

KANSAI SPECIAL KLEEN CUT SERIES
F4400/UTC

INSTRUCTION AND TROUBLESHOOTING
GUIDE

IMPORTANT NOTE:

**BEFORE OPERATING THE TRIMMER, PLEASE READ THROUGH AND FOLLOW ALL INSTRUCTIONS
IN THIS MANUAL.**

REFER TO THE PARTS MANUAL TO POSITIVELY IDENTIFY THE SPECIFIC COMPONENTS IN QUESTION.

I. ASSEMBLY:

12 - 9 - 6 NEEDLE MACHINES

1. REATTACH MAIN TENSION SET TO THE MAIN TENSION BRACKET USING THE 3 SCREWS FOUND ON THE MACHINE.
2. INSERT THE SHOULDER SCREW (S2503), THROUGH THE TENSION RELEASE BAR (G1002) AND INTO THE TENSION RELEASE ACTUATOR BLOCK (G1006).
3. CHECK THE MOVEMENT OF THE TENSION RELEASE BAR. THE PINS SHOULD SLIDE INTO THE TENSION DISKS AND RETURN FREELY. IF THE MOVEMENT IS NOT FREE, IT IS MOST LIKELY DUE TO MISALIGNMENT.
 - A. CHECK THE ALIGNMENT OF THE SUPPORT BLOCKS (G1001).
 - B. REALIGN THE CYLINDER BRACKET (G1005).
 - C. REALIGN MAIN TENSION SET.
4. ATTACH THE LOWER TENSION SET.
5. ATTACH THE LOWER TENSION GUIDE WIRE.
6. ATTACH THE FOOT LIFT/PULLER LIFT ARM TO THE SHAFT ON THE BACK OF THE MACHINE USING THE SCREW FOUND IN THE SHAFT.
7. ROTATE THE PUSH ROD (F1008) ON THE NEEDLE THREAD PULL OFF ASSEMBLY TO IT'S HORIZONTAL POSITION AND TIGHTEN THE CAP SCREW (S1004).

4 NEEDLE MACHINES

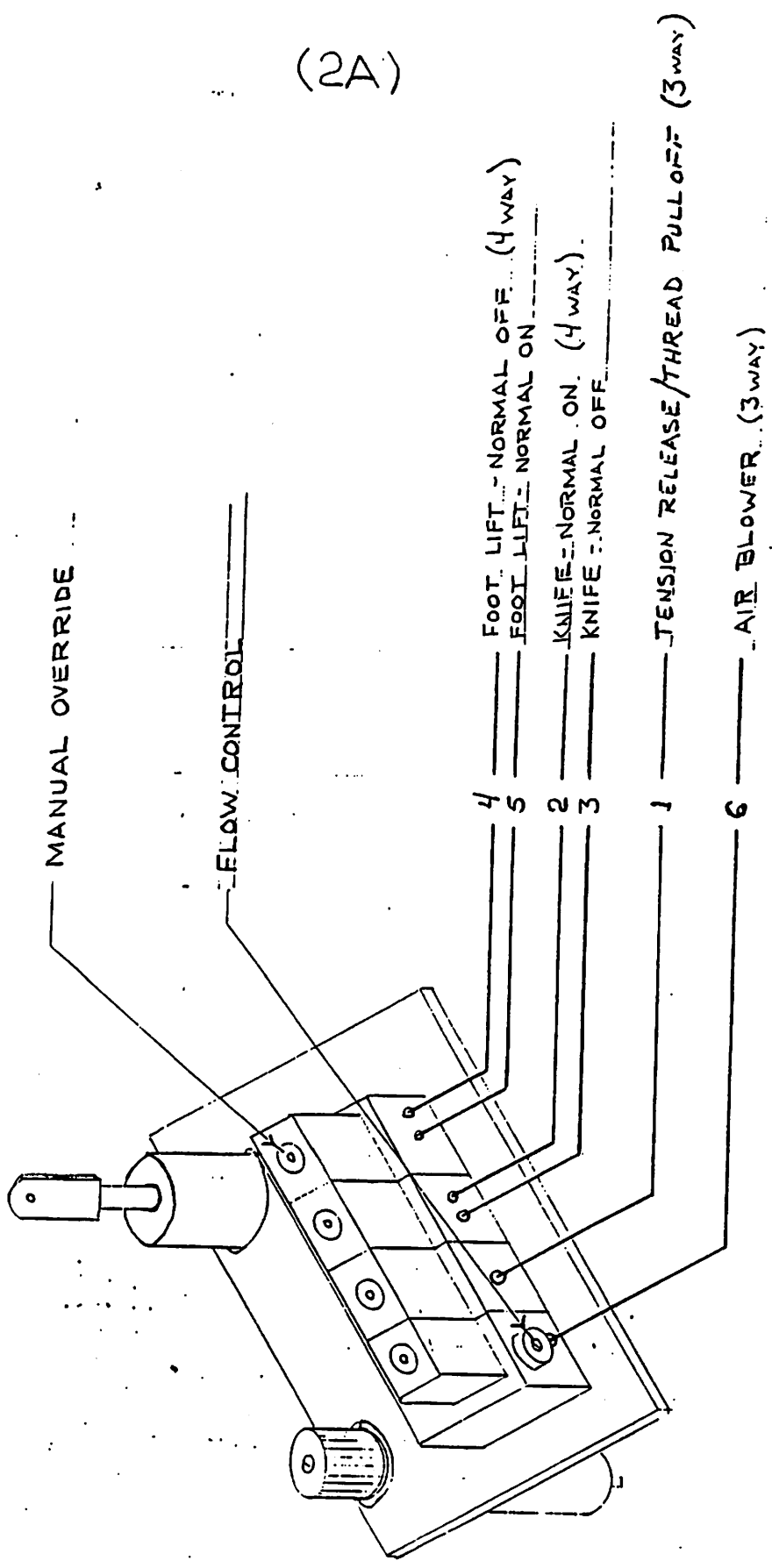
1. ATTACH THE FOOT LIFTER/PULLER LIFT ARM TO THE SHAFT ON THE BACK OF THE MACHINE USING THE SCREW FOUND IN THE SHAFT.

AIR UNIT

1. AFTER MOUNTING THE AIR UNIT, MAKE ALL THE HOSE CONNECTIONS ACCORDING TO THE NUMBERED TUBES.
2. CHECK THAT THE CONNECTIONS CORRESPOND TO THE SCHEMATIC SHOWN ON PAGE 2A .
3. BEFORE PRESSURIZING THE SYSTEM, BE SURE THAT THE NEEDLES ARE IN THE UP POSITION.
4. ONCE THE SYSTEM IS PRESSURIZED, ADJUST THE REGULATOR TO 85 P.S.I. (6KG./CM²). IF THE MACHINE IS BEING OPERATED WITH LESS THAN TWELVE ACTIVE NEEDLES, IT IS RECOMMENDED THAT THE PRESSURE BE REDUCED TO A MINIMUM NECESSARY FOR SMOOTH OPERATION. THIS CAN BE DETERMINED ONCE THE MACHINE IS IN FULL OPERATION AND WILL PREVENT UNNECESSARY WEAR.
5. LISTEN FOR ANY AIR LEAKAGE AND EXAMINE ALL TUBING FOR KINKS.

AIR LUBE SCHEMATIC

(2A)



II. SYSTEMS CHECK:

MANUAL

EACH OF THE KLEEN CUT'S SYSTEMS SHOULD BE CHECKED MANUALLY BEFORE ANY ATTEMPT AT AUTOMATIC OPERATION. ON THE TOP OF EACH SOLENOID VALVE IS A SMALL MANUAL OVERRIDE BUTTON. BY DEPRESSING THE BUTTON, ONE CAN TEST EACH SYSTEM FOR SMOOTH OPERATION. IF THE BUTTON IS HELD DOWN, IT THEN BECOMES POSSIBLE TO LISTEN FOR AIR LEAKS ON THE NORMALLY UNPRESSURIZED LINE SIDE.

1. TENSION RELEASE/THREAD PULL OFFS - THIS CIRCUIT IS ACTUATED BY THE THREE WAY VALVE SHOWN ON PAGE 2A. THE 12, 9 AND 6 NEEDLE MACHINES HAVE A NEEDLE THREAD TENSION RELEASE CYLINDER (P1001), NEEDLE THREAD PULLER OFF CYLINDER (P1002) AND A LOOPER THREAD PULL OFF CYLINDER (ALSO P1002). THE 4 NEEDLE MACHINE USES ONE CYLINDER TO RELEASE TENSION AND PULL OFF THREAD (P1006) AND A LOOPER THREAD PULL OFF CYLINDER (P1002).
 - A. THE TENSION RELEASE SYSTEM FOR THE 12, 9 AND 6 NEEDLE MACHINES SHOULD BE ADJUSTED AS DESCRIBED IN THE ASSEMBLY SECTION.
 - B. THE NEEDLE THREAD PULL OFF FOR THE 12, 9 AND 6 NEEDLE MACHINES SHOULD OPERATE WITH NO INTERFERENCE FROM THE CASTING OR THREAD EYELETS.
 - C. THE COMBINATION TENSION RELEASE/PULL OFF ON THE 4 NEEDLE MACHINE WILL JAM IF THE AIR CYLINDER BRACKET (G1083) OR MAIN TENSION RACK BECOME MISALIGNED. ALSO CHECK THE CONDITION OF THE PULL OFF ROD (F1010). THE ROD SHOULD SNAP BACK TO IT'S TOP POSITION WITH NO HESITATION.
 - D. THE LOOPER THREAD PULL OFF ROD (F1005) SHOULD ROTATE AND RETURN FREELY. THE RETURN POSITION SHOULD BE SET SO AS TO NOT ALLOW THE LINKAGE TO LOCK AT TOP DEAD CENTER. THIS IS ADJUSTED BY LOOSENING THE LOCK NUT (U1801) AND TURNING THE CYLINDER EXTENSION ROD (F1006) TO GIVE MAXIMUM ROTATION WITHOUT LOCK UP. IT IS VERY IMPORTANT THAT THE PULL OFF PINS (G1090) ARE NOT CONTACTING THE KNIFE BASE, CASTING OR COVERS AT ANY TIME. TO ADJUST; RAISE OR LOWER THE SUPPORT BLOCKS (G1078) THEN RECHECK RECHECK THE ROTATION OF THE LINKAGE.

2. KNIFE UNIT - THE KNIFE UNIT IS ON A SEPERATE CICUIT AND IS ACTUATED BY THE 4 WAY SOLENOID VALVE SHOWN ON PAGE 2A. SHOULD THE KNIFE BIND UP OR HESITATE, CHECK THE FOLLOWING:
 - A. THE CYLINDER AND THE DRIVE BOLT (P2002 & G1014) SHOULD BE CHECKED FOR ALIGNMENT. LOOSEN CYLINDER MOUNT SCREWS (S3004).
 - B. THE STROKE STOP BOLT (S3001) SHOULD BE CHECKED FOR CLEARANCE THROUGH THE STROKE STOP BLOCK (G1016). ADJUST BY BALANCING THE PRESSURE BETWEEN THE TOP AND BOTTOM SET SCREWS (S1401) IN THE KNIFE/CYLINDER COUPLING BLOCK (G1015).
 - C. CHECK THE MOVEMNET OF THE MAIN SLIDE (K2003). BY LOOSENING THE TWO SCREWS (84-559) FROM THE UNDERSIDE OF THE KNIFE BASE, THE POSITION OF THE SLIDE LINER (K2004) CAN BE ADJUSTED.
 - D. BE SURE THAT THE MOVEMENT OF THE KNIFE IS NOT BLOCKED BY FOLDER MOUNTING SCREWS OR OTHERWISE OBSTRUCTED BY THE CLOTHPLATE AND COVERS.

3. AIR BLOWER - THE AIR BLOWER IS POWERED BY A 3 WAY SOLENOID VALVE AND IS SHOWN IN THE SCHEMATIC ON PAGE 2A. THE FLOW RATE CAN BE ADJUSTED BY USE OF THE FLOW CONTROL VALVE (P4009) LOCATED ON THE AIR UNIT.

4. FOOT LIFT /PULLER LIFT - THE FOOT LIFT CYLINDER (P2001) LOCATED ON THE AIR UNIT IS POWERED BY A 4 WAY SOLENOID VALVE AND IS SHOWN ON PAGE 2A.

III. ELECTRICAL CONNECTIONS & MOTOR SIGNALS

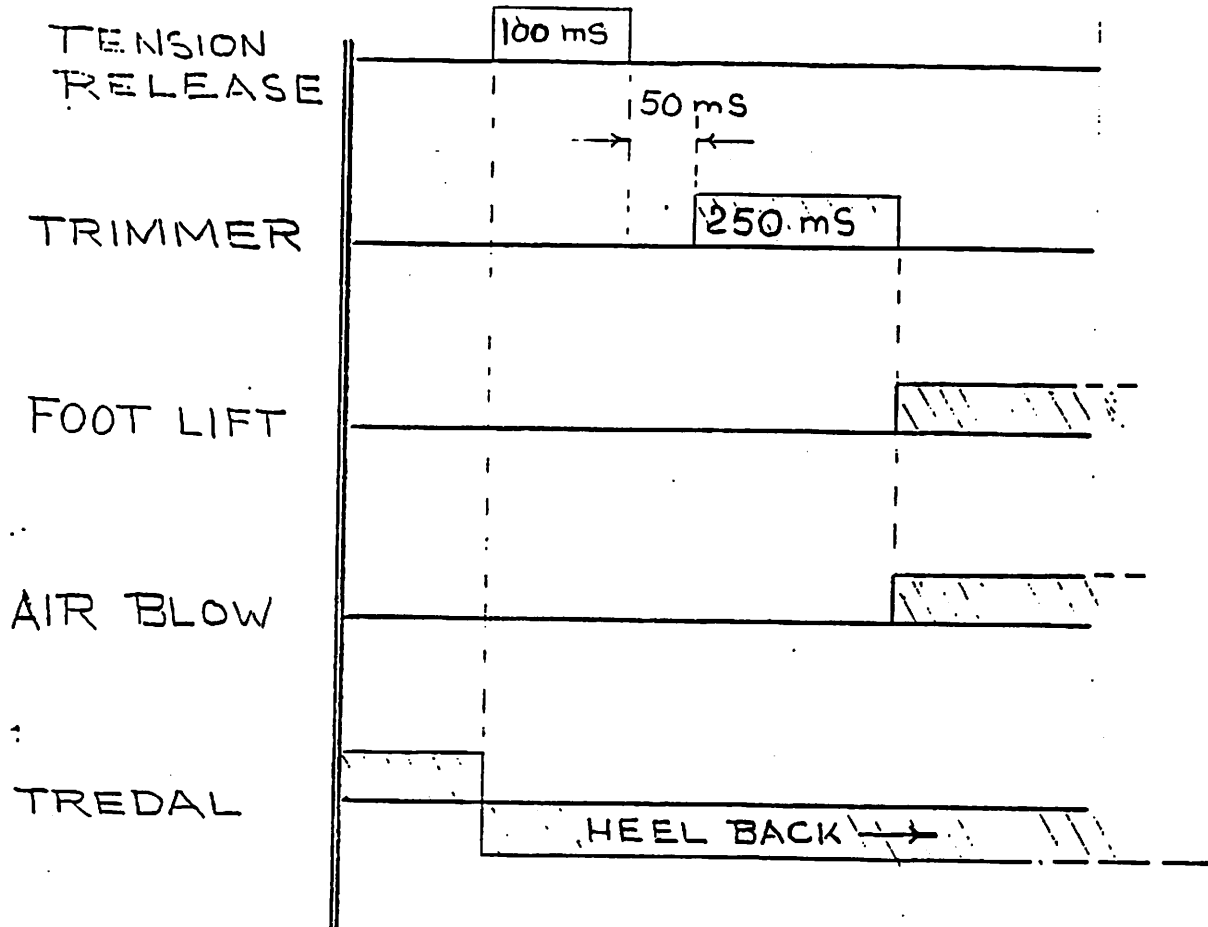
THE F4400 KLEEN CUT SYSTEM REQUIRES THREE SEPERATE OUTPUT SIGNALS FROM THE MOTOR CONTROL BOX. THE TENSION RELEASE/THREAD PULL OFF IS FIRST. THIS IS FOLLOWED BY A SEPERATE KNIFE SIGNAL. FINALLY, THE FOOT LIFT AND AIR BLOWER ARE ACTIVATED. THE CORRECT SEQUENCE AND SIGNAL DWELL TIMES ARE SHOWN ON PAGE 5A .

USE THE MOTOR MANUFACTURER'S INSTRUCTION MANUEAL TO CHECK THAT THE CONNECTIONS BETWEEN THE CONTROL BOX AND THE AIR UNIT CORRESPOND TO THOSE SHOWN IN THE SCHEMATIC ON PAGE 5B. THE SIGNAL OUTPUT FOR EACH FUNCTION SHOULD BE 24 VOLTS AND CAN BE TESTED BY USING A VOLTMETER.

NOTES: WHEN USING THE EFKA 5H31C, THE CORRECT TIMING IS OBTAINED BY MAKING THE ADJUSTMENTS SHOWN ON PAGE 5D.

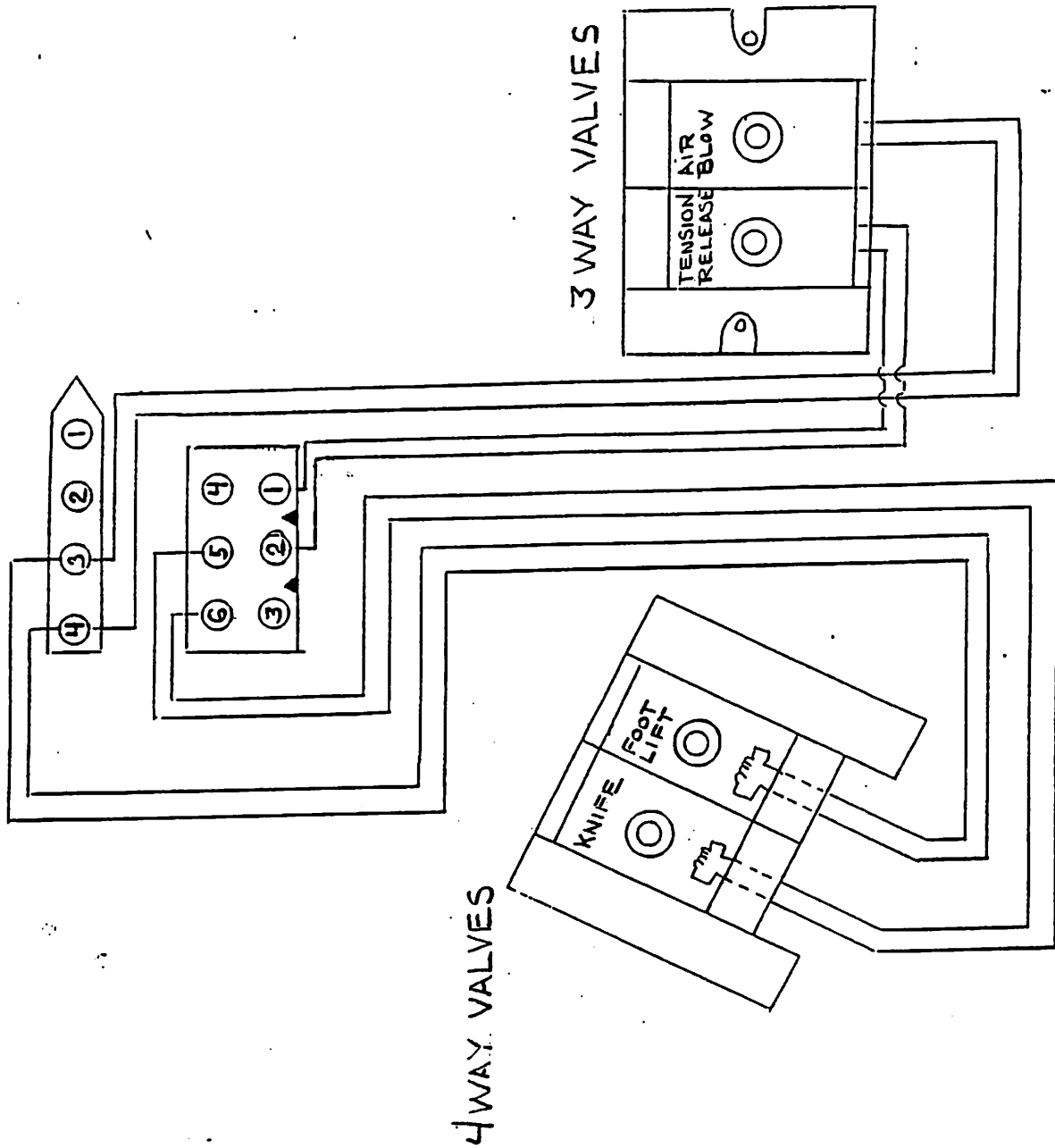
IT IS RECOMMENDED THAT THE "SLOW START" MODE BE SWITCHED ON TO AID IN THE START OF THE NEXT STITCH AFTER TRIMMING. PLEASE CONSULT YOUR MOTOR MANUFACTURER'S MANUAL FOR INSTRUCTIONS.

(5A)



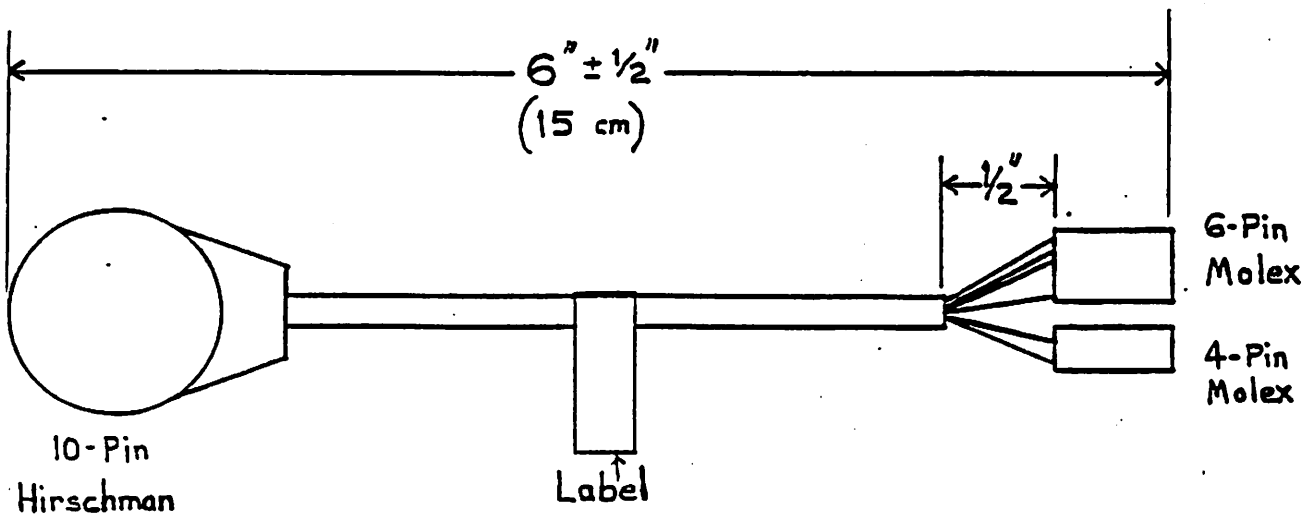
SIGNAL SEQUENCE & DWELL

(5B)



(5C) EFKA 5H31C

KANSAI		CABLE		EFKA	
Connector Type	Pin	Wire Color	x8	Pin	Connector Type
6-Pin Molex Male shell Female pins	1	White		1	10 Pin Hirschman Male TENSION REL. TRIM FOOT LIFT
	2	Blue		9	
	3	Green		2	
	6	Red		1	
	5	Orange		10	
	④ 4	Yellow		3	
Pin Molex Male shell Female pins	3	Black		4	
	4	Brown		5	

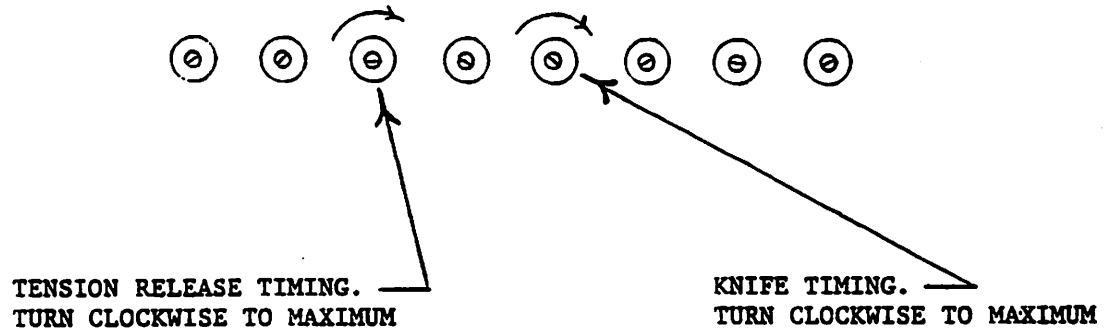


5H31 to Kansai	EFKA 11-7432K
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REV. A	5/90	Corrected wiper
DWG.	E OA-	11-7432K
ADG	5H31 B/C TO KANSAI	
3-7-90		

(50)

Please be advised that the F-4400/UTC requires a modified EFKA motor (5H31C). Behind the front cover you will find 8 potentiometers. Please adjust as follows:



V. KNIFE ADJUSTMENTS

1. SHUTTLE KNIFE POSITION - THE POSITION OF THE SHUTTLE KNIFE (K1002) CAN BE SET BEFORE MOUNTING THE KNIFE ASSEMBLY ON THE MACHINE. ATTACH THE NEEDLE PLATE TO THE KNIFE MAIN PLATE (K2001). SLACKEN THE TWO SHUTTLE KNIFE SCREWS(S1002) AND ALIGN THE TIP OF THE BLADE WITH THE EDGE OF THE NEEDLE HOLE IN THE NEEDLE PLATE AS SHOWN ON PAGE 6A. NOTE THAT THE DISTANCE IS REFERENCED FROM THE TOP SURFACE EDGE OF THE NEEDLE PLATE HOLE AND NOT THE BOTTOM EDGE.

ONCE THE KNIFE ASSEMBLY IS MOUNTED ON THE MACHINE, THE SHUTTLE KNIFE POSITION SHOULD BE VISUALLY INSPECTED. MANUALLY PUSH THE SHUTTLE KNIFE BASE (K2002) IN SO THAT THE SHUTTLE BLADE ENTERS THE STITCH TRIANGLE. THE KNIFE SHOULD ENTER THE TRIANGLE AS SHOWN IN FIGURE 4, PAGE 8A. THE SHUTTLE KNIFE POSITION CAN BE READJUSTED ON THE MACHINE IF NECESSARY.

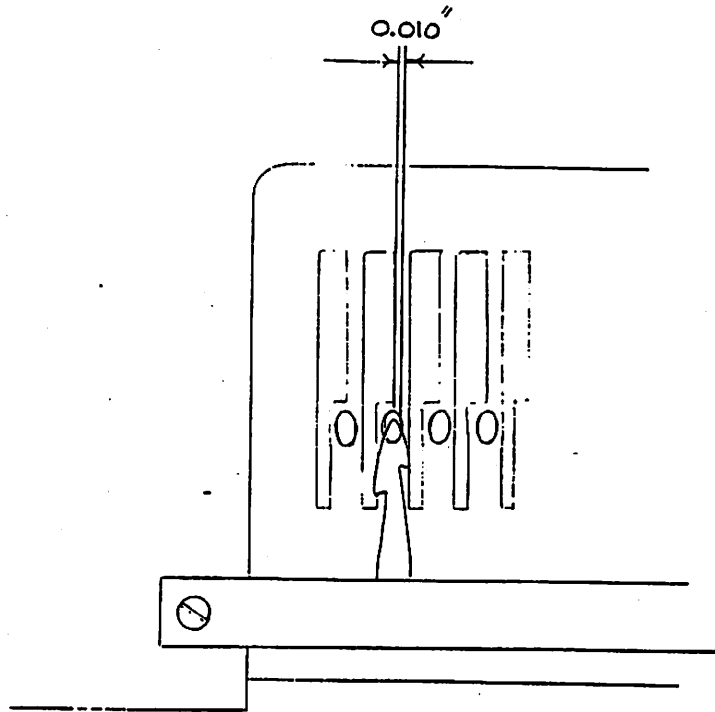
2. STROKE - THE RETRACTED OR "AT REST" POSITION OF THE SHUTTLE KNIFE BASE (K2002) IS GOVERNED BY THE AIR CYLINDER (P2002) POSITION. WHEN SET CORRECTLY, THE CUTTING EDGE NEAREST THE TIP OF THE SHUTTLE KNIFE SHOULD RETRACT APPROXIMATELY 0.025 IN. BEYOND THE STATIONARY BLADE. TO ADJUST; SLACKEN THE TWO CYLINDER MOUNT SCREWS (S3004) AND MOVE THE CYLINDER TO GIVE THE CORRECT RETRACTED POSITION.

THE EXTENDED POSITION OF THE SHUTTLE KNIFE BASE CAN ALSO BE SET BEFORE MOUNTING THE KNIFE ON THE MACHINE. THE STOP BOLT (S3001) SHOULD CONTACT THE STROKE STOP BLOCK (G1016) WHEN THE LOOPER CUTTING EDGE OF THE SHUTTLE KNIFE IS 0.512 IN. (13mm) FROM THE CUTTING EDGE OF THE STATIONARY BLADE (K1001) AS SHOWN ON PAGE 6B. ADJUST THE POSITION OF THE STOP BOLT BY LOOSENING ONLY THE TOP SET SCREW (S1401) IN THE KNIFE/CYLINDER COUPLING BLOCK (G1015). THEN TURN THE STOP SCREW IN OR OUT TO ATTAIN THE REQUIRED DIMENSION AND RETIGHTEN THE SET SCREW.

ONCE THE KNIFE ASSEMBLY IS MOUNTED ON THE MACHINE, THE EXTENDED SHUTTLE KNIFE POSITION SHOULD BE VISUALLY INSPECTED. THE KNIFE SHOULD EXTEND INTO THE TRIANGLE AS SHOWN IN FIGURE 4, PAGE . THE NEEDLE THREAD CUTTING EDGE (LEFT SIDE BARB) SHOULD JUST CATCH THE LEFT SIDE OF THE NEEDLE THREAD LOOP. THE LOOPER THREAD CUTTING EDGE (RIGHT SIDE BARB) SHOULD JUST CATCH THE LOOPER THREAD AND NOT THE RIGHT SIDE OF THE NEEDLE THREAD LOOP. IT IS IMPORTANT TO NOTE THAT WHEN THE KNIFE IS ACTUATED BY AIR, THE TENDENCY FOR EACH OF THE THREADS TO BE CAUGHT WILL BE GREATER, THEREFORE THE EXTENDED POSITION SHOULD BE CHECKED CAREFULLY. WHILE SLOWLY RETRACTING THE BLADES, CHECK TO SEE THAT EACH CUTTING EDGE IS CARRYING ONLY THE CORRECT THREAD. (THE LEFT EDGE CARRIES THE NEEDLE THREAD, THE RIGHT EDGE CARRIES THE LOOPER THREAD). AFTER CUTTING AND REMOVING THE MATERIAL, BE SURE THAT THE LOOPER THREAD IS "KEPT" BY THE KNIFE AND SPRING.

3. SPRING POSITION - WHEN VIEWING THE KNIFE FROM THE TOP, THE RIGHT SIDE OF THE SPRING SHOULD ALIGN WITH THE FARTHEST RIGHT CORNER OF THE SHUTTLE BLADE. THE CORRECT ORIENTATION IS SHOWN ON PAGE 6B.

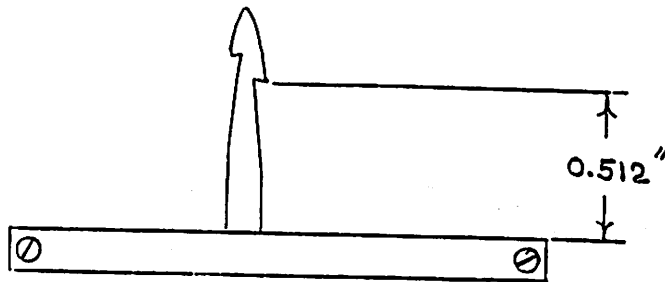
(6A)



SHUTTLE KNIFE ALIGNMENT



KNIFE/SPRING ALIGNMENT



EXTENDED SHUTTLE KNIFE POSITION

V. THREAD PULL OFF ADJUSTMENTS

1. 12, 9 AND 6 NEEDLE MACHINE, NEEDLE THREAD PULL OFF - THE AMOUNT OF NEEDLE THREAD PULL OFF CAN BE VARIED BY CHANGING THE DISTANCE BETWEEN THE PUSH ROD (F1008) AND THE ADJACENT THREAD EYELET. TO ADJUST; SLACKEN THE TWO 6mm CAP SCREWS (S1009) WHICH HOLD THE PULL OFF MOUNTING BRACKET (G1075) SLIDE THE BRACKET CLOSER TO THE EYELET FOR MORE PULL OFF AND FURTHER FOR LESS. RETIGHTEN THE TWO SCREWS.
2. 4 NEEDLE MACHINE, NEEDLE THREAD PULL OFF - THE AMOUNT OF NEEDLE THREAD PULL OFF CAN BE VARIED BY CHANGING THE DISTANCE BETWEEN THE THREAD PULL OFF BLOCK (G1070) AND THE THREAD. TO ADJUST; SLACKEN THE SET SCREW (S3403) IN THE BLOCK. SLIDE THE BLOCK NEARER THE THREAD FOR MORE PULL OFF, AWAY FOR LESS. RETIGHTEN THE SET SCREW.
3. LOOPER THREAD PULL OFF (ALL MACHINES) - THE AMOUNT OF LOOPER THREAD PULL OFF DEPENDS UPON THE POSITIONING OF THE TWO PULL OFF PINS (G1090) ON THE PULL OFF ROD (F1005). THE PRIMARY PULL OFF PIN IS POSITIONED BETWEEN THE THREAD EYELET AS SHOWN ON PAGE 7A. THE SECONDARY IS LOCATED TO THE RIGHT OF THE EYELET. NORMALLY, IN THE "AT REST" POSITION, THE PRIMARY PIN SHOULD NEARLY CONTACT THE THREADS WHILE THE SECONDARY IS POSITIONED APPROXIMATELY 80° AWAY. THE CORRECT AMOUNT OF THREAD PULL OFF SHOULD MEASURE ABOUT 2 TO 2½ INCHES. TO ADJUST, LOOSEN THE COLLAR SET SCREW AND ROTATE TO THE DESIRED POSITION.

DIAGNOSTICS

1. STITCH "TRIANGLE" AND KNIFE RELATIONSHIPS - THE CORRECT CUTTING ORIENTATION IS SHOWN AGAIN IN FIGURE 4, PAGE 8A. FOUR CONDITIONS UNDER WHICH IMPROPER OR NO CUTTING WILL OCCUR ARE SHOWN IN FIGURES 5,6,7 & 8.

IN FIGURE 5, THE SHUTTLE KNIFE DOES NOT EXTEND FAR ENOUGH INTO THE TRIANGLE. IN THIS CASE, ONLY THE LOOPER THREAD WILL BE CUT.

FIGURE 6 SHOWS AN EXCESSIVE STROKE OF THE SHUTTLE KNIFE. THE LOOPER CUTTING EDGE WILL SEVER BOTH THE NEEDLE AND LOOPER THREADS. THE LOOPER THREAD MAY NOT BE "KEPT" AND THE NEEDLE THREAD TAIL ON THE GARMENT WILL BE EXTREMELY SHORT. (NOTE: NORMALLY THE NEEDLE AND THE LOOPER TAILS WILL REMAIN APPROXIMATELY 3/8 TO 1/2 INCH. SHORT TAILS WILL ALLOW THE STITCH TO UNRAVEL.) IF BOTH SIDES OF THE NEEDLE LOOP ARE BEING SEVERED, ONE WILL FIND A BUILD-UP OF SMALL THREAD PIECES IN THE MACHINE BED.

IN FIGURE 7, THE SHUTTLE KNIFE IS MISALIGNED. BOTH NEEDLE THREADS WILL BE CUT BY THE NEEDLE CUTTING EDGE. THE NEEDLE THREAD TAILS ON THE GARMENT WILL BE EXTREMELY SHORT. SMALL THREAD PIECES CAN BE FOUND IN THE MACHINE BED.

FIGURE 8 ALSO SHOWS A MISALIGNED SHUTTLE KNIFE. THE NEEDLE THREADS MAY BOTH BE FRAYED, BROKEN, CUT OR NOT CUT DEPENDING UPON THE MISALIGNMENT AND STROKE.

IT SHOULD BE NOTED THAT THE STITCH FORMATION CAN EFFECT THE SAME SYMPTOMS AS A MISALIGNED SHUTTLE KNIFE. CAREFULLY CHECK THAT THE SPREADER DOES NOT OCCASIONALLY PULL THE NEEDLE LOOP CLOSED. SHOULD THIS OCCUR, THE KNIFE WILL NOT FUNCTION CORRECTLY.

1. IF THE SHUTTLE KNIFE IS ADJUSTED CORRECTLY AND THE LOOPER THREAD IS NOT "KEPT" BY THE KNIFE AND PRESSER SPRINGS:
 - A. CHECK THE SPRING ALIGNMENT. THE SMALL NOTCH AT THE TIP OF THE UPPER SPRING SHOULD CONTROL THE LOOPER THREAD AND NOT ALLOW IT TO SLIP OFF THE SIDE OF THE SPRING. REALIGN THE SPRING IF NECESSARY.
 - B. BE SURE THERE ARE NO BURRS OR SHARP EDGES ON THE SPRING. IF THE THREAD IS SEVERED BY THE SPRING RATHER THAN THE STATIONARY KNIFE, THE LOOPER THREAD WILL NOT BE "KEPT".
 - C. CHECK THE RETRACTED POSITION OF THE KNIFE. IF THE SHUTTLE BLADES RETRACT TO FAR UNDER THE STATIONARY BLADE, THE LOOPER THREAD WILL NOT BE "KEPT".
 - D. BE SURE THAT THE LOOPER THREAD PULL OFF MECHANISM IS OPERATING CORRECTLY. CHECK THAT NO THREAD IS BEING PINCHED OR MISSED BY THE PULL OFF PINS.
 - E. THE LOOPER THREAD SHOULD ONLY BE SEVERED BY THE ACTION OF THE STATIONARY BLADE AND THE TOP SURFACE OF THE SHUTTLE KNIFE AS SHOWN IN THE DRAWING ON PAGE 8B. THE BOTTOM CORNER OF THE LOOPER CUTTING BARB SHOULD HAVE A RELIEF ANGLE AS SHOWN.

DELAYED STITCH FORMATION - THE START OF SEWING ON THE NEXT PIECE AFTER TRIMMING WILL BE DELAYED IF:

- A. THE LOOPER THREAD PULL OFF IS NOT AFFORDING ENOUGH SLACK IN THE LOOPER THREAD. REPOSITION THE PULL OFF PINS AS RECOMMENDED.
- B. THE LOOPER THREAD OF THE DELAYED STITCH IS BEING MISSED BY THE PRIMARY PULL OFF PIN. REPOSITION THE PULL OFF ROD BY SLACKENING THE SCREWS HOLDING THE TWO SUPPORT BLOCKS AND SLIDE THEM UP OR DOWN.

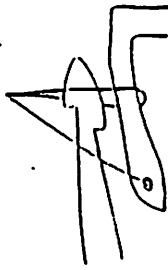


FIG. 5

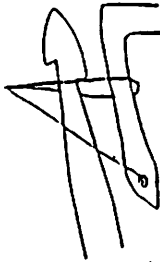


FIG. 6

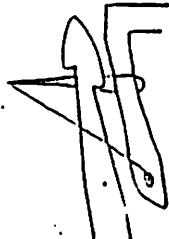


FIG. 7

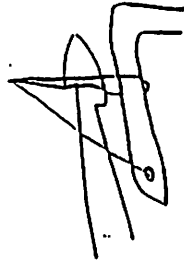


FIG. 8

INCORRECT

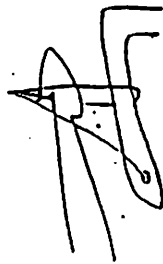
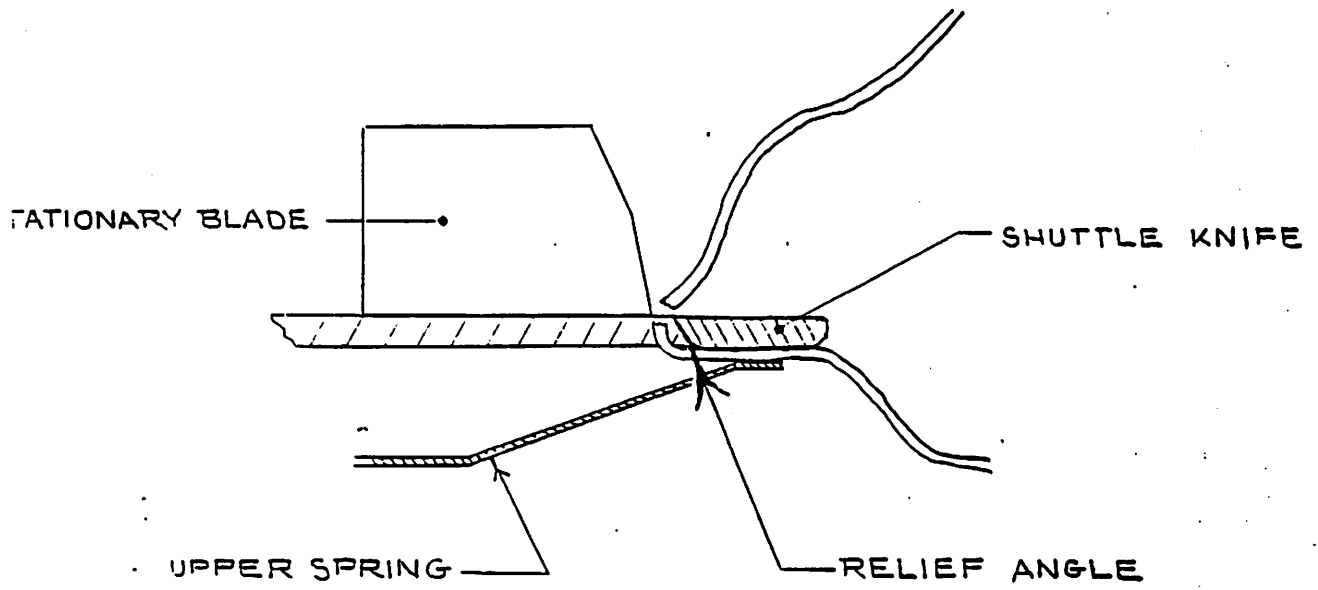


FIG. 4

CORRECT

(8B)



PROPER CUTTING ACTION

- C. THE NEEDLE THREAD PULL OFF IS NOT AFFORDING ENOUGH SLACK IN THE NEEDLE THREAD. READJUST THE PULL OFF MOUNT BRACKET AS DESCRIBED EARLIER. ALSO CHECK THE TENSION RELEASE MECHANISM FOR SMOOTH AND COMPLETE OPERATION.
4. FAILURE TO SEVER THREADS - SHOULD THE ACTION OF THE SHUTTLE AND STATIONARY BLADES FAIL TO SEVER THE THREADS:
- A. CHECK THE CONDITION OF THE UPPER SPRING. THE SPRING SHAPE IS DESIGNED TO APPLY PRESSURE TO THE SHUTTLE KNIFE NEAR THE TIP OF THAT KNIFE. IF THE SHAPE IS ALTERED, REPLACE THE SPRING. IN CERTAIN CASES, IT MAY BE NECESSARY TO INCREASE THE PRESSURE ON THE SHUTTLE KNIFE. TO ACHIEVE THIS, ONLY THE LOWER SPRING SHOULD BE CAREFULLY BENT.
 - B. INSPECT THE CONDITION OF BOTH THE SHUTTLE KNIFE AND THE STATIONARY BLADE. REPLACE IF WORN OR DAMAGED.