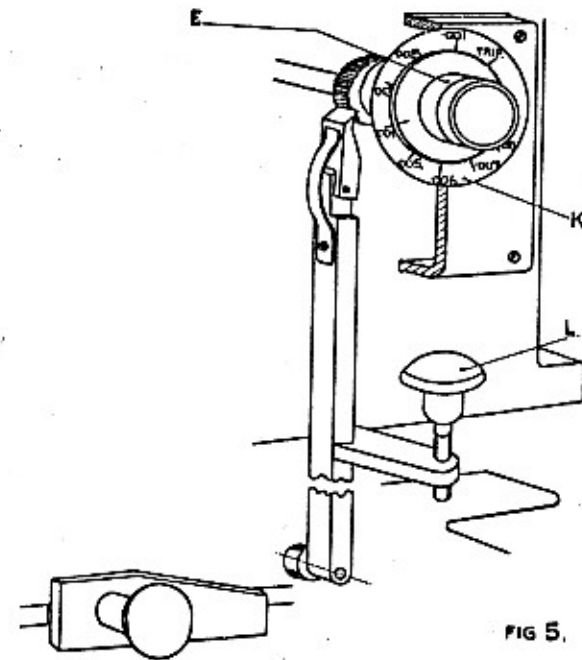


FIG 5.

THE KNIFE CARRIER

THE KNIFE CARRIER IS CANTED THROUGH A WORM AND WHEEL BY THE HANDWHEEL 'D', FIG.1.

THE OUTSIDE DIA. OF THE WORMWHEEL FORMS THE FACE FOR A SPLIT BUSH LOCK, THIS LOCK CAN BE ADJUSTED IN THE SAME WAY AS THE WHEELHEAD LOCK, SEE FIG.2.

THE CARRIER CANTS FROM 0° (HORIZONTAL) TO 90° , AND A GRADUATED SCALE IS FITTED FOR SETTING TO REQUIRED ANGLE.

HOLLOW GRINDING (INSTRUCTION PLATE)

IT WILL BE SEEN FROM FIG.5. (SHOWING GRINDING WHEEL CANTED FOR HOLLOW GRINDING) THAT THE ANGLE AT WHICH THE KNIFE CARRIER MUST BE SET WHEN HOLLOW GRINDING IS NOT THE SAME AS THE KNIFE ANGLE. AN INSTRUCTION PLATE (AS ILLUSTRATED AT FIG.6.) IS PROVIDED, GIVING ANGLES AT WHICH CARRIER MUST BE SET FOR VARIOUS ANGLES OF HEAD CANT AND KNIFE ANGLES REQUIRED, E.G., IF A KNIFE ANGLE OF 30° IS REQUIRED WHEN HEAD IS CANTED AT SAY 25° , THE ANGLE AT WHICH THE CARRIER MUST BE SET IS (FROM TABLE) 35° .

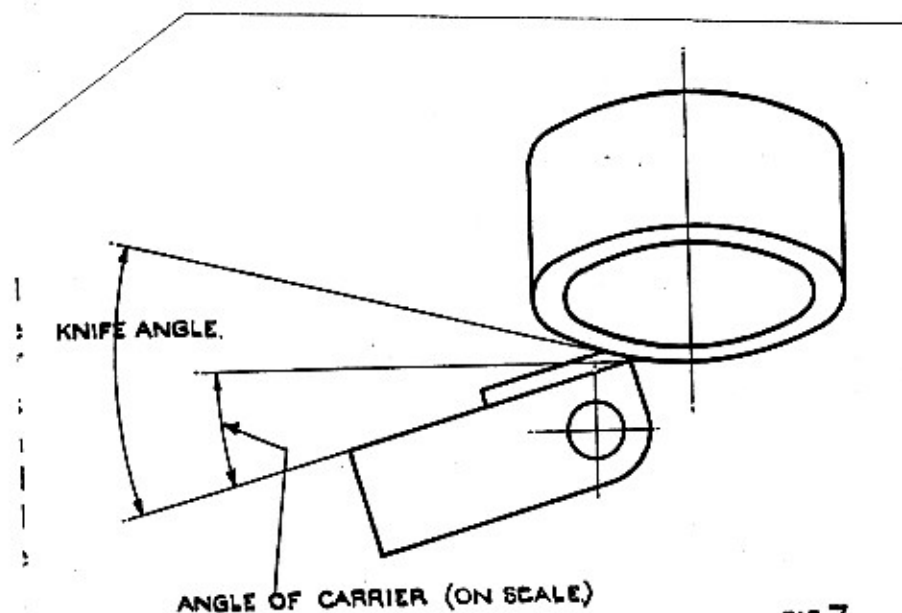


FIG 7.

KNIFE GRINDING

SETTING.

A SET OF BLOCKS IS PROVIDED FOR SETTING KNIVES, FIG.7. THESE BLOCKS SET TO THE BACK EDGE OF THE KNIVES, ENSURING THAT AFTER GRINDING ALL KNIVES ARE PARALLEL. ALL KNIVES SHOULD BE FLAT BEFORE BOLTING TO KNIFE CARRIER, IF THIS IS NOT SO AND KNIFE IS OF HEAVY CROSS SECTION, THE CARRIER MAY BE DAMAGED.

STRAIGHT GRINDING, I.E. WITH GRINDING SPINDLE VERTICAL.

WHEN KNIFE IS BOLTED DOWN AND CARRIER SET TO REQUIRED ANGLE THE GRINDING WHEEL SHOULD BE ADJUSTED DOWN ALMOST ON TO THE KNIFE WHILE THE CARRIAGE IS BEING TRAVERSED BY HAND. THE MACHINE SHOULD THEN BE STARTED AND THE STROKE SET BY ADJUSTING THE TRIP ROLLERS 'F', FIG.1. THE WHEEL IS THEN BROUGHT DOWN ON TO THE KNIFE AND THE TRIP KNOB SET TO PUT ON FEED. THE AMOUNT TO BE REMOVED FROM A KNIFE IS GOVERNED BY :

1. GROUND FACE BEING TOTALLY CLEANED UP.
2. BALANCE OF KNIFE

HOLLOW GRINDING.

THE HEAD SHOULD BE CANTED OVER TO GIVE THE REQUIRED AMOUNT OF HOLLOW GRIND. THE KNIFE IS THEN BOLTED DOWN AND CARRIER SET TO ANGLE GIVEN IN INSTRUCTION PLATE (SEE PREVIOUS NOTE ON PAGE 6) THE STROKE IS THEN SET, ETC. AS FOR STRAIGHT GRINDING.

HOLLOW GRINDING

SET KNIFE CARRIER TO FIGURE GIVEN IN TABLE 'A'
AGAINST HEAD CANT AND KNIFE ANGLE REQUIRED.

REQUIRED KNIFE ANGLE	HEAD CANT					
	5°	10°	15°	20°	25°	30°
15°	19°	20°	21°	22°	23°	24°
20°	23°	24°	25°	26°	27°	28°
25°	27°	28°	29°	30°	31°	32°
30°	31°	32°	33°	34°	35°	36°
35°	35°	36°	37°	38°	39°	40°
40°	39°	40°	41°	42°	43°	44°
45°	43°	44°	45°	46°	47°	48°

TABLE A

GENERAL POINTS ABOUT GRINDING

BALANCING

EACH PAIR OF KNIVES FROM ONE BLOCK SHOULD BE IN PERFECT BALANCE. KNIVES UNDER 40" IN LENGTH SHOULD BE GROUND IN PAIRS TO ENSURE BALANCE.

FINISH

TO OBTAIN A GOOD FINISH THE GRINDING WHEEL SHOULD BE ALLOWED TO TRAVERSE OVER THE KNIFE UNTIL CUT IS COMPLETELY FINISHED.

WHEEL DRESSING

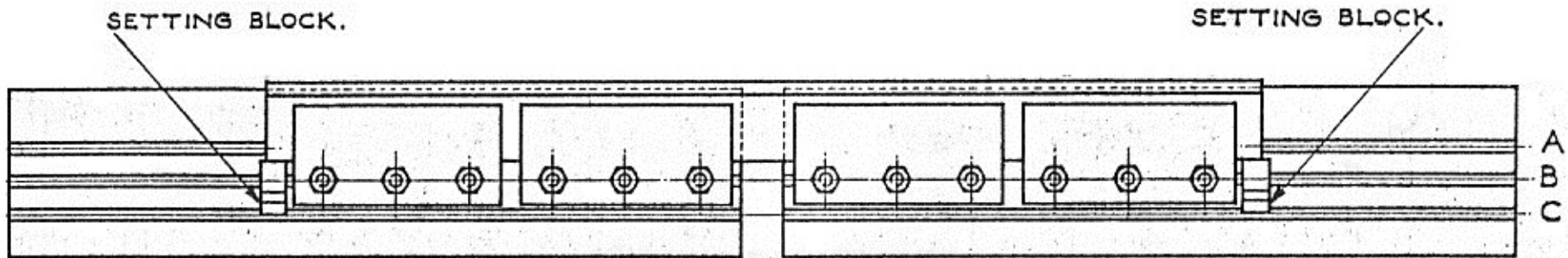
THE GRINDING WHEELS SUPPLIED BY WADKIN HAVE BEEN CHOSEN AS THE RESULT OF LONG EXPERIENCE ON KNIFE GRINDERS ; DUE TO THE FREE CUTTING ACTION AND ABILITY TO RETAIN CUTTING EDGE THROUGHOUT THE LIFE OF THE WHEEL, DRESSING IS NOT NECESSARY. AND IT IS RECOMMENDED THAT ONLY THE WHEELS SUPPLIED BY WADKIN ARE USED.

WIRE ON GRINDING WHEEL

EACH WHEEL IS BOUND WITH TWO OR THREE GROUPS, OF 3 STRANDS OF WIRE TO GUARD AGAINST BURSTING AT HIGH SPEED, AND THEREFORE THE WIRE MUST BE LEFT IN PLACE WHILE GRINDING. IT IS IMPORTANT THAT EACH GROUP OF WIRES IS REMOVED ONLY WHEN THE WHEEL HAS WORN DOWN TO WITHIN $\frac{1}{8}$ " OF THE WIRE.

WHEEL BALANCE

PART OF THE OUTSIDE DIA. OF A GRINDING WHEEL MAY BE FOUND TO BE PAINTED. THIS IS LEAD PAINT AND IS THE MAKERS' METHOD OF BALANCING THE WHEEL.



PLAN VIEW OF KNIFE CARRIER SHOWING METHOD OF SETTING KNIVES.

USING SETTING BLOCKS IN SLOT A, KNIVES CAN BE SET UP VARYING IN $\frac{1}{8}$ THS. FROM $\frac{3}{4}$ TO $2\frac{5}{8}$ WIDE: USING SETTING BLOCKS IN SLOT B, KNIVES CAN BE SET UP VARYING IN $\frac{1}{8}$ THS. FROM $2\frac{5}{8}$ TO $4\frac{1}{8}$ WIDE: USING SETTING BLOCKS IN SLOT C, KNIVES CAN BE SET UP VARYING IN $\frac{1}{8}$ THS. FROM $4\frac{1}{8}$ TO $5\frac{7}{8}$ WIDE. I.E. $5\frac{7}{8}$ IS MAX.^M KNIFE WHICH CAN BE SET UP WITH BLOCKS SUPPLIED.

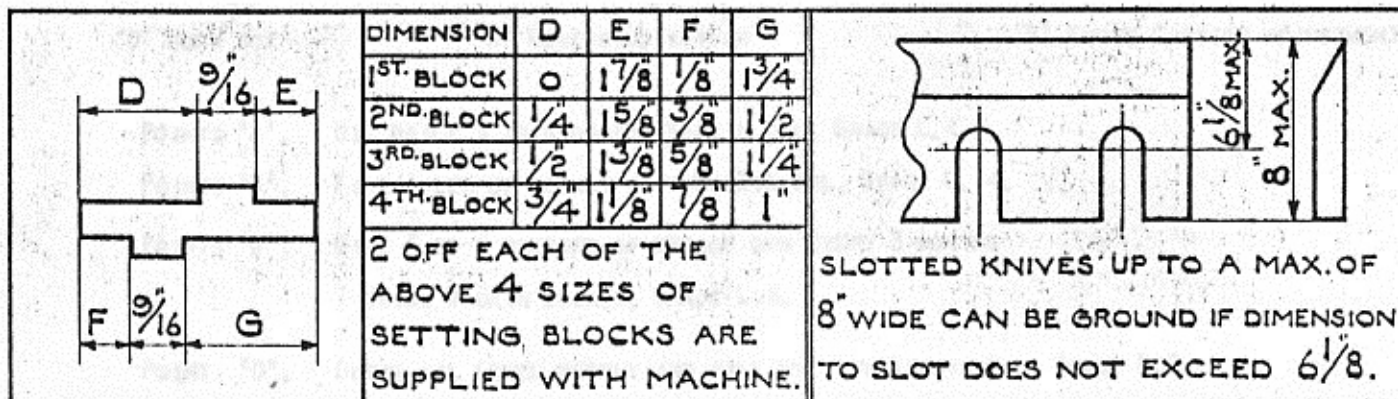
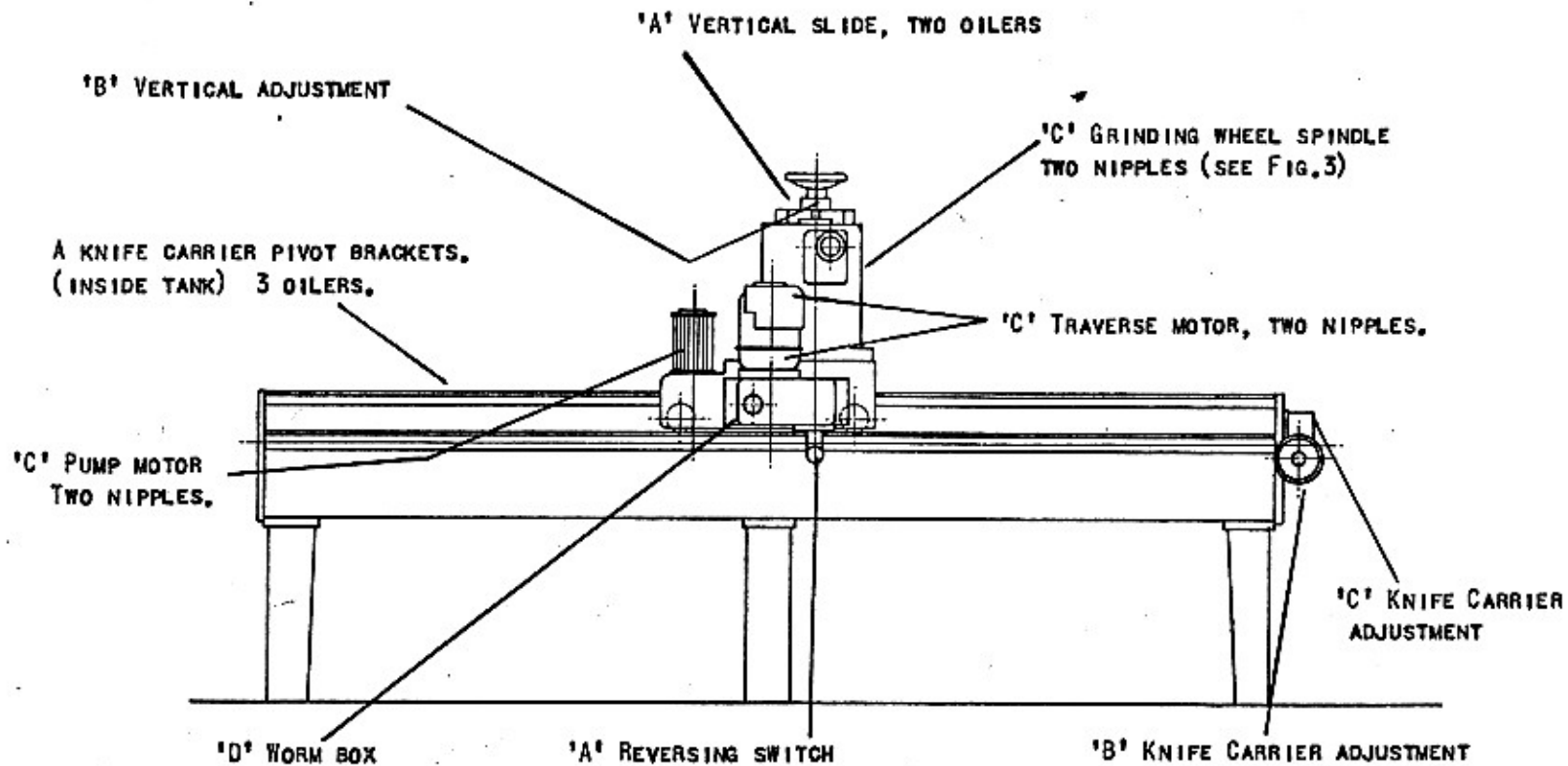


FIG. 7.

LUBRICATION.



- POINTS 'A'. OIL DAILY 3 TO 4 DROPS, WADKIN OIL, GRADE L.4.
- POINTS 'B'. FILL OILER UP WEEKLY WITH WADKIN OIL, GRADE L. 4.
- POINTS 'C'. GIVE 3 TO 6 CHARGES OF GREASE GUN EVERY 3 MONTHS
 USING WADKIN GREASE, GRADE L.6.
- POINT 'D'. CHECK OIL LEVEL WEEKLY AND FILL UP WITH WADKIN OIL, GRADE L.2.

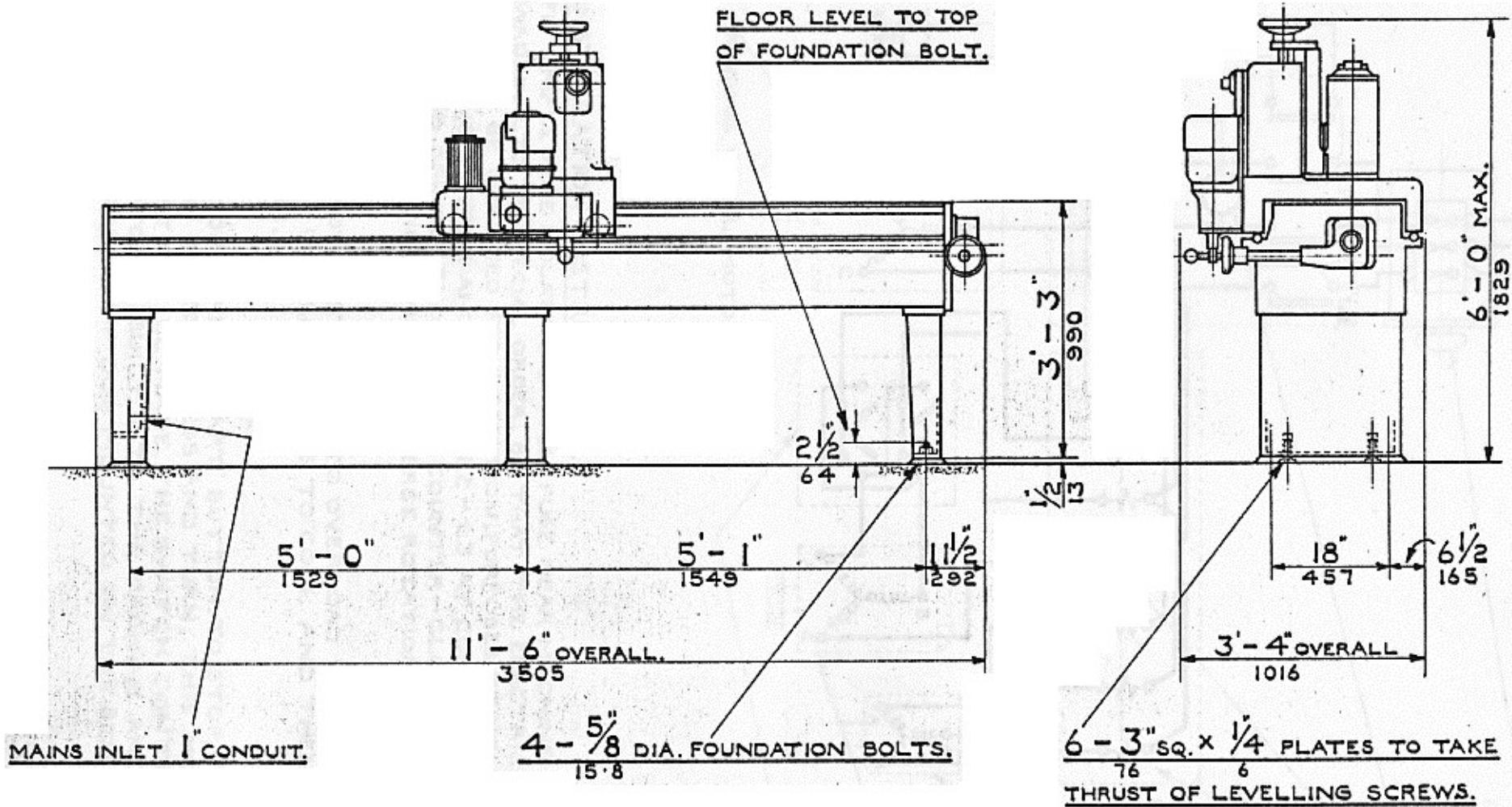
LUBRICATION (CONTINUED)

AS WILL BE SEEN FROM THE LUBRICATING INSTRUCTIONS WADKIN OILS AND GREASES ARE RECOMMENDED BUT IF IT IS DESIRED TO USE LUBRICANTS OTHER THAN WADKIN THE FOLLOWING EQUIVALENTS ARE LISTED BELOW :

WADKIN GRADE AND TYPE	EQUIVALENTS
GOOD QUALITY GREASE GRADE L. 6.	SHELL (3 VW) OR VACUUM, BRB No.3
GOOD QUALITY MACHINE OIL GRADE L.4.	SHELL VITREA OIL 33, OR VACUUM VACTRA OIL (HEAVY MEDIUM)
HEAVY GEAR OIL GRADE L. 2.	SHELL VITREA OIL 69, (C.2) OR VACUUM, DTE.88.

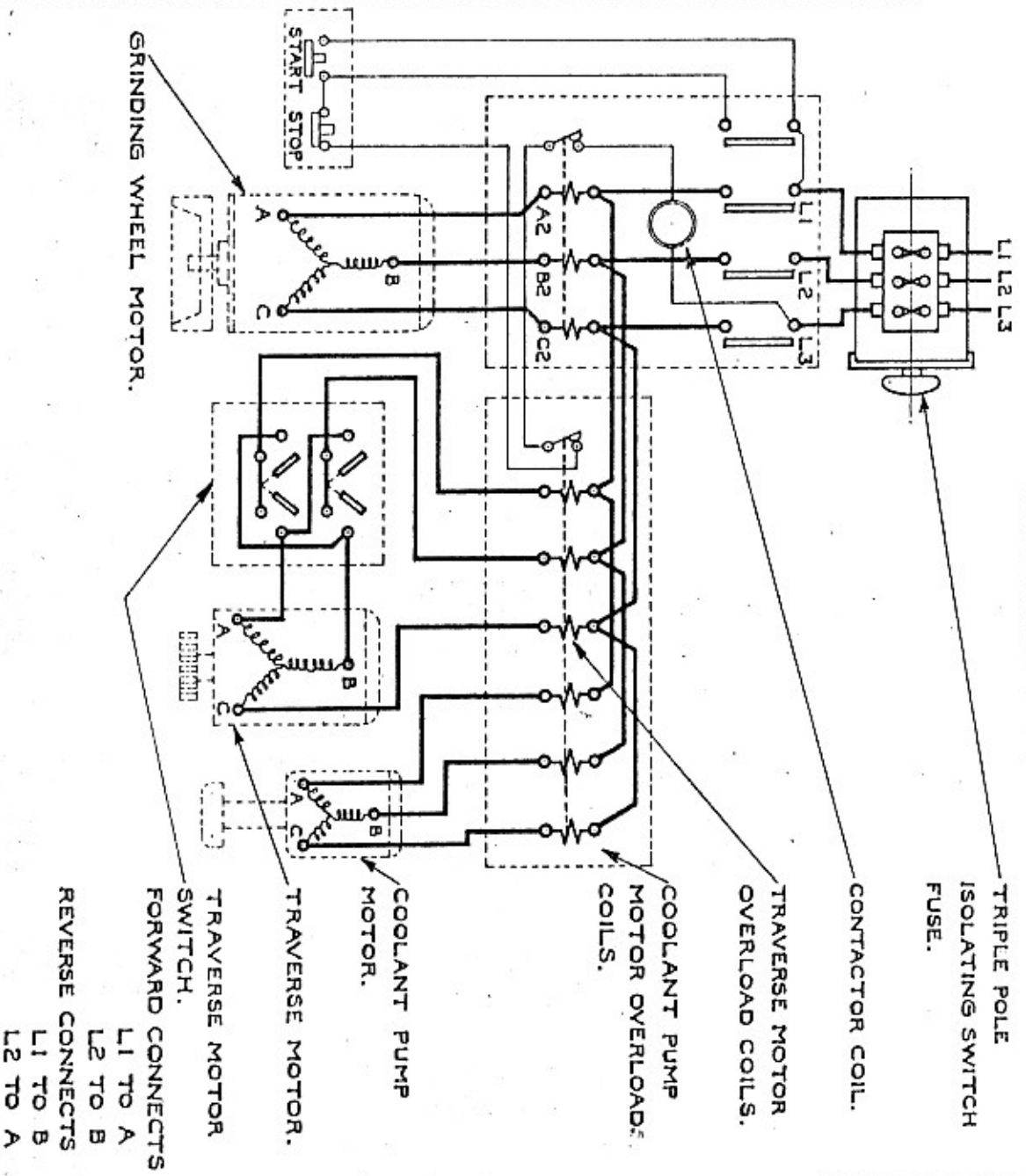
BALL BEARING LIST

POSITION ON MACHINE	MAKERS' No.	QUANTITY	BORE DIA.	OUTSIDE DIA.	THICKNESS
BOTTOM END GRINDING SPINDLE	SKF.30211	± 2	55 M/M	100 M/M	23 M/M
TOP END GRINDING SPINDLE	SKF.RMS.11	1	1.3/8"	3.1/2"	7/8"
DRIVING END TRAVERSE MOTOR	HOFF.120	1	20 MM.	47 MM.	14 MM.
TAIL END TRAVERSE MOTOR	HOFF.120	1	20 MM.	47 MM.	14 MM.
RAISING SCREW	SKF.08	1	1"	1.3/4"	5/8"
CARRIAGE ROLLERS	FISCHER F.G. 409	3			
WORM SHAFT, TOP	HOFF. XLS.2"	1	2"	3.5/8"	5/8"
WORM SHAFT, BOTTOM	SKF.RLS.6	1	3/4"	1.7/8"	9/16"



80" KNIFE GRINDER — TYPE NP.

DIMENSIONS IN FT. INS. AND M/M.



INSTALLATION INSTRUCTIONS.

FIT TRIPLE POLE ISOLATING SWITCH FUSE NEAR MACHINE UNLESS SUPPLIED BY WADKIN LTD. TO SPECIAL ORDER, SO THAT THE ELECTRICAL GEAR MAY READILY BE ISOLATED FOR INSPECTION PURPOSES. BRING LINE CABLES TO ISOLATING SWITCH AND TO L1 - L2 - L3 AT CONTACTOR. IMPORTANT. GRINDING SPINDLE SHOULD RUN CLOCKWISE - CLOCKWISE WHEN LOOKING FROM NON DRIVING END. TO REVERSE ROTATION INTERCHANGE L1 AND L2.

OVERLOAD.

SHOULD THE MOTOR STOP DUE TO OVERLOAD WAIT FOR A SHORT TIME TO ALLOW THE OVERLOAD COILS TO COOL AND THEN START IN THE USUAL MANNER.

OPERATION.

TO START MOTORS PRESS 'START' BUTTON. TO STOP, PRESS 'STOP' BUTTON. TO LOCK 'STOP' BUTTON, PRESS AND TURN, THIS MUST BE RELEASED BEFORE A START CAN BE MADE. THE SWITCH CONTROLLING THE TRAVERSE MOTOR IS BUILT INTO THE MACHINE AND IS OPERATED BY THE ADJUSTABLE TRIP DOG MOUNTED ON THE SIDE OF THE TANK. EARTH MACHINE.

DIAGRAM OF CONNECTIONS. D. 451.