

WELD COUPON ABRASIVE CUTTER
OPERATING and PARTS MANUAL
MODEL # WTC-20HR

MANUFACTURED BY:

TRIANGLE ENGINEERING INC.
HANOVER, MA., U.S.A.
U.S. PATENT NO. 3892089
781-878-1500 FAX 781-878-2547

REV 03-16

WELD COUPON ABRASIVE CUTTER

TABLE OF CONTENTS

PAGE 2	CONDITION OF SALE AND WARRANTY
PAGE 3	SAFETY UPGRADE
PAGE 4-6	SAFETY PRECAUTION
PAGE 7	SPECIFICATIONS
PAGE 8	FLOOR PLAN DETAIL DWG. BT7249-54
PAGE 9-10	INSTALLATION INSTRUCTIONS
PAGE 11-14	LUBRICATION AND MAINTENANCE
PAGE 15	OPERATING STATION PANEL DWG. BT7249-57
PAGE 16	3/8"- 1" PLATE FIXTURE DWG. BT7249-60
PAGE 17-19	OPERATING PROCEDURE - PLATE TEST
PAGE 20	PIPE INDEXING FIXTURE DWG. BT7249-63
PAGE 21-24	OPERATING PROCEDURE - PIPE TEST –INDEXING
PAGE 25	2" XXH PIPE FIXTURE DWG. BT7249-62
PAGE 26-27	OPERATING PROCEDURE - 2 XXH PIPE TEST
PAGE 28-29	OPERATING PROCEDURE - 2" SCH 80 PIPE TEST
PAGE 30	PNEUMATIC-HYDRAULIC CIRCUIT DWG. BT7249-55
PAGE 31-32	PNEUMATIC-HYDRAULIC CIRCUIT PART LIST
PAGE 33	ELECTRICAL COMPONENTS
PAGE 34-35	ELECTRICAL DRAWINGS

NOTE: EQUIPMENT MANUALS AND PRICE SHEETS ARE AVAILABLE FOR DOWNLOAD ON OUR WEBSITE: WWW.TRIENG.COM

WELD COUPON ABRASIVE CUTTER

CONDITION OF SALE AND WARRANTY

TRIANGLE ENGINEERING, INC. WILL GUARANTEE THE ORIGINAL EQUIPMENT, AS ADVERTISED AND PURCHASED UNDER TERMS OF THE INITIAL CONTRACT, FOR A PERIOD OF NINETY DAYS (90) FOLLOWING START-UP PROCEDURES AT YOUR LOCATION, NOT WITHSTANDING AND PROVIDED THAT:

A. TECHNICAL "START-UP SERVICES", INCLUDED IN THE PURCHASE PRICE OF THE NEW EQUIPMENT, ARE ACCEPTED BY THE BUYER. ALL REASONABLE TRAVEL, LODGING AND SUBSISTENCE WILL BE CHARGED, AT COST, TO THE BUYER

B. THE EQUIPMENT HAS BEEN OPERATED AND MAINTAINED WITHOUT ABUSE AND ACCORDING TO INSTRUCTIONS AND RECOMMENDATIONS OF TRIANGLE ENGINEERING, INC.

THIS WARRANTY COVERS THE REPLACEMENT OF DEFECTIVE PARTS AND/OR COMPONENTS, IF AFTER PRE-APPROVAL AND FINAL EXAMINATION BY TRIANGLE ENGINEERING, INC. THEY ARE RETURNED PREPAID. IN NO EVENT SHALL THIS WARRANTY EXCEED THE ORIGINAL PURCHASE PRICE FOR SAID DEFECTIVE PARTS.

A FOREMENTIONED START-UP SERVICES BY TRIANGLE ENGINEERING, INC. TECHNICIAN WOULD REQUIRE TEN (10) DAYS PRIOR NOTIFICATION, BY THE BUYER, OF OPERATIONAL READINESS. TRIANGLE ENGINEERING, INC. WOULD SUPPLY A FACTORY TRAINED TECHNICIAN TO INSPECT THE INSTALLATION, OPERATE AND DEMONSTRATE THE EQUIPMENT FOR MAXIMUM PRODUCTIVE EFFICIENCY, ON YOUR TEST MATERIAL, AT YOUR SITE LOCATION, FOR REASONABLE TRAVEL, LODGING AND SUBSISTENCE COST.

THIS EQUIPMENT IS NEW AND UNIQUE TO THE FIELD OF DESTRUCTIVE TESTING AND IS PROTECTED UNDER U.S. PATENT NOS.: 3,892,089 AND 3,906,784. THE BUYER IS **STRONGLY URGED** TO TAKE ADVANTAGE OF START-UP SERVICES TO ASSURE AND PROTECT FULL WARRANTY PROVISIONS. THE USE OF A SUBSTITUTE ABRASIVE WHEEL OTHER THAN THAT RECOMMENDED BY TRIANGLE ENGINEERING, INC., XA3018RS-FG6, COULD CAUSE UNSATISFACTORY RESULTS AND VOID THE OPERATIONAL GUARANTEE.

WELD COUPON ABRASIVE CUTTER

ATTENTION SAFETY UPGRADE

IN ORDER TO INCREASE SAFETY AWARENESS WHILE OPERATING YOUR WELD ABRASIVE CUTTER MODEL, WTC-20HR, THE ENCLOSED ITEMS MUST BE POSTED ON OR NEAR THE MACHINE AND UNDERSTOOD BY ALL AUTHORIZED OPERATING PERSONNEL.

- 1) **SIGN:** **"CAUTION SAFETY TRAINING MANDATORY DO NOT OPERATE THIS EQUIPMENT WITHOUT AUTHORIZATION".**
RECOMMENDED PLACEMENT
CENTER FRONT PANEL ABOVE TRIANGLE ENGINEERING INC. NAME PLATE.
- 2) **SIGN:** **"DANGER HIGH VOLTAGE"**
RECOMMENDED PLACEMENT
ELECTRICAL ENCLOSURE LOCATED ON REAR OF WTC-20HR.
- 3) **SIGN:** **"DANGER HIGH VOLTAGE"**
RECOMMENDED PLACEMENT – BRAKE RESISTOR ENCLOSURE.
- 4) **SIGN:** **"KEEP HANDS CLEAR"**
RECOMMENDED PLACEMENT - ON THE GRIT CHUTE DOOR.
- 5) **SIGN:** **"CAUTION DO NOT OPERATE WITHOUT EYE PROTECTION"**
RECOMMENDED PLACEMENT - FRONT PANEL OF WTC-20HR AT EYE LEVEL
- 6) **SIGN:** **"DANGER PINCH POINT"**
RECOMMENDED PLACEMENT
FACING THE GRIT CHUTE FROM THE LOAD SIDE DOOR ON THE INSIDE TOP LEFT CORNER
INSIDE GRIT CHUTE.
- 7) **"SAFETY PRECAUTION ALERT LIST"**
RECOMMENDED PLACEMENT
INSIDE WTC-20HR OPERATING MANUAL LOCATED AT THE MACHINE.

WELD COUPON ABRASIVE CUTTER

SAFETY PRECAUTION ALERT

1. THE WELD ABRASIVE CUTTER MODEL WTC-20HR WAS DESIGNED AND BUILT FOR A SPECIFIC PURPOSE. THE CUTTING OF WELD TEST COUPON ASSEMBLIES MADE OF VARIOUS STEEL ALLOYS; (SEE K FOR ADDITIONAL INFORMATION ON ALUMINUM).
2. SAFETY AND OPERATIONAL TRAINING IS MANDATORY FOR ALL PERSONNEL PRIOR TO OPERATING THE WTC-20HR ABRASIVE COUPON CUTTER.
3. ALL TOOLING, FIXTURES, OR MACHINE PARTS REMOVED, REPLACED, ALTERED, OR PRODUCED AND MANUFACTURED BY OTHER THAN TRIANGLE ENGINEERING INC.,(TEI), ITS LICENSED OR AUTHORIZED REPRESENTATIVE, INCLUDING, RELATED MAINTENANCE THEREOF, WITHOUT WRITTEN APPROVAL BY TRIANGLE ENGINEERING INC., SHALL RELIEVE T.E.I. OF ANY COMPENSATORY AND OR LEGAL RESPONSIBILITY RESULTING IN ASSOCIATED INJURIES OR DAMAGES TO PERSONNEL OR MACHINERY. IF AT ANY TIME YOU ARE UNSURE OF ANY OPERATION SEE YOUR FOREMAN OR SUPERVISOR. THE FOLLOWING PRECAUTIONS AT A MINIMUM MUST BE FOLLOWED
 - A. WEAR SAFETY GOGGLES
 - B. WEAR GLOVES WHEN HANDLING HOT OR SHARP MATERIALS ABRASIVE CUTTING CREATES HEAT IN THE WORK PIECE, GRIT AND SURROUNDING AREA.
 - C. AFTER COMPLETING A CUTTING OPERATION ALLOW ADEQUATE TIME FOR THE EXHAUST SYSTEM TO REMOVE ALL FUME'S BEFORE OPENING ANY DOORS, AVOID BREATHING FUMES.
 - D. CLOSE ALL DOORS, REPLACE ALL COVERS AND SECURE ALL SAFETY GUARDS BEFORE OPERATING MACHINE
 - E. KEEP YOUR HANDS AWAY FROM MOVING CLAMP FIXTURES. OPERATOR'S HANDS MUST BE KEPT **CLEAR** AND **OUTSIDE** THE ENCLOSURE WHILE **OPERATING** THE CLAMP OR UNCLAMP CONTROLS.
 - F. USE PROPER PIPE SUPPORT RAILS OR CHANNEL LOCK PLIERS TO LOAD AND UNLOAD WELD TEST COUPONS.

WELD COUPON ABRASIVE CUTTER

SAFETY PRECAUTION CONTINUED

- G. DISCONNECT ALL ELECTRICAL AND AIR SUPPLIES AND EXHAUST SYSTEM AIR, PRIOR TO REMOVING ANY PANELS OR DRIVE COVERS. NEVER BYPASS ELECTRICAL SAFETY INTERLOCKS.
- H. PRIOR TO OPERATING THE MACHINE INSPECT THE ABRASIVE WHEEL FOR PROPER INSTALLATION, CRACKING, WEAR OR MISUSE. REPLACE IF NECESSARY.
- I. EMPTY THE GRIT BOX WEEKLY OR AT MORE FREQUENT INTERVALS IF CONDITIONS WARRANT.
- J. READ AND UNDERSTAND ALL PERTINENT MSDS INFORMATION. **KNOW WHAT YOU ARE DOING!**
- K. THE POTENTIAL OF EXPLOSION AND/OR FIRE FROM DUST PRODUCED DURING THE CUTTING OF ALUMINUM, MAGNESIUM OR THEIR ALLOYS REQUIRES ADDITIONAL PRECAUTIONS.
(SEE "NATIONAL FIRE PROTECTION ASSOCIATION" CODE, NFPA 65)

THE GRIT BOX CABINET INTERIOR, OR ANY PLACE WHERE DUST ACCUMULATES MUST BE CLEANED AT LEAST DAILY AND AT MORE FREQUENT INTERVALS IF CONDITIONS WARRANT. CLEANING MUST BE PERFORMED USING A SOFT NON-SYNTHETIC BRUSH AND NON-SPARKING CONDUCTIVE SCOOP. EXTREME CARE MUST BE TAKEN TO AVOID CREATING DUST CLOUDS AND ALL MATERIALS MUST BE DISPOSED OF PROPERLY. VACUUM CLEANING OR AIR BLOW **SHALL NOT** BE EMPLOYED.

DO NOT RESTRICT THE AIR EXHAUST SYSTEM WITH MECHANICAL TRAPS OR FILTRATION WITHOUT A SPECIFICALLY APPROVED ALUMINUM DUST COLLECTION SYSTEM. PRIOR TO THE PROCESSING OF STEEL OR ANY SPARK PRODUCING MATERIAL AFTER THE CUTTING OF ANY ALUMINUM OR ITS ALLOYS, IT IS IMPERATIVE THAT THE COMPLETE MACHINE BE THOROUGHLY CLEANED INCLUDING THE CABINET AND GRIT BOX (ALL COMPARTMENTS). REF: NFPA 65. TRIANGLE ENGINEERING, INC. HIGHLY RECOMMENDS THAT **ONE WTC-20HR BE DEDICATED FOR ALUMINUM PROCESSING ONLY.**

WELD COUPON ABRASIVE CUTTER

SAFETY PRECAUTION CONTINUED

THE AIR VELOCITY IN THE EXHAUST DUCT AS IT EXITS THE WTC-20HR IS IN EXCESS OF 4500 FT/MIN AND HAS PROVEN EFFECTIVE IN THE REMOVAL OF MOST AIRBORNE ALUMINUM DUST CREATED DURING ABRASIVE CUTTING. THIS SYSTEM MUST BE PROPERLY MAINTAINED.

BY OBSERVING THE ABOVE PRECAUTIONS, MAINTAINING GOOD HOUSEKEEPING PRACTICES, AND ADHERING TO INDUSTRY WIDE SAFETY STANDARDS, INCLUDING YOUR EMPLOYER'S SPECIFIC SAFETY REGULATIONS, YOU WILL BE ASSURED A SAFE AND PRODUCTIVE OPERATION.

WELD COUPON ABRASIVE CUTTER

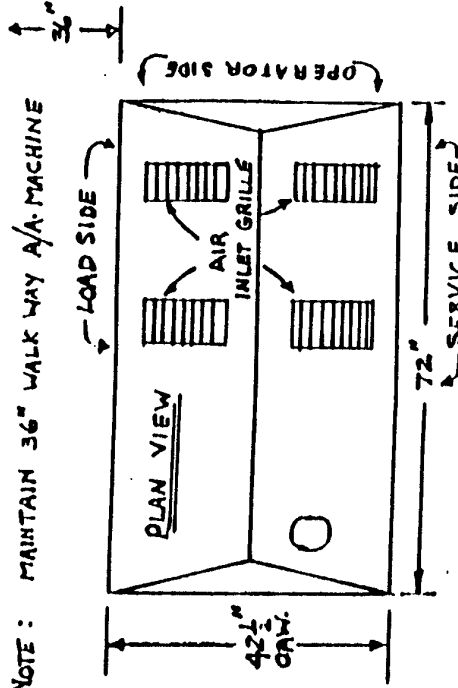
SPECIFICATIONS:

THIS MACHINE WAS DESIGNED AND DEVELOPED BY TRIANGLE ENGINEERING, INC. TO FACILITATE THE RAPID REMOVAL OF SPECIMENS FROM WELDER TEST COUPONS, PIPE AND PLATE, AS PER ASME SECTION IX AND AWS REQUIREMENTS. THE PRESENT MODEL CAN BE FIXTURED AND TOOLED TO HANDLE THE FOLLOWING:

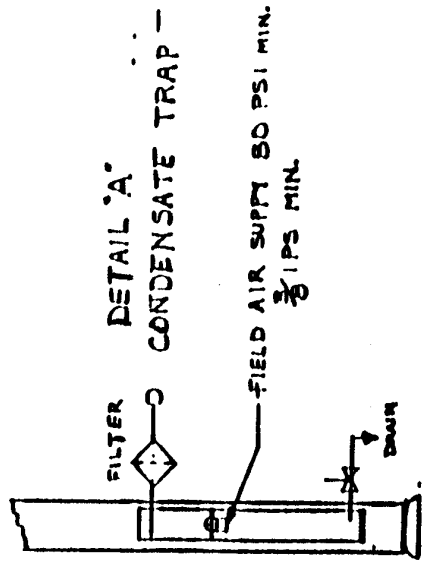
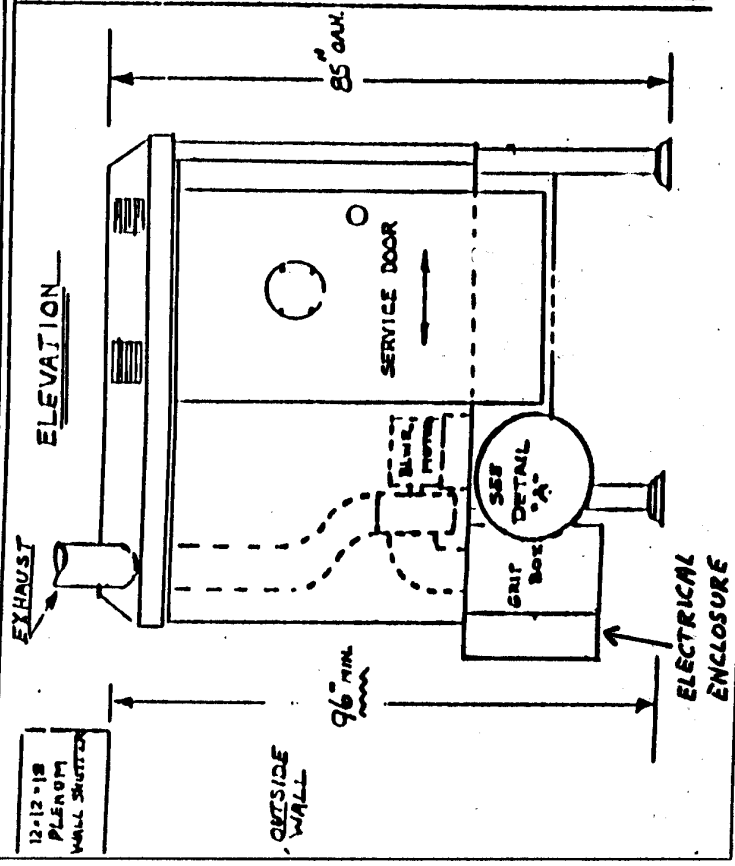
<u>CAPACITY PIPE:</u>	10" SCH 160 THRU 2" SCH 5 x 9 1/2" LONG (max)
<u>CAPACITY PLATE:</u>	1" THICK MAXIMUM X 9 1/2" WIDE
<u>WHEEL DRIVE MOTOR:</u>	15 H.P. 440V 3PH - 60HZ 18A 3525 RPM
<u>WHEEL SPINDLE:</u>	HEAT TREATED 4140 ALLOY, 2175 RPM, C.C.W. ROTATION VIEWED FROM WHEEL SIDE. * CAUTION - SEE LUBE SHEET FOR INSTRUCTION
<u>BLOWER MOTOR:</u>	1 H.P. 440V, 3 PH - 60HZ, 2A, 3450 RPM
<u>AIR SUPPLY:</u>	CLEAN DRY AIR AT 80 PSI, MIN. 2 CUBIC FEET PER CYCLE
<u>AIR-OIL TANKS:</u>	MEDIUM HYDRAULIC OIL S.S.U.
<u>LUBRICATORS:</u>	LIGHT SPINDLE OIL APPROX. SUS - 200 @ 100 F OR SAE - 10
<u>WEIGHT OF MACHINE:</u>	APPROXIMATELY 2240 lbs.
<u>FLOOR SPACE:</u>	42 1/2" X 72" X 85" HEIGHT
<u>NOTES:</u>	MACHINE IS CRATED WITH SAFETY BLOCKING AT FACTORY. <u>REMOVE ALL SHIPPING DUNNAGE BEFORE START-UP.</u> VIBRATION MOUNTS ARE ADJUSTABLE FOR LEVELING MACHINE. CHECK RAILS IN TWO DIRECTIONS BEFORE START-UP. PLEASE SEE TERMS OF WARRANTY REGARDING START-UP...

NOTE:

NOTE: MAINTAIN 36" WALK WAY A/A MACHINE



1. THIS MACHINE PRE-WIRED FOR 440V-3PH-60HZ W/ REDUCED VOLTAGE CONTROL CIRCUIT AND MOTOR PROTECTION.
 2. FIELD TO SUPPLY 440V-3PH-60HZ 30 AMP MIN.
 3. CLEAN PRESSURE AIR 80 PSI MIN. 3/8" I.P.S. IS REQUIRED.
 4. MINOR LEVELING ADJUSTMENTS MAY BE REQUIRED AT EACH OF FOUR (4) VIBRATION MOUNTS. DO NOT FASTEN MACHINES TO FLOOR.
 5. MOTOR ROTATION IS MARKED ON WHEEL GUARD; C.C.W. WHEN VIEWED FROM LOAD SIDE.
 6. REMOVE ALL SHIPPING DURNAGE AND BLOCKING BEFORE SETTING UP.
 7. MAIN MOTOR WILL NOT OPERATE UNLESS BLOWER SWITCH IS CLOSED AND BOTH SLIDE DOOR MICRO SWITCHES ARE CLOSED.
 8. EXHAUST PLENUM AND SHUTTER MUST BE MOUNTED ON OUTSIDE WALL AT SUITABLE HEIGHT ABOVE MACHINE HOOD AND CONNECTED W/ 6" GALVANIZED STOVE PIPE.
- GROSS WEIGHT: 2240 LBS.



<p>TRIANGLE ENGINEERING, INC. King Street, West Hanover, MA 02339</p>	TITLE
	WTC-20-HR FLOOR PLAN DETAILS
DWG. NO.	BT7249-54

WELD COUPON ABRASIVE CUTTER

INSTALLATION INSTRUCTIONS: REFER TO DWG. BT7249-54 FLOOR PLAN DETAIL (PAGE 8)

1. UNIT MAY BE RAISED BY LIFT TRUCK WITH FORKS DIRECTLY UNDER BOTTOM FLANGE OF 12" CHANNEL FRAME. CAUTION SHOULD BE EXERCISED TO INSURE LIFT TRUCK FORKS ARE SPACED TO CLEAR ELECTRICAL ENCLOSURE SERVICE SIDE.
2. MOVE MACHINE TO PERMANENT AREA OF OPERATION ON SHIPPING SKID. REMOVE LAG BOLTS AND FOUR STEEL SHIPPING BRACKETS AND RAISE MACHINE EVENLY TO REMOVE SKIDS. LOWER UNIT TO FLOOR AND LEVEL POWER HEAD RAIL IN TWO (2) DIRECTIONS BY ADJUSTING HEXAGON NUTS ATTACHED TO VIBRATION MOUNTS. **DO NOT BOLT** MACHINE TO THE FLOOR.
3. AIR SUPPLY PIPING TO UNIT SHOULD BE 3/8 IPS MIN. CONNECTED TO 3/8 IPS GATE VALVE ON CONDENSATE TRAP ATTACHED TO REAR LEG, "SERVICE SIDE" OF MACHINE. MOISTURE LADEN AIR WILL CAUSE DAMAGE TO VALVES AND CYLINDERS. CONDENSATE TRAP AND AIR FILTER UNIT SHOULD BE DRAINED ON A REGULAR BASIS.
4. LUBRICATORS ARE FACTORY SET FOR REQUIRED SERVICE AND SHOULD BE REFILLED WITH SAE # 10 LIGHT WT. OIL AS REQUIRED.
5. MACHINE IS WIRED FOR 440V/3PH AND OVERLOAD PROTECTION RATED FOR 18 AMPERES DRAW AT 440V/60 CYCLE. MOTOR SHAFT ROTATION IS C.C.W. WHEN VIEWED FROM LOAD SIDE. NOTE: SEE ROTATION ARROW ON WHEEL GUARD.
6. PRIMARY 440V - 3PH - 60 CYCLE POWER SHOULD BE CONNECTED TO THE THREE LUG TERMINAL BLOCK LABELED 440 VOLTS - 3 PHASE. NOTE THAT THE BLOWER MOTOR FEED IS PRE-WIRED AT THE FACTORY AND SHOULD REQUIRE NO FURTHER ATTENTION. CHECK ROTATION OF WHEEL DRIVE MOTOR (C.C.W.) WHEN VIEWED FROM THE WHEEL SIDE. THIS WILL ENSURE PROPER ROTATION FOR BLOWER MOTOR.

WELD COUPON ABRASIVE CUTTER

INSTALLATION INSTRUCTIONS CONTINUED

7. THE WHEEL DRIVE MOTOR WILL NOT OPERATE UNTIL THE BLOWER SWITCH (10) IS IN THE PULL-OUT POSITION AND BOTH SLIDE DOORS ARE CLOSED.

8. A FOUR LUG GROUNDING BLOCK LABELED EQUIPMENT GROUND HAS BEEN PROVIDED FOR ALL INCOMING GROUND WIRES.

WELD COUPON ABRASIVE CUTTER

LUBRICATION AND MAINTENANCE SCHEDULE

1. **WHEEL SPINDLE BEARINGS:**

TUBULAR BEARING HOUSING CONTAINS 4-5 OZ. OF MEDIUM WEIGHT SPINDLE OIL. PROPER OIL LEVEL IS VISIBLE IN SIGHT GAGE WHEN HEAD IS IN A NEAR LEVEL POSITION AND HALF WAY UP THE SIGHT TUBE.

CAUTION! DO NOT OVERFILL, EXCESS OIL WILL CAUSE CHURNING.

2. **AIR-OIL TANKS:**

REFER TO PNU-HYD DIAGRAM BT7249-55 AND OPER. STATION PANEL DWG. BT7249-57. FILL PLUG IS ON THE TOP OF TANK. MEDIUM WEIGHT HYDRAULIC OIL FILLED TO THE LEVEL INDICATED ON PLASTIC SIGHT TUBES. **CAUTION!** - MAKE CERTAIN TANK TO BE FILLED IS VENTED TO ATMOSPHERE BEFORE REMOVING FILLER PLUG. PRESSURIZED TANK WILL SHOW THE LOWEST OIL LEVEL; THEREFORE, IT IS SAFE TO REMOVE THE FILLER PLUG IN OPPOSITE TANK. TANKS NUMBERED 7 & 8 ARE PART OF THE WHEEL RAISE AND LOWER CIRCUIT: TANK NO. 7 POSITIONED OVER RAIL-ROD, CLOSE BY "LOAD SIDE" OF MACHINE, WHEN PRESSURIZED, CAUSES WHEEL TO LOWER. TANK NO.8, WHEN PRESSURIZED, CAUSES WHEEL TO RAISE. TO CHECK FOR PROPER FLUID LEVEL, RAISE WHEEL TO MAXIMUM HEIGHT. OBSERVE OIL LEVEL IN TANK NO. 7, WHICH IS NOW VENTED TO ATMOSPHERE. REMOVE FILLER PLUG ON TOP OF TANK NO. 7 AND ADD OIL TO LEVEL INDICATED ON SIGHT TUBE. INSTALL FILLER PLUG AND LOWER WHEEL TO MAXIMUM DISTANCE. REMOVE FILLER PLUG ON TOP OF TANK NO. 8 AND ADD OIL TO LEVEL INDICATED. INSTALL FILLER PLUG. WHEEL CIRCUIT IS NOW PROPERLY FILLED. TO REMOVE AIR TRAPPED IN HYDRAULIC FLUID IT MAY BE NECESSARY TO RAISE AND LOWER WHEEL CYLINDER TO MAXIMUM IN BOTH DIRECTIONS, ALLOWING TIME FOR SYSTEM TO PURGE ITSELF AT THE END OF EACH STROKE. NOTE FLOW CONTROL VALVE HARD PIPED INTO LOWER PORT ON TANK NO. 8.

WELD COUPON ABRASIVE CUTTER

LUBRICATION & MAINTENANCE SCHEDULE CONTINUED

THIS VALVE SHOULD BE OPENED A COUPLE OF TURNS TO ALLOW WHEEL TO DROP RAPIDLY DURING AIR PURGING. BE CERTAIN TO RESET THIS VALVE AFTER PURGING THE WHEEL RAISE & LOWER CIRCUIT. A MAXIMUM DROP OF 1/32" EACH TIME THE "LOWER" BUTTON IS MOMENTARILY DEPRESSED WILL PROVIDE THE BEST OPERATING CONDITION. TANK NO. 9 IS PART OF THE SADDLE FEED CYLINDER CIRCUIT CAUSING OIL UNDER AIR PRESSURE TO RETRACT CYLINDER (32), THUS RETURNING SADDLE TO START POSITION. DURING CUTTING CYCLE, AIR PRESSURE FORCES CYLINDER (32) TO EXTEND, WHILE HYDRAULIC OIL ON PISTON ROD IS METERED TO EXHAUST IN TANK NO. 9 SEE METERING VALVE (30), CONTROLLED FROM LEFT FRONT PANEL KNOB (5). THIS FEED CONTROL VALVE ALLOWS FULL VOLUME RETURN, AND CAN BE CLOSED TO STOP CARRIAGE AT ANY POINT ON RAILS DURING FORWARD FEED CYCLE. TO CHECK THE OIL LEVEL IN TANK NO. 9, LOOSEN THE LIMIT VALVE ATTACHED TO LEFT RAIL AND SLIDE FORWARD TOWARD THE FRONT OF THE MACHINE. THIS WILL ALLOW FULL EXTENSION OF SADDLE FEED CYLINDER (32)... ENERGIZE "FORWARD" BUTTON (4) ON OPERATING STATION PANEL TO EXTEND CYLINDER FULL LENGTH. ACTUAL OIL LEVEL MAY NOW BE OBSERVED IN SITE TUBE ON TANK NO. 9 FILLER PLUG ON TOP OF TANK MAY BE REMOVED AT THIS TIME TO ADD OIL IF NECESSARY, SINCE TANK IS VENTED TO ATMOSPHERE. REPLACE FILLER PLUG AND OPERATE CIRCUIT SEVERAL TIMES TO PURGE AIR... REPOSITION LIMIT VALVE (15) AND SECURE TO RAIL.

3. **LUBRICATORS:**

BOTH LUBRICATORS ARE FACTORY SET TO DISPENSE ONE DROP OF OIL PER CYCLE. THEY ARE ADJUSTABLE, AND SHOULD MORE OR LESS OIL BE REQUIRED, THE RED KNOB AT THE TOP MAY BE RESET. USE A LIGHT WEIGHT HYDRAULIC OIL AND CHECK TO INSURE THAT OIL LEVEL IS MAINTAINED AT ALL TIMES.

WELD COUPON ABRASIVE CUTTER

LUBRICATION & MAINTENANCE SCHEDULE CONTINUED

4. **SLIDE PLATE BEARING WAYS:**

GENERAL PURPOSE GREASE - TWO SHOTS EACH OF THREE FITTINGS FOUND ON "LOAD SIDE" TWICE A MONTH. CAUTION! EXCESSIVE GREASE WILL CAUSE TOP SLIDE PLATE TO RAISE.
REFER TO BT7249-60 ITEM 12.

5. **FRONT AND REAR PEDESTALS:**

GENERAL PURPOSE GREASE -2 SHOTS EACH FITTING WITH CLAMP FIXTURES IN PLACE, ONCE A WEEK.

6. **TRUNNION BLOCK WHEEL CYLINDER:**

GENERAL PURPOSE GREASE ONE SHOT EACH OF THE TWO FITTINGS ONCE PER MONTH.

7. **CONDENSATE TRAP:**

SERVICE SIDE REAR - BLOW DOWN AT BOTTOM BALL VALVE DAILY, OR AS REQUIRED.

8. **AIR FILTER:**

SERVICE SIDE REAR - CHECK ONCE A WEEK FOR SEDIMENT AND SLUDGE. BLOW DOWN AS REQUIRED.

9. **SPINDLE CARRIAGE RAILS:**

DO NOT LUBRICATE CARRIAGE RAILS. DOUBLE SEALS ARE EMPLOYED TO WIPE THE RAILS. THE ADDITION OF LUBE OIL TO THE RAIL SURFACE CAUSES A SLUDGING EFFECT WHICH COULD PENETRATE SEALED SURFACE AND DAMAGED LINEAR BEARINGS. OCCASIONAL DRY WIPING IS ENCOURAGED.

10. **WHEEL DRIVE MOTOR:**

IS EQUIPPED WITH BALL BEARINGS AND EXTERNAL GREASE FITTINGS FACTORY PRE-LUBRICATED. NORMAL USE SHOULD REQUIRE A MINIMUM ADDITION OF GREASE OVER A SIX MONTH PERIOD. BE CERTAIN TO REMOVE LOWER GREASE PLUG BEFORE PRESSURE FILLING TO ALLOW EXCESS LUBRICANT TO DISCHARGE, THUS PREVENTING BLOW-BY TO INNER SEAL.

WELD COUPON ABRASIVE CUTTER

LUBRICATION & MAINTENANCE SCHEDULE CONTINUED

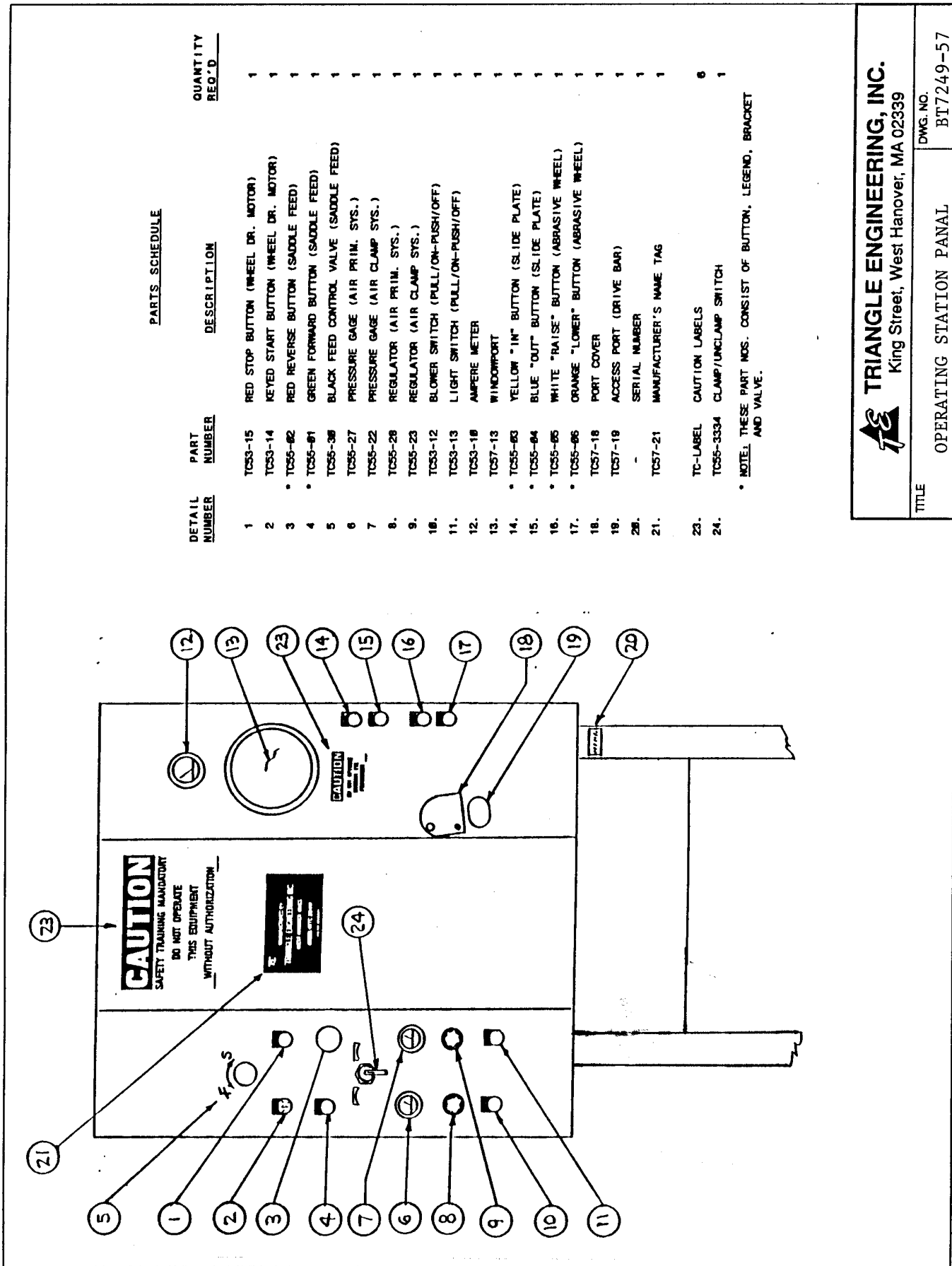
11. **BLOWER DRIVE MOTOR:**

IS EQUIPPED WITH SEALED PRE-LUBRICATED BALL BEARINGS, REQUIRING NO FURTHER ATTENTION.

12. **ABRASIVE WHEEL:**

RECOMMENDED WHEEL SPECIFICATION TO INSURE CONSISTENT PRODUCTIVE AND QUALITY RESULTS FOR CARBON AND STAINLESS STEEL TEST. MATERIALS: XA3018RS-FG6, 20" DIA. X 1/8" THICK X 1" ARBOR HOLE, B2D, TRIANGLE ENGINEERING, INC. PART #TC60-04.


TO REPLACE ABRASIVE WHEEL: RAISE WHEEL TO THE MAXIMUM POSITION BY DEPRESSING WHITE BUTTON (16) ON OPERATING PANEL. (BT7249-57). ACTIVATE GREEN BUTTON (4) TO ALLOW SADDLE TO MOVE FORWARD. CLOSE FEED VALVE (5) BEFORE SADDLE MAKES CONTACT WITH REVERSING LIMIT VALVE ATTACHED TO LEFT RAIL ROD. SADDLE WILL REMAIN LOCKED IN POSITION DURING WHEEL CHANGE. OPEN SLIDE DOOR (LOAD SIDE) AND RELEASE SWING LOCKS (2) ON LOWER SECTION OF WHEEL GUARD. (SEE DWG. BT7249-60). SWING LOWER SECTION UP, EXPOSING WHEEL CLAMP NUT. USING HEX SOCKET WRENCH, WHICH IS STORED ON INSIDE WALL OF FRONT RAIL SUPPORT, STRIKE WRENCH WITH 2 lb. BALL PEEN HAMMER TO LOOSEN WHEEL NUT. REMOVE NUT, OUTER WHEEL FLANGE, AND WORN ABRASIVE WHEEL. WIPE FACE OF DRIVE FLANGE BEFORE REPLACING WITH NEW WHEEL. IT IS NOT NECESSARY TO USE PAPER BLOTTERS FOR THIS INSTALLATION. ABRASIVE WHEEL SHOULD FIT FREELY OVER 1" SHAFT, WITH AMPLE CLEARANCE AROUND THE TWO DRIVE PIN HOLES. INSPECT CONTACT FACE OF OUTER WHEEL FLANGE BEFORE REPLACING AND PROCEED TO TIGHTEN WHEEL NUT. STRIKE WHEEL WRENCH SEVERAL SHARP BLOWS WITH HAMMER TO INSURE A REASONABLE SIDE LOAD PRESSURE. RESTORE LOWER WHEEL GUARD TO A LOCKED POSITION. OPEN FEED VALVE (5) AND ALLOW SADDLE TO RETURN TO A RETRACT POSITION. MACHINE IS READY TO RESUME CUTTING.



PARTS SCHEDULE

<u>DETAIL NUMBER</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QUANTITY REQ'D</u>
1	TCS3-15	RED STOP BUTTON (WHEEL DR. MOTOR)	1
2	TCS3-14	KEYED START BUTTON (WHEEL DR. MOTOR)	1
3	* TCS5-62	RED REVERSE BUTTON (SADDLE FEED)	1
4	* TCS5-61	GREEN FORWARD BUTTON (SADDLE FEED)	1
5	TCS5-36	BLACK FEED CONTROL VALVE (SADDLE FEED)	1
6	TCS5-27	PRESSURE GAGE (AIR PRIM. SYS.)	1
7	TCS5-22	PRESSURE GAGE (AIR CLAMP SYS.)	1
8.	TCS5-28	REGULATOR (AIR PRIM. SYS.)	1
9.	TCS5-23	REGULATOR (AIR CLAMP SYS.)	1
10.	TCS3-12	BLOWER SWITCH (PULL/ON-PUSH/OFF)	1
11.	TCS3-13	LIGHT SWITCH (PULL/ON-PUSH/OFF)	1
12.	TCS3-18	AMPERE METER	1
13.	TCS7-13	WINDOWPORT	1
14.	* TCS5-63	YELLOW "IN" BUTTON (SLIDE PLATE)	1
15.	* TCS5-64	BLUE "OUT" BUTTON (SLIDE PLATE)	1
16.	* TCS5-65	WHITE "RAISE" BUTTON (ABRASIVE WHEEL)	1
17.	* TCS5-66	ORANGE "LOWER" BUTTON (ABRASIVE WHEEL)	1
18.	TCS7-18	PORT COVER	1
19.	TCS7-19	ACCESS PORT (DRIVE BAR)	1
20.	-	SERIAL NUMBER	1
21.	TCS7-21	MANUFACTURER'S NAME TAG	1
23.	TC-LABEL	CAUTION LABELS	6
24.	TCS5-3334	CLAMP/UNCLAMP SWITCH	1

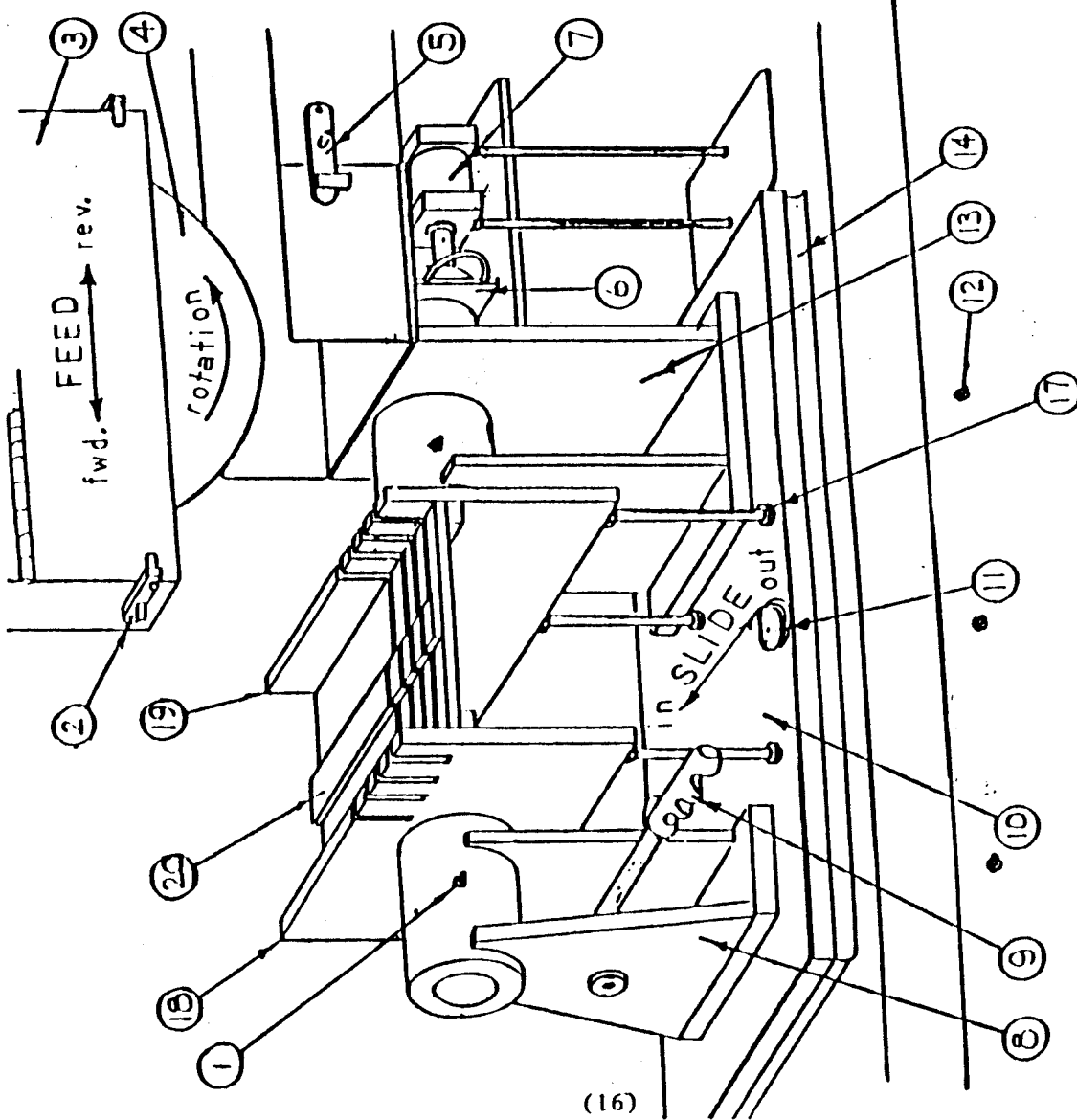
* NOTE: THESE PART NOS. CONSIST OF BUTTON, LEGEND, BRACKET AND VALVE.

 TRIANGLE ENGINEERING, INC. King Street, West Hanover, MA 02339	
TITLE	OPERATING STATION PANEL
DWG. NO.	BT/249-57

1998

PARTS SCHEDULE

DETAIL NUMBER	PART NUMBER	DESCRIPTION	QUANTITY	REQ'D
1	TC68-01	GREASE FITTING	2	
2	TC68-02	LOCKING LEVER - WHEEL GUARD	2	
3	TC68-03	WHEEL GUARD - HINGED COVER	1	
4	TC68-04	ABRASIVE WHEEL - CARBON STEEL	1	
5	TC68-05	LOCK LEVER - GRIT TROUGH	1	
6	TC68-06	RETAINER - CLAMP CYL.	1	
7	TC55-31	AIR CYL. - CLAMP SYSTEM	1	
8	TC68-08	FRONT PEDESTAL	1	
9	TC68-09	INDEX PIN LEVER	1	
10	TC68-10	SLIDE PLATE	1	
-	TC68-10GB	SLIDE PLATE GIBBS (SET)	1	
11	TC68-11	SLIDE PLATE STOP	2	
12	TC68-12	GREASE FITTING - SLIDE PLATE	3	
13	TC68-13	REAR PEDESTAL	1	
14	TC68-14	GRIT WIPER - SLIDE PLATE	4	
17	TC68-17	STABILIZER ROD	4	
18	CFPLT	CLAMP PLATE - FRONT	1	
19	CFPLT	CLAMP PLATE - REAR	1	
20	-	WELD TEST PLATE	-	



TE TRIANGLE ENGINEERING, INC.
King Street, West Hanover, MA 02339

TITLE 3/8" - 1" PLATE FIXTURE DWG. NO. BT7249-60
1 1/2" F & R or 3/8" S.B.

WELD COUPON ABRASIVE CUTTER

OPERATING PROCEDURE - PLATE TEST 3/8" SIDE BEND OR 1 1/2" FACE & ROOT BEND REF: BT7249-60 3/8 - 1" THICKNESS

1. SELECT REAR PLATE CLAMP FIXTURE (19), FRONT PLATE CLAMP FIXTURE (18). WIPE CLEAN GUIDE SHAFT SURFACES.
2. INSERT REAR CLAMP PLATE GUIDE SHAFT INTO PEDESTAL SUPPORT (13) TO MAKE SOLID CONTACT WITH THRUST BEARING INSIDE CLAMP CYLINDER COUPLING.
NOTE! CLAMP CYLINDER SHOULD BE IN UNCLAMP POSITION.
3. **DO NOT** USE RETAINER (6) ON NON-ROTATING FIXTURES.
4. INSERT FRONT CLAMP PLATE GUIDE SHAFT INTO PEDESTAL SUPPORT (8) AND SLIDE FORWARD TO MAKE CONTACT WITH THRUST BEARING.
5. STABILIZER RODS (17) ARE PRE-SET TO ALLOW .005/.010 CLEARANCE WITH TOP SURFACE OF SLIDE PLATE.
6. CHECK TO DETERMINE PROPER POSITION OF BOTH FRONT AND REAR SLIDE PLATE STOPS (11). WHEN CUTTING FACE AND ROOT BENDS, STOPS SHOULD BE POSITIONED WITH 1 1/2" MARKING TOWARD CENTERLINE OF SLIDE PLATE. PULL BALE HANDLE TO LIFT PLUG, ROTATE AS REQUIRED, THEN PRESS DOWN TO ENGAGE ORIENTATION PIN WITH HOLE IN SLIDE PLATE. INVERSELY, WHEN CUTTING SIDE BENDS, ALIGN SLIDE PLATE STOPS WITH THE 3/8" MARK TOWARD CENTERLINE OF SLIDE PLATE.
7. LOAD TEST PLATE INTO FIXTURE, ALLOWING OUTSIDE EDGES TO REST ONTO 1" X 1" SHOULDER SURFACE. IF BACKING STRAP IS USED, IT SHOULD BE ON TOP. SLIDE END OF TEST PLATE BEYOND FIRST SLOT IN FIXTURE TO ALLOW FOR WASTE MATERIAL AS REQUIRED BY CODE. WITH HANDS CLEAR OF THE ENCLOSURE ACTIVATE CLAMP CYLINDER BY TURNING CLAMP SWITCH (24). (L.H. PANEL.) STRIKE TOP SIDE OF TEST PLATE WITH HAMMER TO INSURE THAT IT IS SEATED DOWN ON FIXTURE. DEPRESS YELLOW BUTTON (14) (R.H. PANEL) TO RETRACT SLIDE PLATE CYLINDER. POSITIONING SLIDE PLATE INBOARD TOWARD CENTERLINE OF MACHINE.

WELD COUPON ABRASIVE CUTTER

OPERATING PROCEDURE - PLATE TEST CONTINUED

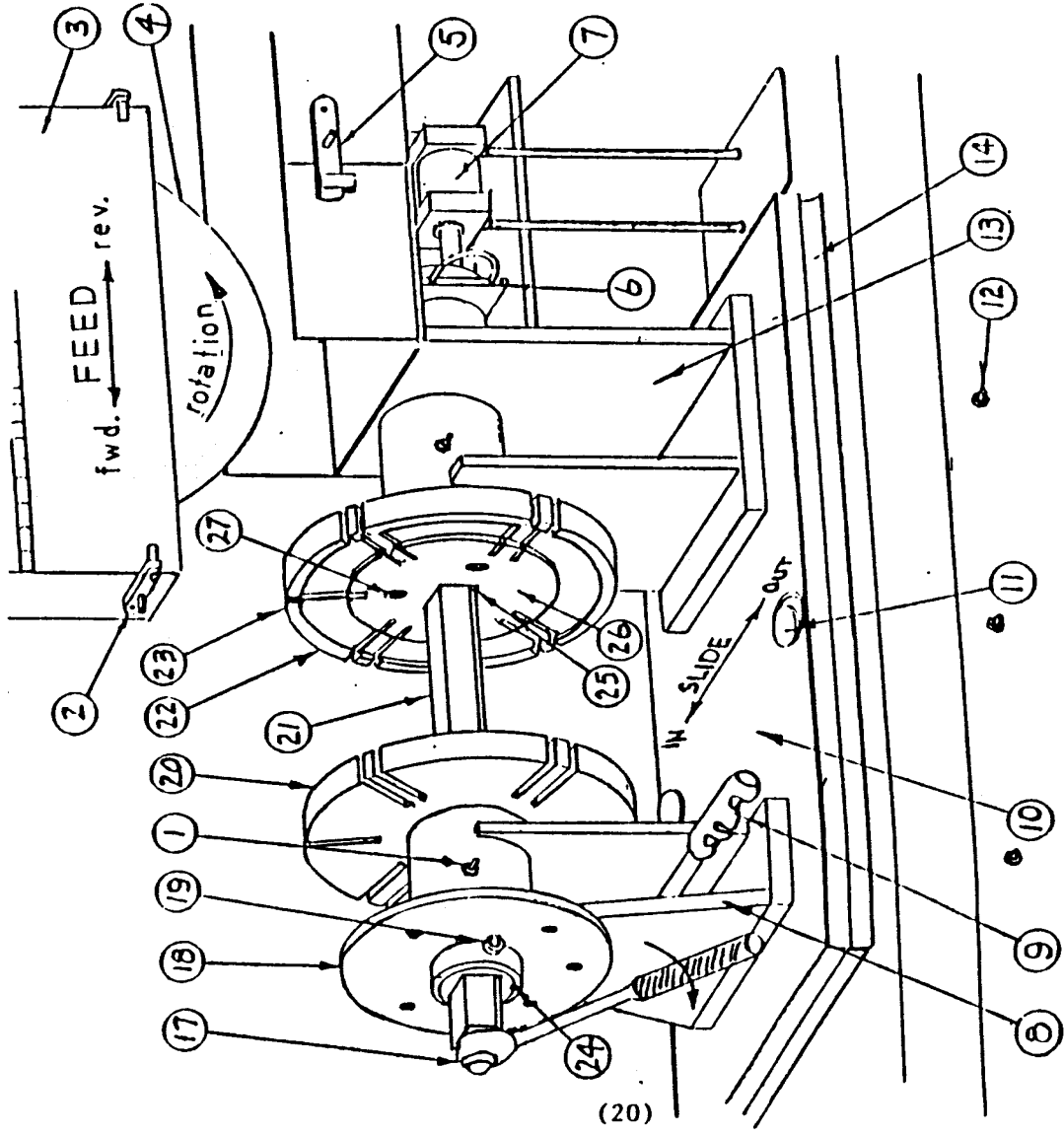
8. UNLOCK HINGED DOOR ON GRIT TROUGH (5) EXPOSING ABRASIVE WHEEL. LOWER WHEEL BY DEPRESSING ORANGE BUTTON (17) ON FRONT OPERATING PANEL DWG. BT7249-57 UNTIL LOWER EDGE OF WHEEL IS 1/4-1/2" BELOW THE BOTTOM SURFACE OF TEST PLATE. REPOSITION GRIT TROUGH DOOR AND SECURE WITH SWING LOCK.
9. CLOSE LOAD SIDE DOOR TIGHTLY TO CONTACT MICRO LIMIT SWITCH. (REF: BT7249-52). BLOWER MOTOR PUSH-PULL SWITCH, (10) ON LEFT FRONT PANEL, MUST BE IN PULL-OUT POSITION BEFORE ENERGIZING START BUTTON (2) WHEEL DRIVE MOTOR.
10. DEPRESS THE GREEN BUTTON (4) AND OPEN VALVE (5) COUNTER CLOCKWISE TO OBTAIN A FORWARD RATE OF APPROXIMATELY TWELVE,(12), INCHES PER MINUTE. AS THE ABRASIVE WHEEL MAKES FULL CONTACT WITH TEST PLATE MATERIAL, OBSERVE AMPERAGE DRAW ON AMP METER (12) TOP RIGHT PANEL. MAINTAIN APPROXIMATELY 16 AMP MOTOR DEMAND (440V-PRIMARY) BY ADJUSTING FEED VALVE (5). AS THE ABRASIVE WHEEL PASSES THRU THE BACKING STRAP, A SUDDEN INCREASE IN AMPERAGE IS EXPECTED AND NORMAL TO THE OPERATION. DISREGARD THIS MOMENTARY FLUCTUATION IN AMPERAGE READINGS.
11. ALLOW ABRASIVE WHEEL TO CONTINUE FORWARD TRAVEL UNTIL TEST PLATE IS COMPLETELY SEVERED. THE REVERSING LIMIT VALVE LOCATED ON THE LEFT ROD RAIL MAY BE ADJUSTED TO "TRIP" AND RETURN SADDLE AFTER COMPLETION OF FORWARD CUTTING STROKE.
12. THE RED REVERSING BUTTON (3) MAY BE ENERGIZED AT ANY TIME DURING THE CUTTING STROKE, THUS RETURNING SADDLE TO START POSITION.
13. DEPRESS BLUE BUTTON (15) CAUSING SLIDE PLATE CYLINDER TO EXTEND THUS POSITIONING TEST PLATE, OUTBOARD, TOWARD LOAD SIDE OF MACHINE.
14. TO COMPENSATE FOR WHEEL WEAR, TRIGGER THE ORANGE BUTTON (17) ONCE OR TWICE, DROPPING WHEEL APPROXIMATELY 1/16" BEFORE EACH CUTTING STROKE.
15. ENERGIZE FORWARD FEED CYCLE, GREEN BUTTON (4) AND PROCEED AS PER PREVIOUS INTRUCTIONS.

WELD COUPON ABRASIVE CUTTER

OPERATING PROCEDURE - PLATE TEST CONTINUED

16. AFTER COMPLETION OF THE 2ND CUT, OPEN SLIDE DOOR AND WITH HANDS CLEAR OF THE ENCLOSURE, TURN UNCLAMP SWITCH (24) TO RELEASE TEST PLATE. REVERSE PLATE, END FOR END, AND POSITION AS PREVIOUS. WITH HANDS CLEAR OF THE ENCLOSURE, TURN CLAMP SWITCH (24) TO CLAMP, RETRACT SLIDE PLATE, YELLOW BUTTON (14), LOWER WHEEL, ORANGE BUTTON (17) AND CONTINUE WITH CUTTING CYCLE. AFTER COMPLETION OF #2 BEND SPECIMEN, COLLECT BOTH SIDE BENDS AND RETAIN FOR FURTHER PROCESSING. REMOVE SCRAP MATERIAL FROM MACHINE AREA AND SWEEP SLIDE PLATE SURFACE CLEAN BEFORE PROCEEDING WITH ANY ADDITIONAL CUTTING. TOTAL OPERATIONAL TIME - 6 MINUTES.

A GOOD QUALITY BENCH BRUSH, DUST PAN AND METAL WASTE BOX SHOULD BE MADE AVAILABLE TO ASSIST THE MECHANIC IN OPERATIONAL CLEANING. AN INDUSTRIAL TYPE VACUUM CLEANING MACHINE SHOULD BE UTILIZED EVERY WEEK TO REMOVE GRIT AND FINES THAT COLLECT IN AND AROUND THE INTERIOR OF THE MACHINERY. DAILY HOUSE CLEANING IN AND AROUND THE MACHINE AREA MUST BE ENFORCED TO ENJOY THE BENEFITS OF AUTOMATED, HIGH QUALITY AND PRODUCTIVE TESTING WITH THIS EQUIPMENT. **REFER TO NOTE "K" ON PAGE 5 ENTITLED "SAFETY PRECAUTION" FOR FURTHER INSTRUCTION IN OPERATIONAL CLEANING.**



PARTS SCHEDULE

DETAIL NUMBER	PART NUMBER	DESCRIPTION	QUANTITY	REQ'D
1	TC66-81	GREASE FITTING	2	
2	TC66-82	LOCKING LEVER - WHEEL GUARD	2	
3	TC66-83	WHEEL GUARD - HINGED COVER	1	
4	TC66-84	ABRASIVE WHEEL - CARBON STEEL	1	
5	TC66-85	LOCK LEVER - GRIT TROUGH	1	
6	TC66-86	RETAINER - CLAMP CYL.	1	
7	TC55-31	AIR CYL. - CLAMP SYSTEM	1	
8	TC66-88	FRONT PEDESTAL	1	
9	TC66-89	INDEX PIN LEVER	1	
10	TC66-10	SLIDE PLATE	1	
11	TC66-10GB	SLIDE PLATE GIBBS (SET)	1	
12	TC66-11	SLIDE PLATE STOP	2	
13	TC66-12	GREASE FITTING - SLIDE PLATE	3	
14	TC66-13	REAR PEDESTAL	1	
15	TC66-14	GRIT WIPER - SLIDE PLATE	4	
16	TC63-17	RACHET DRIVE WRENCH	1	
17	***	INDEX PLATE (INCL. PT# 19 & 24)	1	
18	-	LOCK SCREW	1	
19	***	CLAMP PLATE - FRONT	1	
20	CF63-21	DRIVE BAR (INCLUDES PT# 25)	1	
21	***	CLAMP PLATE - REAR	1	
22	-	RELIEVING GROOVE	2	
23	-	KEY	1	
24	-	ALIGNMENT PIN	2	
25	CF63-26	RETAINING PLATE ***	2	
26	CF63-27	RETAINING PLATE SCREENS	6	

NOTE: *** TECHNICAL DATA REQUIRED AT TIME OF ORDER TO ESTABLISH PT. NOS. (I.E. PIPE SCHEDULE, WELDING STANDARD, POSITION & MAT'L COND.)

TRIANGLE ENGINEERING, INC.
King Street, West Hanover, MA 02339

TITLE PIPE INDEXING FIXTURE
3/8" S.B. OR 1 1/2" F & R
DWG. NO. BT7249-63

WELD COUPON ABRASIVE CUTTER

OPERATING PROCEDURE -PIPE TEST **3/8" SIDE BEND OR 1 1/2" FACE & ROOT BEND** **REF: BT7249-63**

1. SELECT REAR CLAMP PLATE (22) AND FRONT CLAMP PLATE (20) FOR PIPE SIZE TO BE TESTED. WIPE CLEAN THE GUIDE SHAFT SURFACES. NOTE THAT THE RETAINING PLATES, (26) & (22), ARE CORRECTLY MARKED FOR THE NOMINAL PIPE WALL BEING WORKED.
2. INSERT REAR CLAMP PLATE GUIDE SHAFT INTO PEDESTAL SUPPORT (13) TO MAKE CONTACT WITH THRUST BEARING INSIDE CLAMP CYLINDER COUPLING. CLAMP CYLINDER SHOULD BE IN UNCLAMP POSITION.
3. INSERT RETAINER (6) THRU SLOTS IN CLAMP CYLINDER COUPLING.
4. INSERT FRONT CLAMP PLATE GUIDE SHAFT INTO PEDESTAL SUPPORT (8) AND SLIDE FORWARD TO MAKE FULL CONTACT WITH THRUST BEARING. ROTATE FRONT AND REAR CLAMP PLATE TO POSITION RELIEVING GROOVE (23) AT TOP.
5. SELECT INDEX PLATE (18) AND ATTACH TO THE EXPOSED PORTION OF THE FRONT CLAMP PLATE GUIDE SHAFT; HUB OUT. KEYWAY AND SET SCREW LOCK INDEX PLATE WITH ONE HOLE DOWN, ENGAGING INDEX PIN LEVER (9).
6. CHECK ORIENTATION OF BOTH FRONT AND REAR SLIDE PLATE STOPS (11). WHEN CUTTING "FACE AND ROOT BENDS", STOPS SHOULD BE POSITIONED WITH 1 1/2" MARKING TOWARD CENTERLINE OF SLIDE PLATE. INVERSELY, WHEN CUTTING "SIDE BENDS", ALIGN STOPS WITH 3/8" MARKS TOWARD CENTERLINE OF SLIDE PLATE.
7. SELECT DRIVE BAR (21), WIPE CLEAN, AND INSERT THRU ACCESS PORT (19) RIGHT FRONT PANEL (DWG. BT7249-57). NOTE: ALIGNMENT GROOVE MACHINED FULL LENGTH OF DRIVE BAR TO PREVENT MISMATCH BETWEEN FRONT AND REAR CLAMP PLATES.
8. SLIDE DRIVE BAR THRU TO FULL ENGAGEMENT WITH REAR CLAMP PLATE CENTER HOLE. ROTATE REAR CLAMP PLATE IF NECESSARY TO FACILITATE CENTER HOLE ALIGNMENT WITH DRIVE BAR. NOW, WITHDRAW THE DRIVE BAR APPROXIMATELY NINE INCHES, IN PREPARATION FOR LOADING TEST PIPE.

WELD COUPON ABRASIVE CUTTER

OPERATING PROCEDURE - PIPE TEST CONTINUED

9. POSITION TEST PIPE ONTO THE SADDLE SUPPORT OF THE FRONT CLAMP FIXTURE THEN SLIDE INTO CONTACT WITH REAR CLAMP PLATE. REPOSITION THE DRIVE BAR INTO FULL ENGAGEMENT.

10. WITH HANDS CLEAR OF THE ENCLOSURE TRIP THE CLAMP SWITCH (24) (L.H. PANEL) TO SECURE THE TEST PIPE. CLAMPING FORCE IS REGULATED AT LEFT FRONT PANEL, DWG. BT7249-57, BY PRESSURE REGULATOR (9) AND PRESSURE GAUGE (7). AIR PRESSURE AT 65-70 P.S.I. IS ADEQUATE, EXCEPT ON LIGHT WALL, SMALL DIAMETER PIPE WHEN A REDUCTION TO 50 P.S.I. MAY BE IN ORDER TO PREVENT BOWING OF SUB-SIZE SPECIMENS. ATTACH RATCHET DRIVE (17) TO EXPOSED END OF DRIVE BAR.

11. POSITION ABRASIVE WHEEL TO PENETRATE 1/4" TO 1/2" BEYOND THE WALL OF TEST PIPE, BUT SAFELY ABOVE BOTTOM OF GROOVE IN CLAMP FIXTURE. HINGED DOOR ON GRIT TROUGH MAY BE LOWERED BY RELEASING LOCKING LEVER (5) EXPOSING THE LOWER EDGE OF ABRASIVE WHEEL TO ASSIST IN DEPTH CONTROL. RESTORE HINGED DOOR TO LOCKED POSITION BEFORE CUTTING.

12. CLOSE "LOAD SIDE DOOR" TIGHTLY TO CONTACT MICRO LIMIT SWITCH. BLOWER MOTOR PUSH-PULL SWITCH (10) ON LEFT FRONT PANEL MUST BE IN "PULL-PUT" POSITION BEFORE START BUTTON (2) WILL ENERGIZE WHEEL DRIVE MOTOR.

13. DEPRESS "IN" BUTTON TO RETRACT SLIDE PLATE CYLINDER.

WELD COUPON ABRASIVE CUTTER

OPERATING PROCEDURE - PIPE TEST CONTINUED

14. OBSERVE WHEEL ALIGNMENT WITH RELIEVING CUT IN REAR CLAMP FIXTURE THROUGH VIEW PORT (13) RIGHT FRONT PANEL.

15. DEPRESS GREEN BUTTON (4) SADDLE FEED VALVE AND OPEN FEED CONTROL VALVE (5) COUNTER CLOCKWISE TO OBTAIN A 12" PER MINUTE FEED RATE. AS THE ABRASIVE WHEEL MAKES FULL CONTACT WITH PIPE TEST MATERIAL, OBSERVE AMPERES (12). MAINTAIN A MOTOR LOAD DEMAND OF 16 AMPERES, (440 VOLT PRIMARY) BY ADJUSTING THE FEED CONTROL VALVE. AT THE END OF THE CUTTING STROKE A REVERSING LIMIT VALVE WILL RETURN THE CARRIAGE TO THE START POSITION. THE REVERSING LIMIT VALVE IS MOUNTED ON THE LEFT RAIL ROD AND IS ADJUSTABLE.

16. AFTER COMPLETION OF THE RELIEVING CUT, OPEN LOAD SLIDE DOOR AND PRESS INDEX LEVER (9) TOWARD FRONT OF MACHINE, RELEASING INDEX PIN. PUSH DOWN ON RATCHET LEVER (17) ROTATING TEST PIPE. AFTER A SLIGHT MOVEMENT OF TEST PIPE, RELAX PRESSURE INDEX LEVER AND CONTINUE ROTATING PIPE UNTIL INDEX PIN LOCKS INTO NEXT HOLE LOCATION. SLIDE PLATE IS IN THE RETRACT POSITION, "IN". CLOSE SLIDE DOOR, ADJUST WHEEL FOR WEAR, AND PROCEED WITH CUTTING OPERATION. AFTER COMPLETION OF FIRST CUT #1 SPECIMEN, DEPRESS BLUE BUTTON, "OUT" (15), CAUSING SLIDE PLATE CYLINDER TO EXTEND, AND PROCEED WITH SECOND CUT #1 SPECIMEN. OPEN SLIDE DOOR AND ROTATE PIPE AS PREVIOUS TO LOCATE FOR #2 SPECIMEN. RETRACT SLIDE PLATE, ADJUST HEAD FOR WHEEL WEAR AND CONTINUE OPERATION. ABOVE PROCEDURE WILL BE REPEATED TO COMPLETION OF ALL TEST SPECIMENS, AFTER WHICH THE UNCLAMP SWITCH WILL BE ACTIVATED, CAUSING CLAMP CYLINDER TO UNCLAMP, RELEASING ALL BEND SPECIMENS AND SURPLUS MATERIAL WITH HANDS CLEAR OF THE ENCLOSURE.

17. RECOVER TEST PIECES AND STORE FOR FURTHER PROCESSING. REMOVE SCRAP AND SWEEP CLEAN THE SLIDE PLATE SURFACE. TOTAL OPERATIONAL TIME 14 MINUTES.

WELD COUPON ABRASIVE CUTTER

OPERATING PROCEDURE - PIPE TEST CONTINUED

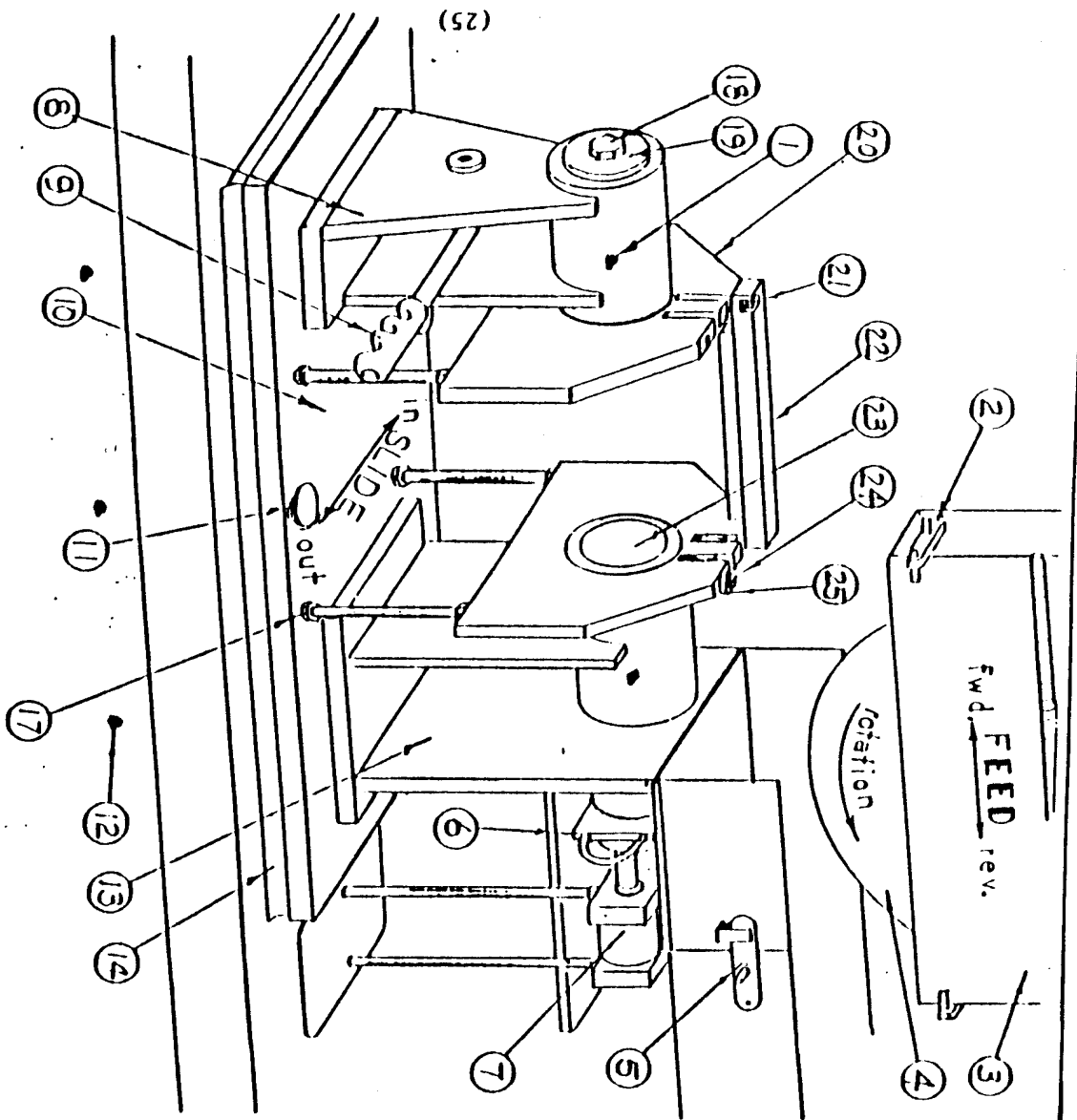
18. ADDED RECOMMENDATIONS:

THE ABRASIVE CUTTING PROCESS IS A RAPID AND ECONOMICAL METHOD FOR PREPARING DESTRUCTIVE TEST SPECIMENS, BUT FINE GRIT AND ABRASIVE PARTICLES MUST BE WIPED CLEAN OF MACHINED AND FITTED SURFACES. BENCH BRUSH AND DUST PAN FOR HEAVY CONCENTRATIONS, FOLLOWED BY REGULAR VACUUM CLEANING OF THE MACHINE INTERIOR. REFER TO NOTE "K" ON PAGE 5 ENTITLED "SAFETY PRECAUTION" FOR FURTHER INSTRUCTIONS ON OPERATIONAL CLEANING. DO NOT HAMMER OR FORCE SLIDE FITTED PARTS. INSPECT FOR BURRS OR NICKS AND REMOVE BY HAND FILING WHEN REQUIRED. A LIGHT SPRAY COAT OF PENETRATING OIL WIPED CLEAN ON THESE SURFACES WILL ASSIST IN CONTINUED EASE OF ASSEMBLY. DO NOT ALLOW GRIT SLUDGE TO BUILD-UP ON DRIVE BAR (21) FROM EXCESS OIL FILM. IF DRIVE BAR BECOMES LODGED IN REAR CLAMP PLATE, PROCEED AS FOLLOWS.

1. WITH HANDS CLEAR OF THE ENCLOSURE, TRIP THE CLAMP SWITCH (24) TO EXTEND THE CLAMP CYLINDER. SELECT "T" HANDLE ALLEN WRENCH AND DROP INTO EXPOSED HOLE AT OPPOSITE END OF DRIVE BAR..

2. WITH HANDS CLEAR OF THE ENCLOSURE; TRIP THE UNCLAMP SWITCH (24) TO RETRACT THE CLAMP CYLINDER AND DISLODGE THE DRIVE BAR (21). INSPECT BAR AND SQUARE DRIVE HOLE FOR NICKS, BURRS OR DIRT.

WHEEL WEAR ADJUSTMENT IS PROVIDED BY MOMENTARILY TRIGGERING ORANGE BUTTON (17) ON RIGHT FRONT PANEL, ALLOWING HEAD TO DROP 1/32" EACH IMPULSE. IF BUTTON IS MAINTAINED DE-PRESSED, HEAD WILL CONTINUE DROPPING UNTIL RELEASED. RATE OF WHEEL WEAR VARIES WITH WALL THICKNESS OF MATERIAL, NORMALLY A 1/16" ADJUSTMENT IS AMPLE EACH CUT.



PARTS SCHEDULE

DETAIL NUMBER	PART NUMBER	DESCRIPTION	QTY.
1	TO86-01	GREASE FITTING	2
2	TO86-02	LOCKING LEVER - WHEEL GUARD	2
3	TO86-03	WHEEL GUARD - HINGED COVER	1
4	TO86-04	ABRASIVE WHEEL - CARBON STEEL	1
5	TO86-05	LOCK LEVER - GRIT TROUGH	1
6	TO86-06	RETAINER - CLAMP CTL.	1
7	TO85-31	AIR CTL. - CLAMP SYSTEM	1
8	TO86-08	FRONT PEDESTAL	1
9	TO86-09	INDEX PIN LEVER	1
10	TO86-10	SLIDE PLATE	1
-	TO86-10GB	SLIDE PLATE GIBBS (SET)	1
11	TO86-11	SLIDE PLATE STOP	2
12	TO86-12	GREASE FITTING - SLIDE PLATE	3
13	TO86-13	REAR PEDESTAL	1
14	TO86-14	GRIT WIPER - SLIDE PLATE	4
17	TO86-17	STABILIZER ROD	4
18	TO82-18	RETAINING BOLT	1
19	TO82-19	RETAINING WASHER	1
20	CF6243084S8	FRONT CLAMP PLATE	1
21	CF62-21	SOCKET HEAD CAP SCREW	2
22	**CF62-22 GB	WHEEL GUIDE BARS (L.H. & R.H. SET)	1
23	CF6243084S8	REAR CLAMP PLATE	1
24	CF62-24	SOCKET HEAD CAP SCREW	2
25	CF62-25	ECCENTRIC CAM BOSS	2

* THIS PART NO. INCLUDES DETAIL NOS. 18-25 INCLUSIVE.
 ** THIS PART NO. INCLUDES DETAIL NOS. 21-25 INCLUSIVE.



TRIANGLE ENGINEERING, INC.
 King Street, West Hanover, MA 02339

TITLE 2" X 1/2" PIPE FIXTURE
 MANUAL INDEX 3/8" S.3.
 Dwg. No. BT7249-62

WELD COUPON ABRASIVE CUTTER

OPERATING PROCEDURE - PIPE TEST 3/8" SIDE BEND 2 " SCH XXH (.436 WALL) REF: BT7249-62

1. SELECT REAR CLAMP PLATE (23) AND FRONT CLAMP PLATE (20) FOR 2" XXH PIPE TO BE TESTED. WIPE CLEAN THE GUIDE SHAFT SURFACES.
2. INSERT REAR CLAMP PLATE GUIDE SHAFT INTO REAR PEDESTAL SUPPORT (13) TO MAKE CONTACT WITH THRUST BEARING INSIDE CLAMP CYLINDER COUPLING. CLAMP CYLINDER SHOULD BE IN RETRACT POSITION.
3. INSERT FRONT CLAMP PLATE GUIDE SHAFT INTO FRONT PEDESTAL SUPPORT (8) AND SLIDE FORWARD TO MAKE FULL CONTACT WITH THRUST BEARING. ATTACH FLAT WASHER (19) WITH HEX HEAD BOLT (18) TO SECURE AXIAL MOVEMENT OF FRONT CLAMP PLATE.
4. CHECK ADJUSTMENT OF STABILIZER RODS (17) TO ALLOW A MAXIMUM OF .010 CLEARANCE ABOVE TOP SURFACE OF SLIDE PLATE.
5. CHECK ORIENTATION OF BOTH SLIDE PLATE STOPS (11). SIDE BENDS REQUIRE THE 3/8" MARK TO FACE TOWARD CENTERLINE OF SLIDE PLATE.
6. SELECT TWO WHEEL GUIDE BARS (22) AND ATTACH TO TOP SURFACE OF CLAMP PLATE FIXTURES. NOTE!! REAR CLAMP PLATE HAS TWO 5/8" DIA. CAM BOSS'S (25) FASTENED WITH 5/16" SOCKET HEAD CAP SCREW. THE MILLED SLOT ON BOTTOM SIDE OF GUIDE BAR FITS OVER THE CAM BOSS. THE CAM BOSS IS ADJUSTED TO MAINTAIN SLIGHT SIDE PRESSURE AGAINST THE ABRASIVE WHEEL AND GUIDE BAR. THE OPPOSITE END OF THE GUIDE BARS ARE FASTENED TO THE FRONT CLAMP PLATE WITH 5/16" DIA. S.H.C.S. AND SHOULD BE ADJUSTED AND LOCKED TO PROVIDE WHEEL STABILITY. OCCASIONAL RE-ADJUSTMENT WILL BE REQUIRED OVER A PERIOD OF TIME. GUIDE BARS MUST BE REMOVED WHEN CHANGING FIXTURES.

WELD COUPON ABRASIVE CUTTER

OPERATING PROCEDURE - PIPE TEST 2" XXH CONTINUED

7. POSITION TEST PIPE (TOP SIDE UP) ONTO THE SADDLE SUPPORT OF THE FRONT FIXTURE AND SLIDE INTO FULL ENGAGEMENT WITH THE REAR CLAMP PLATE. WITH HANDS CLEAR OF THE ENCLOSURE TURN CLAMP SWITCH (24) (L.H. PANEL) TRIP BUTTON (14), FRONT RIGHT PANEL, TO RETRACT SLIDE PLATE CYLINDER. LOWER WHEEL TO APPROXIMATELY 3/4" ABOVE GRIT TROUGH BY DEPRESSING BUTTON (17). CLOSE SLIDE DOORS AND PULL-OUT BLOWER SWITCH (10). MAIN DRIVE MOTOR MAY NOW BE ENERGIZED BY TRIPPING BUTTON 2). TRIP BUTTON (4) TO ACTIVATE FEED CYLINDER AND ADJUST FEED RATE VALVE (5) TO APPROXIMATELY 12 I.P.M. OBSERVE AMMETER (12) AND MAINTAIN 15 AMPERE DRAW DURING CUTTING CYCLE. UPON COMPLETION OF "RELIEVING CUT", SADDLE WILL AUTOMATICALLY RETURN TO START POSITION. STOP WHEEL DRIVE MOTOR, OPEN SLIDE DOOR, WITH HANDS CLEAR OF THE ENCLOSURE TURN UNCLAMP SWITCH (24) TO RELEASE PIPE & MANUALLY ROLL TEST PIPE 45 DEGREES TO LOCATE FOR REMOVAL OF #1 SIDE BEND SPECIMEN. RECLAMP PIPE, CLOSE SLIDE DOOR AND PROCEED WITH CUTTING AFTER COMPLETION OF THIS CUT, PRESS BUTTON (15) TO EXTEND SLIDE PLATE CYLINDER, CAUSING SLIDE PLATE TO MOVE OUTBOARD. TRIP WHEEL "LOWER" BUTTON (17) TO COMPENSATE FOR WHEEL WEAR AND ACTIVATE FEED CYCLE (4). AFTER SADDLE HAS RETURNED TO STARTING POSITION, REMOVE PIPE FROM CLAMP PLATES, SEPARATE #1 SIDE BEND SPECIMEN AND WIPE RETAINING GROOVES CLEAN IN CLAMP FIXTURE. REPOSITION TEST PIPE, ROLLING IT 45 DEGREES TO #2 S.B. LOCATION AND CLAMP. PROCEED AS ABOVE TO COMPLETE REMOVAL OF ALL FOUR SIDE BEND STRAPS. COLLECT THE FOUR SPECIMENS, AND STORE FOR FURTHER PROCESSING . REMOVE SCRAP MATERIAL, SWEEP CLEAN THE MACHINE AREA BEFORE PROCEEDING WITH FURTHER CUTTING.

WELD COUPON ABRASIVE CUTTER

OPERATING PROCEDURE 2"SCH 80 CLAMP FIXTURE

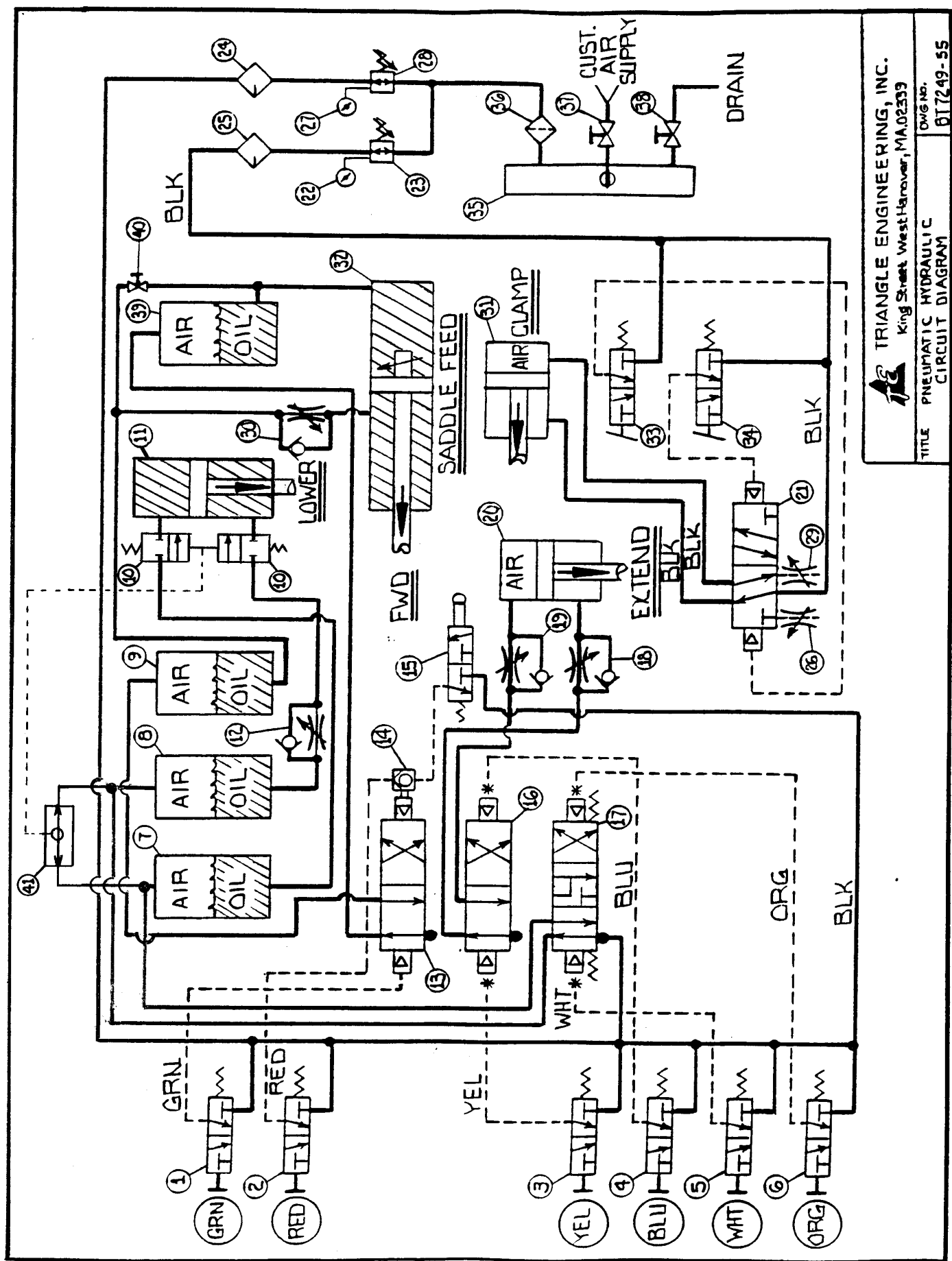
3/4" FACE AND ROOT BENDS


1. SELECT THE FRONT AND REAR 2/80 CLAMP FIXTURE PART#CF02218MB4FR WIPE CLEAN THE GUIDE SHAFT SURFACES AND BOTH PEDESTAL BORES. APPLY A SMALL AMOUNT OF GREASE TO EACH SHAFT.
2. WITH **HANDS CLEAR OF THE ENCLOSURE**, ACTIVATE CLAMP CYLINDER BY TURNING CLAMP SWITCH (24) TO INSURE THE CLAMP COUPLING IS RETRACTED.
3. INSERT THE REAR FIXTURE SHAFT INTO THE REAR PEDESTAL SUPPORT AND PUSH TO MAKE CONTACT WITH THE THRUST BEARING INSIDE THE CLAMP CYLINDER COUPLING. NOTE: THE RETAINER (D-RING #6) IS NOT USED WITH THIS FIXTURE.
4. INSERT THE FRONT FIXTURE GUIDE SHAFT INTO THE FRONT PEDESTAL SUPPORT AND PUSH FORWARD TO MAKE FULL CONTACT WITH THE THRUST BEARING.
5. CHECK ADJUSTMENT OF THE STABILIZER RODS AND ALLOW A MAXIMUM OF .01" CLEARANCE ABOVE THE SLIDE PLATE.
6. SELECT THE PROPER SLIDE PLATE STOPS MARKED 3/4" AND WIPE CLEAN.
7. DEPRESS THE BLUE "OUT" BUTTON TO EXTEND THE SLIDE PLATE CYLINDER. BRUSH CLEAN THE SLIDE PLATE THEN REMOVE THE OUTBOARD SLIDE PLATE STOP, BEING SURE THAT GRIT DOES NOT ENTER THE HOLE. PLACE THE STOP PIN INTO THE HOLE WITH THE 3/4" MARK FACING THE CENTERLINE OF THE SLIDE PLATE TABLE. ROTATE AND PRESS DOWN ON THE STOP PIN TO ENGAGE THE ORIENTATION PIN.
8. DEPRESS THE YELLOW "IN" BUTTON TO RETRACT THE SLIDE PLATE CYLINDER, CLEAN TABLE, REMOVE PIN AND INSTALL THE OTHER 3/4" STOP PIN AS PER PREVIOUS.
9. ADJUST THE CLAMP PRESSURE (9) ON THE FRONT PANEL UNTIL THE GAUGE PRESSURE READS 50# PSI.
10. USING THE PROPER MARKING FIXTURE PART# CFM02FR LAYOUT THE FOUR 3/4" BENDS (2 FACE 2 ROOT).
11. PLACE THE 2/80 WELDMENT WITH THE LAYOUT ONTO THE FRONT FIXTURE SADDLE SUPPORT. SLIDE PIPE ASSEMBLY INTO RETAINING GROOVE OF REAR FIXTURE AND ALIGN SPECIMEN WITHIN WHEEL GROOVES.
12. WITH YOUR **HANDS CLEAR** OF THE ENCLOSURE, ACTIVATE CLAMP CYLINDER BY TURNING CLAMP SWITCH (24) TO SECURE THE WELDMENT. STRIKE THE TOP OF THE WELDMENT WITH A HAMMER TO INSURE THAT IT IS PROPERLY SEATED IN THE FIXTURE.

WELD COUPON ABRASIVE CUTTER

OPERATING PROCEDURE 2"SCH 80" CLAMP FIXTURE (CONTINUED)

13. UNLOCK THE HINGED DOOR ON GRIT TROUGH (5) EXPOSING ABRASIVE WHEEL. LOWER WHEEL BY DEPRESSING ORANGE BUTTON (17) ON FRONT OPERATING PANEL DWG. BT7249-57 UNTIL LOWER EDGE OF WHEEL IS APPROXIMATELY 3/4" ABOVE THE GRIT TROUGH. REPOSITION GRIT TROUGH DOOR AND SECURE WITH SWING LOCK.
14. CLOSE LOAD SIDE DOOR TIGHTLY TO CONTACT MICRO LIMIT SWITCH. (REF: BT7249-52). BLOWER MOTOR PUSH-PULL SWITCH, (10) ON LEFT FRONT PANEL, MUST BE IN PULL-OUT POSITION AND BOTH DOORS CLOSED, BEFORE THE WHEEL DRIVE MOTOR WILL START.
15. START MOTOR. DEPRESS THE BLACK (#2) BUTTON TO START THE ABRASIVE WHEEL MOTOR.
16. DEPRESS THE GREEN BUTTON (4) AND OPEN VALVE (5) COUNTER CLOCKWISE TO OBTAIN A FORWARD RATE OF APPROXIMATELY TWELVE, (12), INCHES PER MINUTE. AS THE ABRASIVE WHEEL MAKES FULL CONTACT WITH TEST PIPE MATERIAL, OBSERVE AMPERAGE DRAW ON AMP METER (12) TOP RIGHT PANEL. MAINTAIN APPROXIMATELY 16 AMP MOTOR DEMAND (440V-PRIMARY) BY ADJUSTING FEED VALVE (5).
17. ALLOW THE ABRASIVE WHEEL TO CONTINUE FORWARD TRAVEL UNTIL THE TEST PIPE IS COMPLETELY SEVERED. THE REVERSING LIMIT VALVE LOCATED ON THE LEFT ROD RAIL MAY BE ADJUSTED TO "TRIP" AND RETURN SADDLE AFTER COMPLETION OF FORWARD CUTTING STROKE.
18. THE RED REVERSING BUTTON (3) MAY BE ENERGIZED AT ANY TIME DURING THE CUTTING STROKE. THUS RETURNING SADDLE TO START POSITION.
19. DEPRESS BLUE BUTTON (15) CAUSING SLIDE PLATE CYLINDER TO EXTEND. THUS POSITIONING THE TEST PIPE, OUTBOARD, TOWARD LOAD SIDE OF MACHINE.
20. ADJUST WHEEL HEIGHT PER STEP #13 TO COMPENSATE FOR WHEEL WEAR.
21. CLOSE LOAD SIDE DOOR AND CUT, AS PER PREVIOUS.
22. AFTER COMPLETION OF THE SECOND CUT, OPEN THE SLIDE DOOR AND WITH YOUR HANDS CLEAR OF THE ENCLOSURE, ACTIVATE CLAMP CYLINDER BY TURNING CLAMP SWITCH (24) TO RELEASE CLAMPING PRESSURE. LIGHTLY TAP THE REAR FIXTURE TO MOVE IT BACK ABOUT 1/8". USING YOUR CHANNEL LOCK PLIERS ROTATE THE COUPON TOWARD YOU UNTIL THE CUT BEND DROPS INTO THE BEND REMOVAL GROOVE IN THE FIXTURE. REMOVE BEND AND SAVE FOR FURTHER PROCESSING.
23. AGAIN, LINE UP YOUR WITNESS MARKS, REMOVE YOUR HANDS AND ACTIVATE CLAMP CYLINDER BY TURNING CLAMP SWITCH (24).
24. DEPRESS THE YELLOW "IN" BUTTON TO RETRACT THE SLIDE PLATE.
25. ADJUST WHEEL HEIGHT (STEP #9) TO COMPENSATE FOR WHEEL WEAR.
26. CUT BENDS 2, 3 & 4 AS PER PREVIOUS.




TRIANGLE ENGINEERING, INC.
 King Street West Haverhill, MA 02339
 TITLE: PNEUMATIC HYDRAULIC CIRCUIT DIAGRAM
 DWG No. 017249-55

WELD COUPON ABRASIVE CUTTER

PNEUMATIC - HYDRAULIC CIRCUIT COMPONENTS REFERENCE: DWG. BT7249-55)

<u>DETAIL</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY. REQ'D</u>
1	TC55-01	PILOT VALVE & GREEN BUTTON ASSY. (SADDLE FEED FORWARD)	1
2	TC55-02	PILOT VALVE & RED BUTTON ASSY. (SADDLE FEED REVERSE)	1
3	TC55-03	PILOT VALVE & YELLOW BUTTON ASSY. (SLIDE CYL. IN)	1
4	TC55-04	PILOT VALVE & BLUE BUTTON ASSY. (SLIDE CYL. OUT)	1
5	TC55-05	PILOT VALVE & WHITE BUTTON ASSY. (WHEEL CYL. RAISE)	1
6	TC55-06	PILOT VALVE & ORANGE BUTTON ASSY. (WHEEL CYL. LOWER)	1
7	TC55-07	OIL RESERVOIR WHEEL CYL LOWER (T960X10" 67CU")	1
8	TC55-08	OIL RESERVOIR WHEEL CYL RAISE (T960X10" 67CU")	1
9	TC55-09	OIL RESERVOIR SADDLE FEED CYL RETURN (T1600X10" 111CU")	1
10	TC55-10A	LOCKING VALVES (WHEEL CYL)	2
11	TC55-11	WHEEL CYLINDER (CLEVIS & PIN)	1
12	TC55-12	FLOW CONTROL (WHEEL CYL LOWER)	1
13	TC55-13	DIRECTIONAL VALVE (SADDLE FEED CYL)	1
14	TC55-14	SHUTTLE VALVE (SADDLE FEED CYL)	1
15	TC55-15	REVERSING VALVE (SADDLE FEED CYL)	1
16	TC55-16	DIRECTIONAL VALVE (SLIDE PLATE CYL)	1
17	TC55-17	DIRECTIONAL VALVE (WHEEL CYL)	1
18	TC55-18	FLOW CONTROL VALVE (SLIDE PLATE CYL)	1
19	TC55-19	FLOW CONTROL VALVE (SLIDE PLATE CYL)	1
20	TC55-20	SLIDE PLATE CYLINDER CLEVIS & PIN	1

WELD COUPON ABRASIVE CUTTER

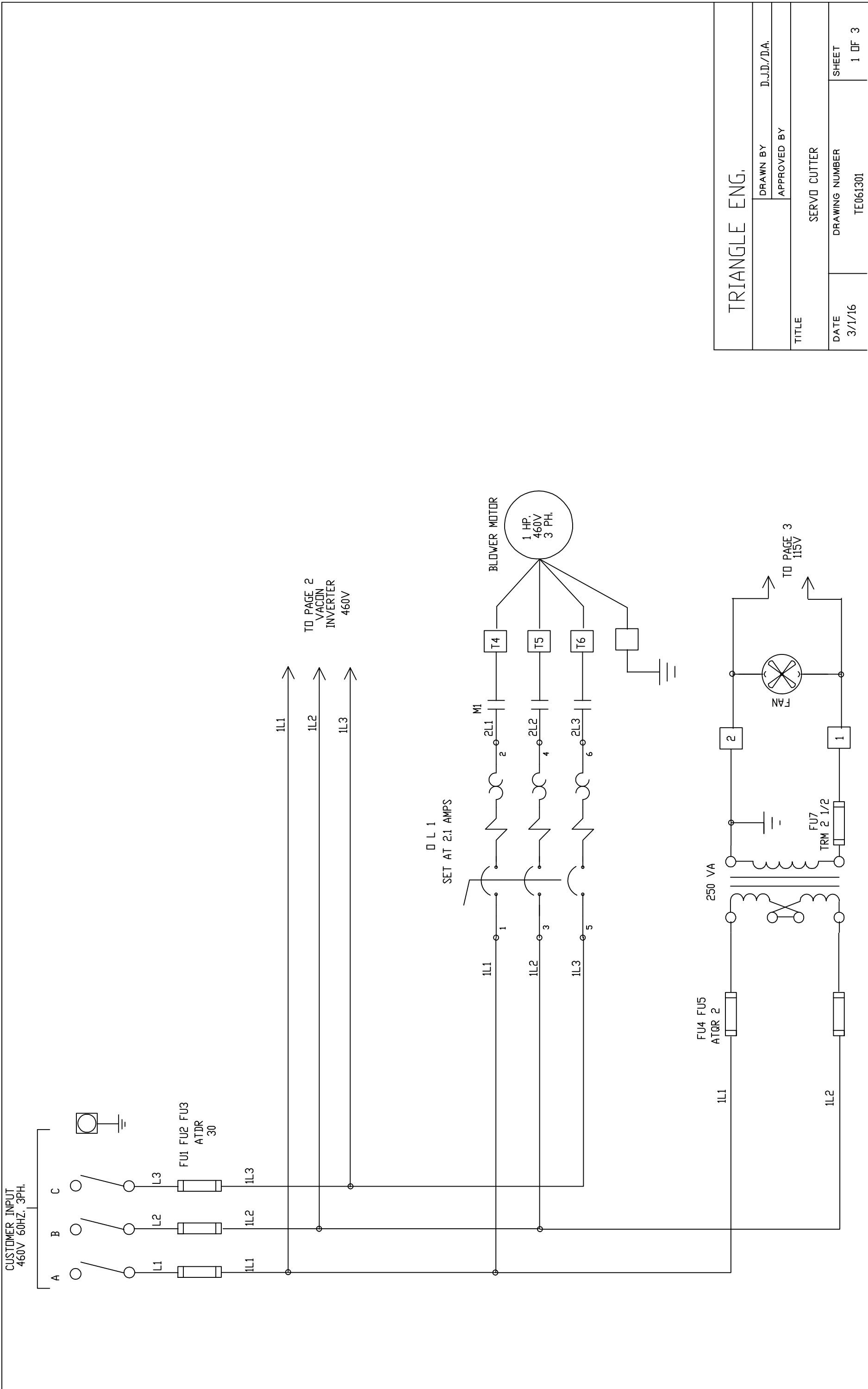
PNEUMATIC - HYDRAULIC CIRCUIT COMPONENTS REFERENCE: (DWG. BT7249-55)

<u>DETAIL NUMBER</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY. REQ'D</u>
21	TC55-21	DIRECTIONAL VALVE (CLAMP CYL)	1
22	TC55-22	PRESSURE GAUGE (CLAMP CYL)	1
23	TC55-23	PRESSURE REGULATOR CLAMP CYLINDER (1/4 IPS)	1
24	TC55-24	LUBRICATOR MAIN AIR (3/8 IPS)	1
25	TC55-25	LUBRICATOR CLAMP CYLINDER (1/4 IPS)	1
26	TC55-26	BLEED CONTROL (CLAMP CYLINDER)	1
27	TC55-27	PRESSURE GAGE PRIMARY SYS	1
28	TC55-28	PRESSURE REGULATOR MAIN SYSTEM (3/8 IPS)	1
29	TC55-29	BLEED CONTROL (CLAMP CYL)	1
30	TC55-30	FEED CONTROL VALVE ASSY W/KNOB (SADDLE FEED CYL)	1
31	TC55-31	CLAMP CYLINDER	1
32	TC55-32	SADDLE FEED CYLINDER CLEVIS & PIN	1
33 & 34	TC55-3334	CLAMP/UNCLAMP VALVES W/SWITCH ASSEMBLY	1
35	TC55-35	AIR CONDENSATE TANK	1
36	TC55-36	AIR FILTER (3/8 NPT)	1
37	TC55-37	CONDENSATE DRAIN VALVE (3/8 NPT)	1
38	TC55-38	VALVE CONDENSATE DRAIN	1
39	TC55-39	OIL RESERVOIR SADDLE FEED CYL FRWD (T1600x10"111CU") 1	
40	TC55-40	TRANSFER VALVE & LINE (OIL RESERVOIR LEVEL)	1
41	TC55-41	SHUTTLE VALVE (WHEEL CYL.)	1

WELD COUPON ABRASIVE CUTTER

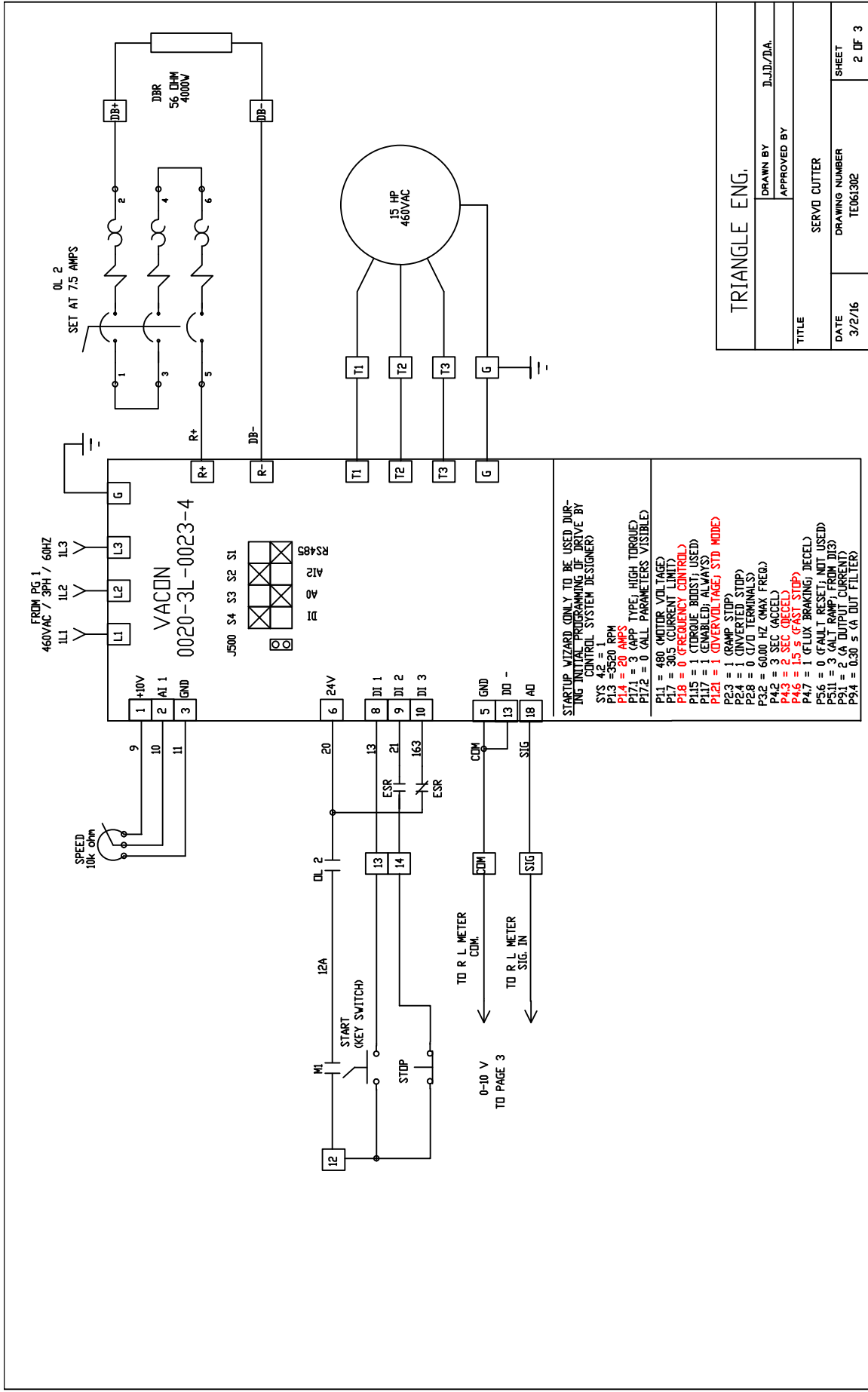
ELECTRICAL COMPONENTS

<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY REQ'D</u>
TC53-01	BLOWER MOTOR 1 HP 440V 3PH 3450 RPM NEMA 56	1
TC53-01-1	BLOWER UNIT COMPLETE (LESS MOTOR)	1
TC53-02/03	ENCLOSURE J.I.C. DUST PROOF	1
	SERVO (SEE DWGS TE061301)	1
	BRAKE (RESISTOR)	1
TC53-04	MOTOR WHEEL DRIVE 15HP 440V 3PH 3525 RPM 254T	1
TC53-10D	AMMETER	1
TC53-12	BLOWER SWITCH ASSY. (PULL-ON PUSH-OFF)	1
TC53-13	LIGHT SWITCH ASSY. (PULL-ON PUSH-OFF)	1
TC53-14A	START BUTTON ASSY. (WHEEL DRIVE MOTOR) (KEYED)	1
TC53-15	STOP BUTTON ASSY. (WHEEL DRIVE MOTOR) (RED)	1
TC53-ES	EMERGENY STOP	1
TC53-11-24V	24V LED LIGHT	3
TC53-16	LIMIT SWITCH LOAD SIDE (R.H.)	1
TC53-17	LIMIT SWITCH SERVICE SIDE (L.H.)	1



TRIANGLE ENG.

DRAWN BY D.J.D./D.A.	
APPROVED BY	
TITLE SERVO CUTTER	
DATE 3/1/16	DRAWING NUMBER TE061301
SHEET 1 OF 3	



STARTUP WIZARD (ONLY TO BE USED DURING INITIAL PROGRAMMING OF DRIVE BY CONTROL SYSTEM DESIGNER)

SYS 4.2 = 1
 P1.3 = 3520 RPM
 P1.4 = 20 AMPS
 P1.7 = 3 (APP TYPE, HIGH TORQUE)
 P1.7.2 = 0 (CALL PARAMETERS VISIBLE)

P1.1 = 480 (MOTOR VOLTAGE)
 P1.7 = 30.5 (CURRENT LIMIT)
 P1.8 = 0 (FREQUENCY CONTROL)
 P1.15 = 1 (TORQUE BOOST) USED
 P1.17 = 1 (ENABLED) ALWAYS
 P1.21 = 1 (OVER VOLTAGE) STD MODE
 P2.3 = 1 (RAMP STOP)
 P2.6 = 0 (UNTIL MANUAL)
 P3.2 = 6000 Hz (MAX FREQ.)
 P4.3 = 2 SEC (ACCEL)
 P4.6 = 1.5 s (FAST STOP)
 P4.7 = 1 (FLUX BRAKING) DECEL
 P5.6 = 0 (FAULT RESET, NOT USED)
 P9.1 = 3 (ALT. RAMP FROM DI3)
 P9.4 = 0.30 s (A OUT FILTER)

TITLE		DRAWN BY		D.J.D./D.A.	
DATE		APPROVED BY			
3/2/16		SERVO CUTTER			
DRAWING NUMBER		TE061302		SHEET	
				2 OF 3	

TRIANGLE ENG.

