

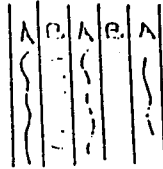


SERVICE BULLETIN 33
(Reprint)

FROM: Pete Gustafson, Field Service Mgr.
TO: Service Managers
DATE: December 18, 1991
RE: Theory of Operation: Star Trek Transportor FX
See attached.

THEORY OF OPERATION

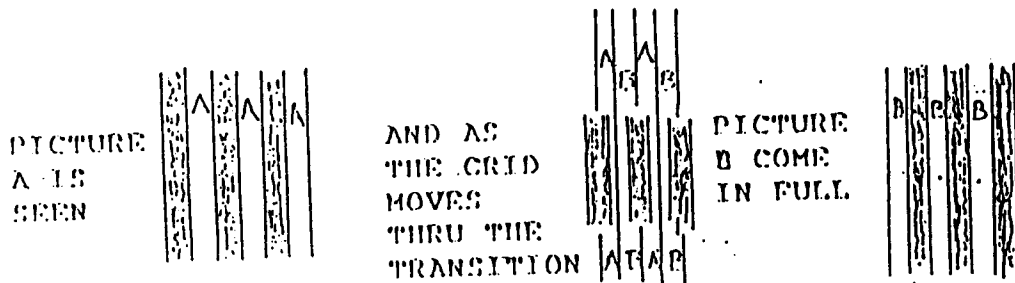
THERE ARE TWO PICTURES PRINTED ON THE FIXED ARTWORK; ONE OF THE TRANSPORT TEAM IN THE TRANSPORT ROOM (PICTURE A) AND THE SECOND OF JUST THE TRANSPORT ROOM (PICTURE B). EACH PICTURE IS "SLICED" VERTICALLY AND LAID NEXT TO EACH OTHER SO THAT THE PATTERN BELOW IS MADE.



A GRID SHEET IS PLACED ON TOP OF THE FIXED ARTWORK AND CONSISTS OF BLACK STRIPS WITH CLEAR AREA BETWEEN.

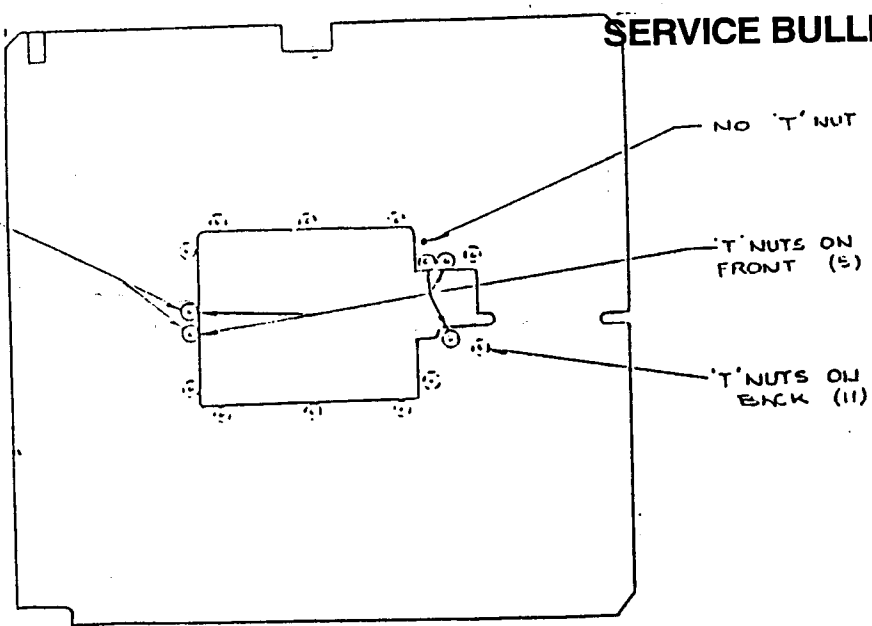


AS THE GRID SHEET MOVES FROM SIDE TO SIDE, THE BLACK STRIPS BLOCK OUT ONE PICTURE AND EXPOSE THE OTHER. TOTAL TRAVEL OF THE GRID SHEET SIDE TO SIDE IS APPROX. .040. THEREFORE, AS THE GRID SHEET MOVES FROM RIGHT TO LEFT.



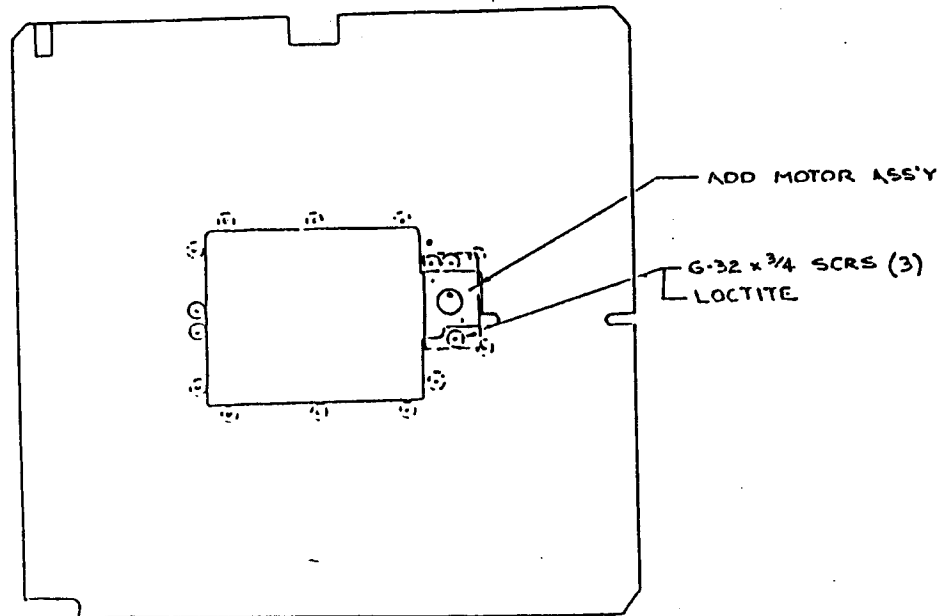
THIS EFFECT IS COVERED UNDER THE FOLLOWING PATENT NUMBERS:
 3742631
 3918185
 4118879

DO NOT
SECURE THESE
'T' NUTS WITH
#6 x 3/8 SCRS.



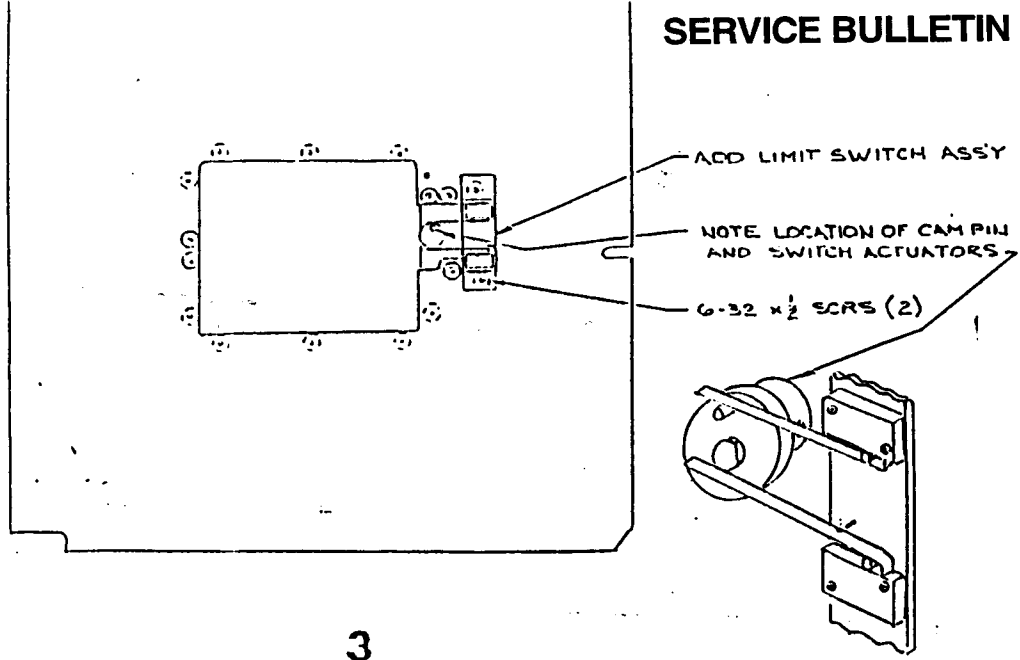
1

ASSEMBLE INSERT WITH 16 'T' NUTS AND SECURE WITH 14, #6-3/8 SCREWS. THE 2 'T' NUTS ON FRONT OF INSERT DO NOT GET SECURED DOWN.



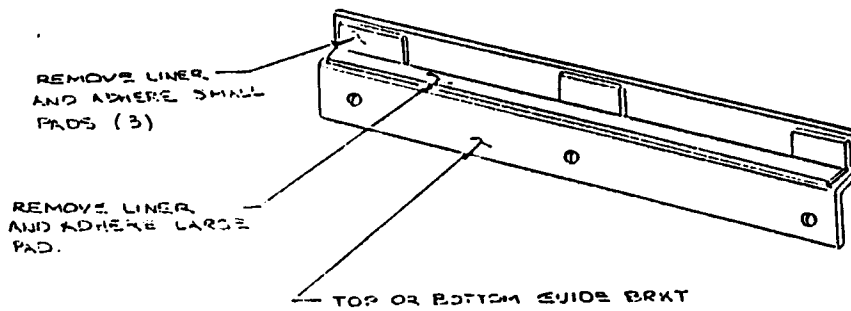
2

ADD MOTOR ASSEMBLY TO THE REAR OF THE INSERT USING THREE #6-32 SCREWS & LOCTITE. TIGHTEN SECURELY.



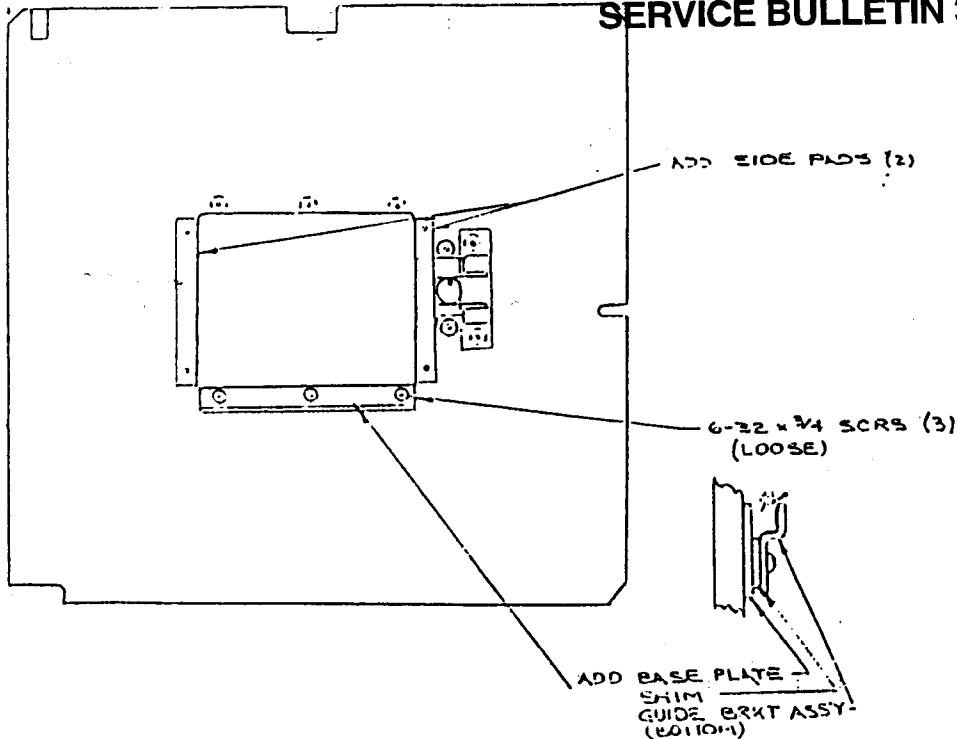
3

ADD LIMIT SWITCH ASSEMBLY TO INSERT WITH TWO #6-32 X 1/2 SCREWS. MAKE SURE THE CAM PIN IS BETWEEN THE TWO SWITCH ACTUATORS.



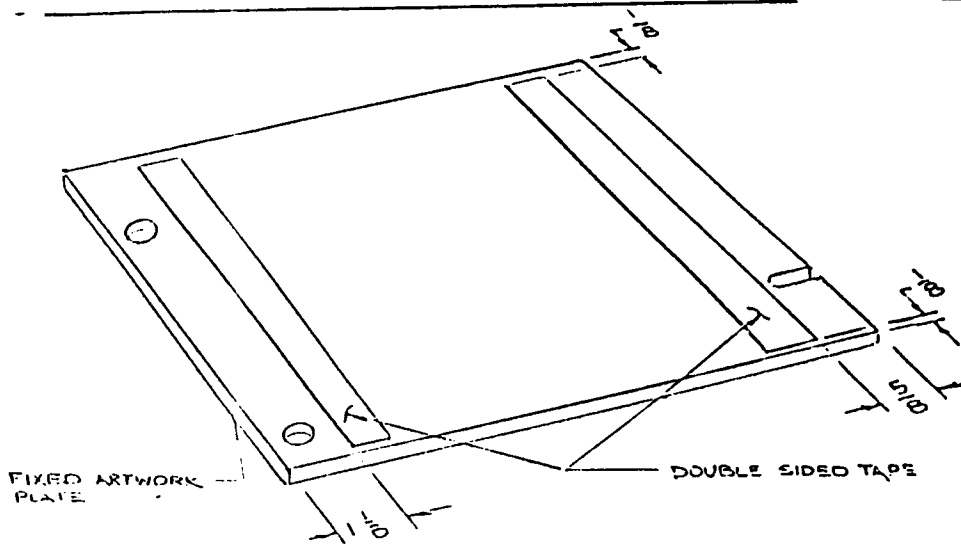
4

PEEL OFF LINERS AND ADD TO BOTH TOP AND BOTTOM GUIDE BRACKETS AT LOCATIONS SHOWN.



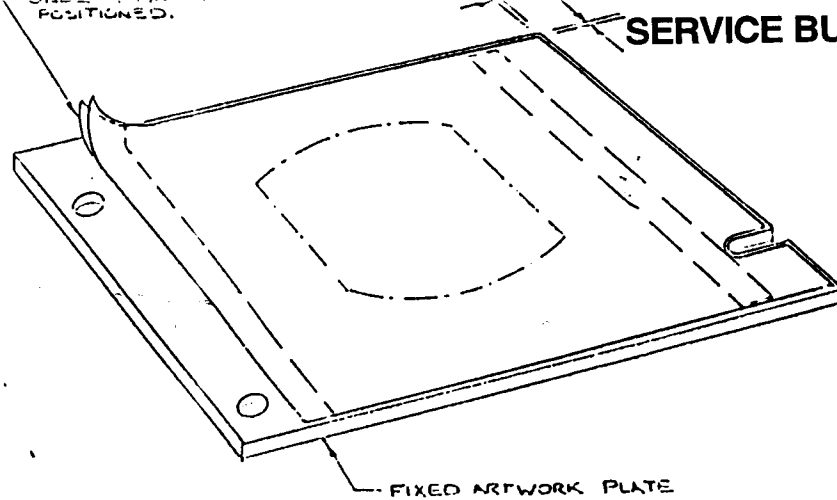
5

SCREW BOTTOM GUIDE BRACKET ASSEMBLY, BASE PLATE AND SHIM TO INSERT USING THREE #6-32 X 3/4 SCREWS. DO NOT TIGHTEN. PEEL LINERS FROM THE ADHESIVE BACKING ON THE TWO SLIDE PADS. LINE UP THE HOLES WITH THOSE IN THE INSERT AND PRESS IN PLACE.



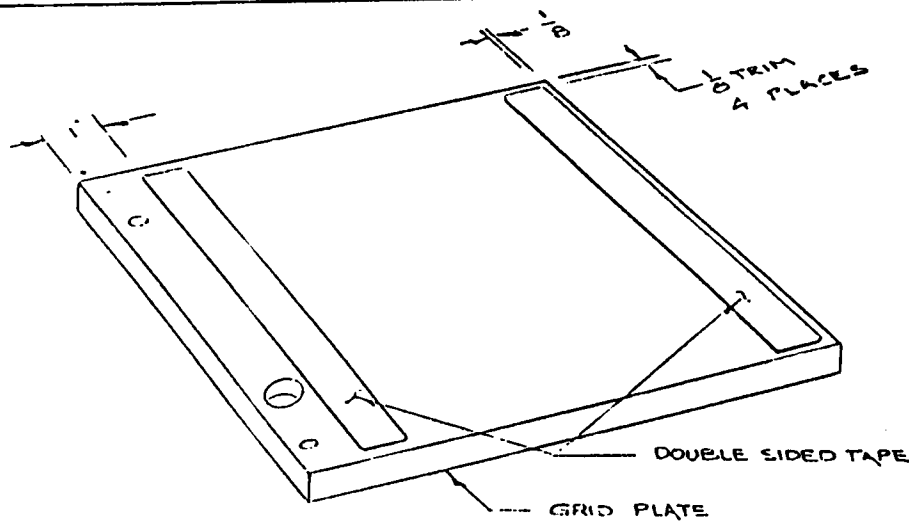
6

TO ASSEMBLE THE FIXED ARTWORK TO THE PLATE, LAY THE CLEAN PLATE DOWN ON A FLAT SURFACE WITH THE HOLES TO THE LEFT AND THE SLOT TO THE RIGHT AND DOWN. APPLY THE DOUBLE SIDED TAPE TO THE PLATE: 1-1/8" FROM THE LEFT SIDE AND 5/8" IN FROM THE RIGHT SIDE. TRIM BACK 1/8" FROM THE TOP AND BOTTOM EDGES, MAKING SURE ALL ADHESIVE IS REMOVED. DO NOT REMOVE LINER AT THIS TIME.



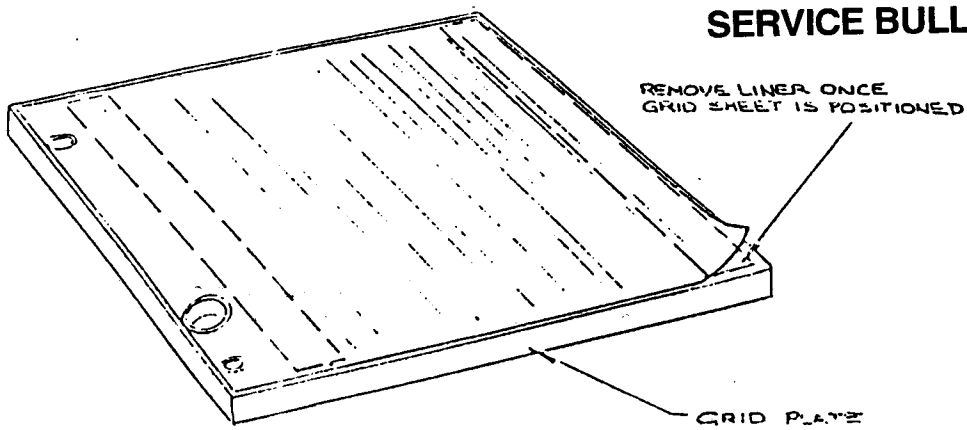
7

LAY THE FIXED ARTWORK DOWN ON TOP OF THE PLATE AND REGISTER TO THE RIGHT. THERE WILL BE A 1/16 IN. BORDER AT THE TOP, BOTTOM AND THE RIGHT SIDE WHEN PROPERLY ALIGNED. WHILE MAINTAINING THIS POSITION, LIFT UP ONE HALF OF THE FIXED ARTWORK AND REMOVE THE PAPER LINER COVERING THE ADHESIVE. ADHERE THIS SECTION OF THE FIXED ARTWORK TO THE PLATE. REMOVE THE REMAINING LINER AND PRESS ARTWORK ON TO THE PLATE. THE ARTWORK MUST LAY FLAT AND SMOOTH ON THE PLATE. CARE MUST BE TAKEN TO KEEP ALL SURFACES CLEAN AND FREE OF FINGERPRINTS, ANY FOREIGN PARTICLES AND ESPECIALLY ADHESIVE.



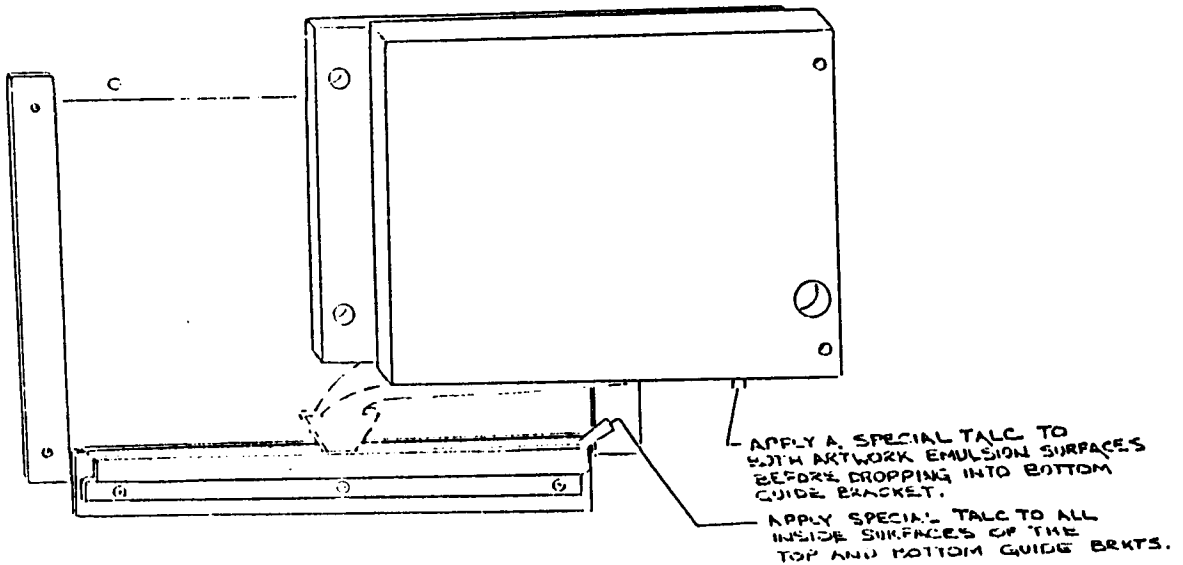
8

ASSEMBLE THE GRID SHEET AND PLATE. PLACE THE CLEAN GRID PLATE DOWN ON A FLAT SURFACE WITH THE HOLES TO THE LEFT AND THE LARGE HOLE DOWN. APPLY DOUBLE SIDED TAPE TO THE PLATE: 1/8" FROM THE RIGHT EDGE AND 1" FROM THE LEFT EDGE. TRIM TAPE BACK 1/8" FROM THE TOP AND BOTTOM EDGES. DO NOT REMOVE THE ADHESIVE LINER AT THE TIME.



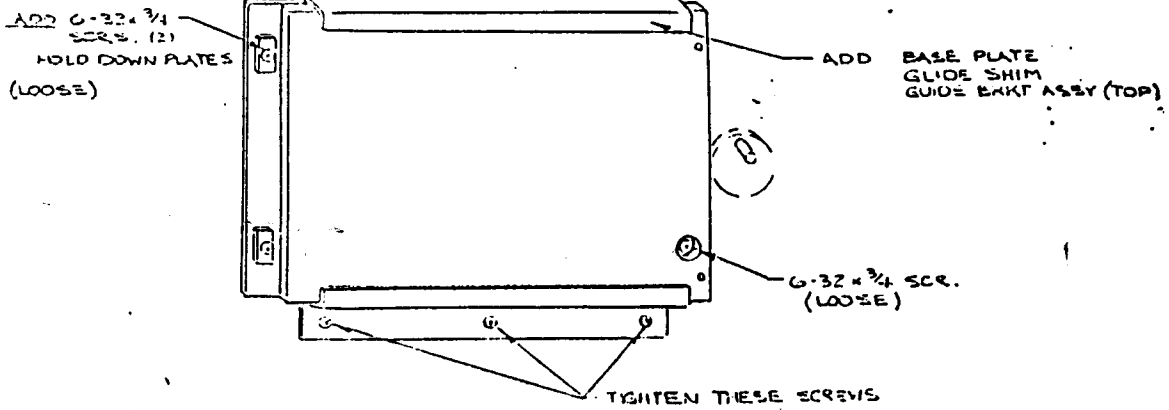
9

PLACE THE CLEAN GRID PLATE DOWN ON A FLAT SURFACE WITH THE HOLES TO THE LEFT. PLACE THE GRID SHEET ATOP AND ALIGN ALL HOLES. WHEN ALIGNED, THERE WILL BE A 1/16 BORDER OR GAP AT ALL EDGES. AFIX THE SHEET TO THE PLATE IN THE SAME MANNER AS THAT USED FOR THE FIXED ARTWORK.



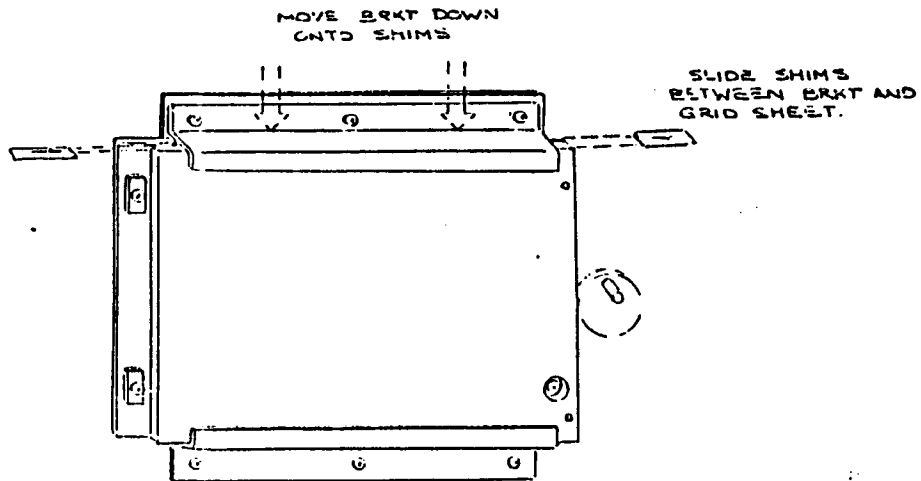
10

EVENLY DUST BOTH ARTWORK AND GRID FILMS EMULSION SIDE WITH TALC. ALSO DUST THE INSIDE SLIP PADS ON THE TOP AND BOTTOM GUIDE BRACKETS. PLACE THE GRID SHEET ASSEMBLY OVER THE FIXED ARTWORK ASSEMBLY WITH THE SLOT IN THE FIXED ARTWORK ASSEMBLY. HOLD BOTH ASSEMBLIES TOGETHER AND DROP INTO THE BOTTOM GUIDE BRACKET.



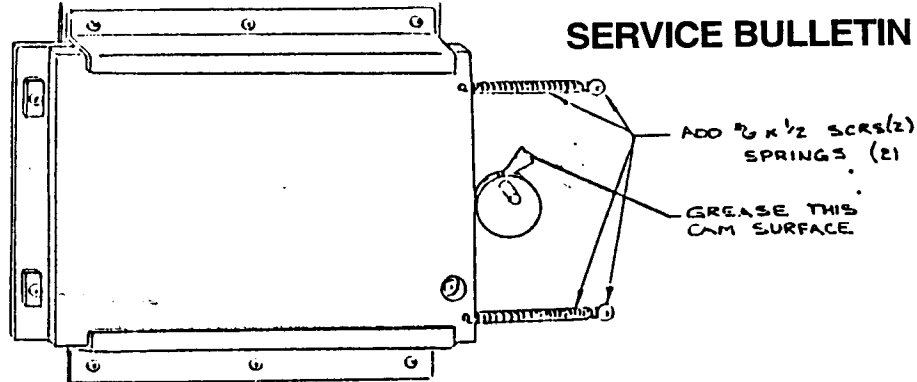
11

SCREW THE TOP GUIDE BRACKET ASSEMBLY, SHIM AND BASE PLATE IN PLACE TO HOLD THE TOPS OF THE GRID AND FIXED ARTWORK ASSEMBLIES. DO NOT TIGHTEN. THEN ADD TWO HOLD DOWN PLATES AND TWO #6-32 X 3/4 SCREWS TO THE LEFT SIDE OF THE FIXED ART ASSEMBLY, AND ONE #6-32 X 3/4 SCREW TO THE RIGHT SIDE. TIGHTEN THE BOTTOM GUIDE ASSEMBLY SCREWS. (THREE)



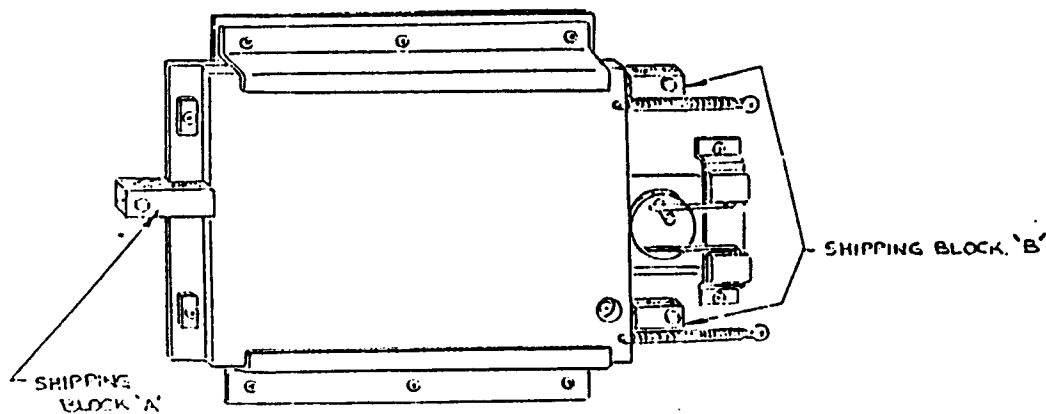
12

PLACE A .020 THICK SPACING SHIM ON TOP OF THE GRID SHEET ASSEMBLY AT THE RIGHT AND LEFT CORNERS. MOVE THE GUIDE ASSEMBLY DOWN ONTO THE SPACING SHIMS, AND TIGHTEN SCREWS. REMOVE SPACING SHIMS. Page 8 of 13



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ADD TWO SPRINGS. FASTEN TWO #6 X 1/2 SCREWS, 3-3/4 IN. TO THE RIGHT OF AND PARALLEL TO, THE HOLES IN THE GRID SHEET ASSEMBLY. HOOK THE LOOPS OF THE SPRINGS INTO THE GRID SHEET ASSEMBLY HOLES AND THEN, AROUND THE SCREWS. APPLY A COATING OF WHITE LUBRICANT (LUBRIPLATE) TO THE CAM SURFACE.

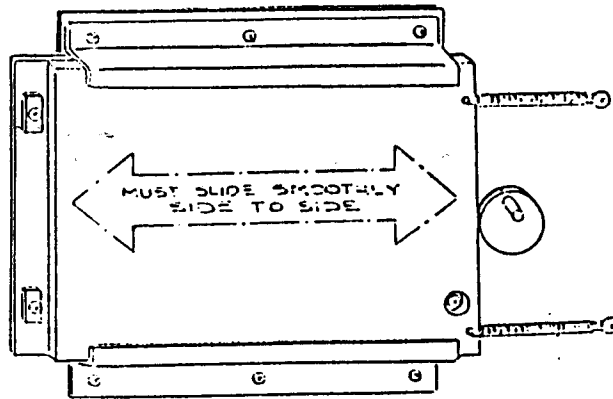


14

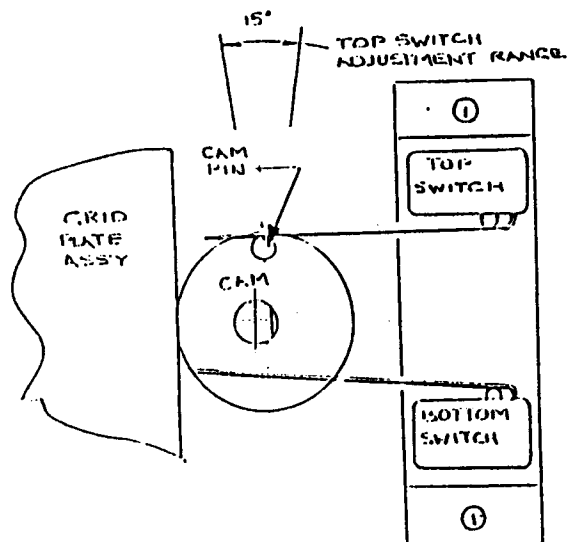
CENTER THE RED SHIPPING BLOCK "A" (NOTCHED) AT THE LEFT SIDE AND PRESS IT AGAINST THE GRID PLATE ASSEMBLY. FASTEN WITH A #8 X 1" HEX HD SCREW. LOCATE THE TWO RED SHIPPING BLOCKS "B" ABOVE THE SPRINGS, PRESS AGAINST THE GRID PLATE ASSEMBLY AND FASTEN WITH TWO #8 X 1" SCREWS.

TROUBLE SHOOTING

PROBLEM	CAUSE	SOLUTION
PICTURE DOES NOT CHANGE.	MOTOR NOT RUNNING.	CHECK ELECT. CONN. AND POWER.
	GRID PLATE DOES NOT MOVE SIDE TO SIDE	SLIGHTLY LOOSEN (3) TOP GUIDE PLATE SCREWS MAKE SURE GRID PLATE MOVES FRICTION FREE.
		CLEAN BOTH PLATES, APPLY TALC, REASSEMBLE AND ADJUST
PICTURE VERY FAINT AT REST BUT IMPROVES DURING CHANGE	SWITCH ACTUATION IS EITHER TO LATE OR TO EARLY.	RESET ACTUATION POINTS OF SWITCHES
BLACK LINES RUN DIAGONALLY THRU PICTURE	MISALIGNED FIXED ARTWORK TO GRID PLATE	LOOSEN THE (3) FIXED ARTWORK SCREWS AND AND REALIGN FIXED ARTWORK TO GRID SHEET
	GRID PLATE IS TO LOOSE UP AND DOWN	LOOSEN THE (3) TOP GUIDE PLATE SCREWS AND MOVE GUIDE PLATE DOWN SLIGHTLY. RE-TIGHTEN AND CHECK FOR SMOOTH, SIDE TO SIDE OPERATION. REALIGNMENT OF THE FIXED ARTWORK MAY BE NECESSARY.

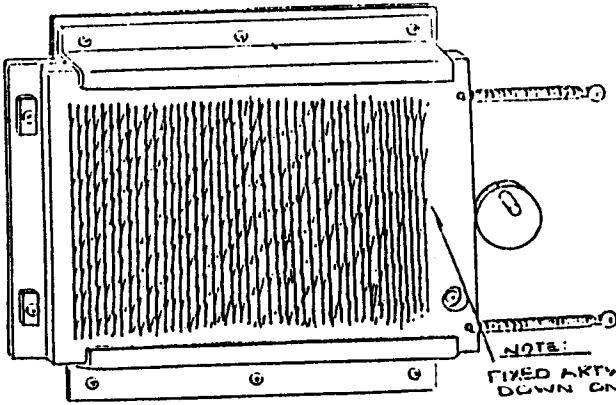
ADJUSTING THE F/X UNIT

1. CHECK TO MAKE SURE THE GRID PLATE SLIDES SMOOTHLY FROM SIDE TO SIDE. CHECK THIS WITH THE SPRINGS UNHOOKED. THERE MUST BE NO APPARENT FRICTION OF THE GRID PLATE AS IT SLIDES SIDE TO SIDE.

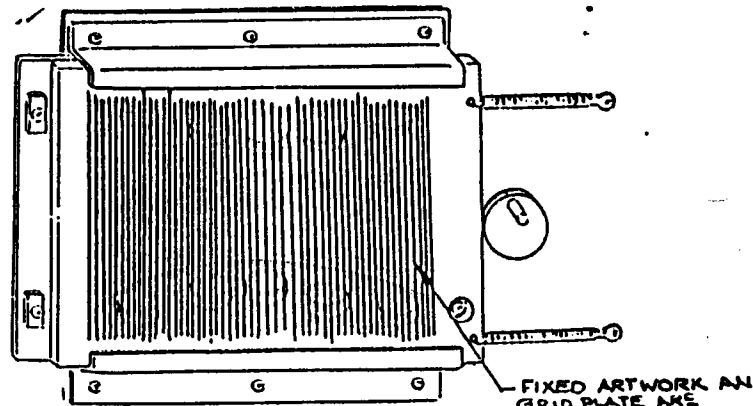
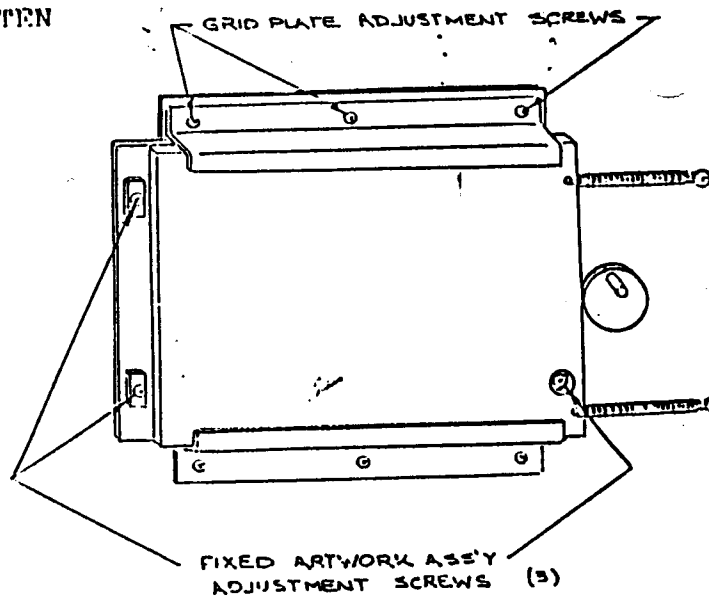


2. PLACE GAGE INTO DIAGNOSTICS, THE TRANSPORTER MOTOR PULSE MODE. USING THE START BUTTON, PULSE THE MOTOR UNTIL THE CAM PIN ACTUATES THE TOP SWITCH. (WATCH DISPLAY) THIS ACTUATION SHOULD OCCUR WITHIN THE TOP 15 DEGREE OF ROTATION.

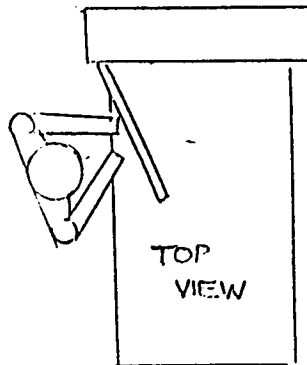
3. LOOSEN THE THREE SCREWS THAT FASTEN THE FIXED ARTWORK ASSEMBLY AND ADJUST THE ASSEMBLY SO THAT A COMPLETE, SHARP IMAGE OF THE TRANSPORT TEAM IS VISIBLE. TIGHTEN SCREWS. SEE NOTE BELOW.



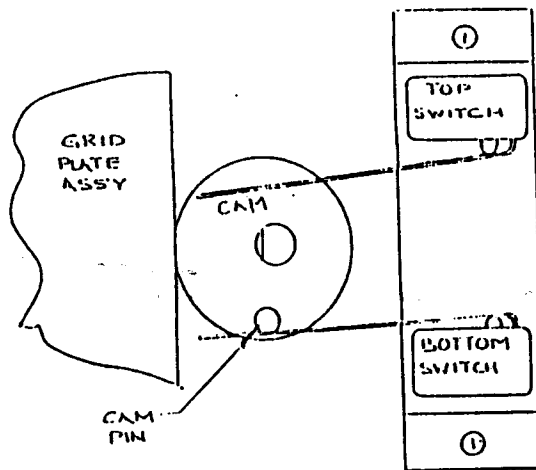
BAD PICTURE



GOOD PICTURE



NOTE
WHEN ADJUSTING THE UNIT FOR PICTURE QUALITY,
ALWAYS VIEW THE UNIT STRAIGHT ON, NEVER AT AN
ANGLE.



4. CYCLE MOTOR 1/2 TURN. THE TRANSPORT TEAM WILL DISAPPEAR. AT THIS POINT, SET THE BOTTOM SWITCH ACTUATOR TO JUST MAKE THE SWITCH.

5. CYCLE MOTOR AND LET THE TOP SWITCH TURN OFF THE MOTOR. THE TRANSPORT TEAM SHOULD REAPPEAR. CYCLE MOTOR AGAIN AND LET THE BOTTOM SWITCH TURN OFF THE MOTOR. THE TRANSPORT TEAM SHOULD COMPLETELY DISAPPEAR. CYCLE THE MOTOR A FEW MORE TIMES TO CHECK SWITCH SETTINGS.