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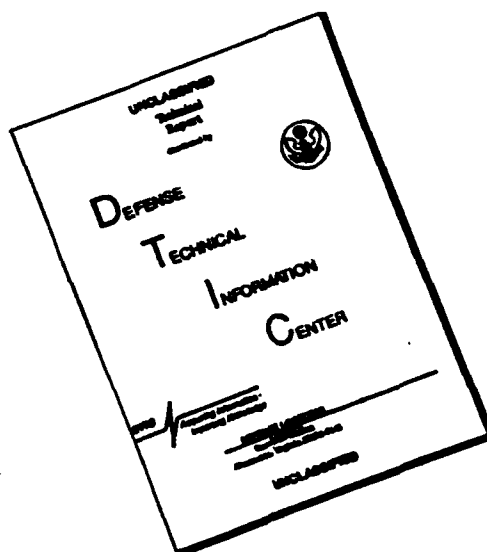
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**TECHNOLOGY SECTION-ENGINEERING SERVICES
PROCESS CHARACTERIZATION
TASK ORDER NO. 1
(BLOCK II)**

DATABASE DOCUMENTATION BOOK

OC-ALC

MABPFF

**CONTRACT SUMMARY REPORT
11 SEPTEMBER 1989**

**CONTRACT NO. F33600-88-D-0567
CDRL SEQUENCE NO. B008**

A-1	
23	



MCDONNELL DOUGLAS

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1.0 IDENTIFICATION OF RCC

RCC MABFFF has been identified by the SOW of Contract F33600-88-D-0567
for Process Characterization.

1.0 IDENTIFICATION OF RCC

RCC MABPFF AT OC-ALC HAS BEEN IDENTIFIED BY THE SOW OF CONTRACT F33600-88-D-0567 FOR PROCESS CHARACTERIZATION.

THIS RCC IS LOCATED IN BLDG. ~~3~~^{#2121}.

2.0 General Information

MABPFF is a Resource Control Center with MABP - Aircraft division, ^(MABP) at OC-ALE. MABPFF is located in Bldg 2121. ~~the~~ Its primary work load is Mister, PDMV all from B 526. This work load was reduced ^{in 1985} when 50 % of the B526's were sent to SA-ALE to allow for ~~an third line an~~ ~~of C-135 additional~~ ^{line} C135's. MABPFF will be discussed in detail in section 2.1 through 2.8.

2.0

The RCC MABPFF is located in building 2121. It occupies a portion of the dock area and a portion of second floor. (ref. layout drawing. MABPFF Documentation Book)

The RCC MABPFF is administratively lead by one unit chief and assisted by ^{one} secretary and four supervisors. The three day supervisors are responsible for repairing assigned items. The 2nd shift supervisor assigns his people as required to complete assemblies on schedule.

The purpose of MABPFF is to support the B52 program. They repair items from supply and the B52 Aircraft PDM line. Their workload is 70% MISTR, 25% PDM, 5% Manufacturing. The small sheet metal manufacturing ^{area} also supports the F-35 aircraft line on a very limited basis.

Assemblies are disassembled, repaired and reassembled by the same mechanic. They are loaded or unloaded from or to transport carts by the mechanics but moved by transport personnel. The exception is the flaps; the flaps are moved from clean and strip by the mechanic.

MABPFF appears fragmented. In early 1988 50% of the B52G were transferred to San Antonio to make room for an additional KC135 aircraft line. This caused a reduction in MABPFF's workload and their work area. The new work is worked in three different areas separated by other assemblies belonging to another supervisor.

The area is reasonably clean and the lighting is adequate. The mechanics appear knowledgeable and skilled. They are proud of the B52 aircraft and feel ownership and responsibility for it.

Other than the bomb bay doors, upper and lower, assemblies are repaired without fixtures. They are supported by holding fixtures and work benches. Skill and care must be used to repair without disturbing alignment of the assembly.

The Tools used in the repair area are small hand tools.

2.1 Facility Layout Drawing

The current Facility layout drawing has been marked up by planning to represent the as-is condition of MBBPFF. (REF. # 13.0)

2.2 Equipment

MABPFF's equipment consists of:

- ~~• etc~~
 - alignment fixtures for Upper Bomb bay doors
 - alignment fixtures for Lower Bomb bay doors
 - Balance fixture for flight controls - Elevators, Rudder.
 - Jack - used to assist in handling flight controls.
 - Small sheet metal shop consisting of hand breaks, hand formers, band saws, hold down clamps & etc.
- MABPFF also has a small power shear & break.
see listing for details.

~~see attached listing~~

MABPF EQUIPMENT

NUM	NAME	MODEL #/TYPE PART NUMBER	QUANTITY	CODE FOR EQUIP PROFILE
	DOUBLE SANDER DISK (FLOOR MODEL)		1	
	DRILL PRESS (FLOOR MODEL)		4	
	GRINDING MACHINE	WISSOTA E8M	1	
	WELDER	MILLER 330ST	1	
	BRAKE, MECH	0617	1	
	BRAKE, MECH FORMING ROLLER	NATIONAL	2	
	BRAKE, HAND		2	
	METAL STREACHER (FLOOR MODEL)		1	
	PRESS ARBOR	FAMCO	2	
	PUNCH, MECH	ROTEX	1	
	POWER SHEAR	MASPERI CM500A	1	
	DIMPLER	300	1	
	BRAKE PRESS	65M75	1	
	DOALL SAW	3613-2	1	
	BREAK, HAND (10' INCHAGE)	CHICAGO	1	

FIXTURES

JACK				JACK
ELEV/RUDDER BALANCE	RPOH6		1	RPOH6
LWR BOMB BAY DOOR (LARGE) R/H	FME35-30600-3		1	FME35-3R
LWR BOMB BAY DOOR (LARGE) CENTER L/H		4	1	-4L
LWR BOMB BAY DOOR (LARGE) AFT) RH		-6	1	-6R
LWR BOMB BAY DOOR (LARGE) AFT) L/H		-5	1	-5L
LWR BOMB BAY DOOR (LARGE) FWD) RH		-2	1	-2R
LWR BOMB BAY DOOR (LARGE) FWD) L/H		-1	1	-1L
UPR BOMB BAY DOOR (SMALL)	AJ5-48467-3		1	
	AJ5-48467-4		1	
	AJ5-48467-3		1	
	AJ5-48467-4		1	
	AJ5-46868-27		1	
	AJ5-46868-28		1	

Work Benches:

FLAP SHOP
(3) 4' x 8' TABLE

Nose Cowl - (22) 2' x 6' WORK BENCH
(2) 2' x 3' "
(21) 4' x 6' NOSE COWL JOLLY
(2) ALIGNMENT FIXTURES (NOT USED)

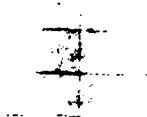
SIDE COWL (2) 4' x 2' HOLDING BENCH

SPOILERS (15) 2' x 6' WORK BENCH

ESCAPE HATCH (6) 2' x 6' WORK BENCH
(8) 2' x 3' TABLE WITH WHEELS

LOWER Bomb Bay Doors (8) 2' x 6' WORK BENCH
(1) 4' x 8' TABLE
(2) 4' x 8' TABLE WITH WHEELS

UPPER Bomb Bay Doors (2) 4' x 6'



2.3 Work force

MABPFF work force is comprised of sheet metal mechanics, three supervisors on day shift, one on swing shift, a clerk and a unit leader.

Skill codes are assigned to product areas as follows, 3rd Gen. etc. Trade levels consist of WB-01 to WB-05.

The WB-05 is considered a 3 time.

The WB-05 may work in any unit under general guidance of a WB-01 or WB-02.

*

~~UNIT~~	<u>SKILL LEVEL</u>	<u>QUANTITY</u>	<u>YRS. AVG. EXPERIENCE</u>
	WB-05	1	

PAC Certification is based on the operators ability, skill & knowledge on that N/N not on trade level.

enter this at *

<u>Skill Level</u>	<u>Quarters</u>				<u>Experience</u>
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	
USG 05	15	15	11	12	5 to 14 yr
09	25	23	16	16	1 to 5 yr
10	63	65	47	46	25% 5 to 10 yr 50% 10 to 20 yr 25% over 20 yr

2.4 Repair Process Technologies.

Repair process consists of sheet metal component repair and minor manufacturing to support the repair process.

NA 3.F.F. is well as the E 55 unit. Edits are primarily manual. Band tools are used to remove, sub air, ^{REPLACE} damaged parts.

The degree of repair depends on whether the parts are ~~in~~ or

PDM. MIST² PARTS are to be returned to as "new condition". PDM PARTS are -3 repairs. Part can be worked using "standard repair" procedures.

Lack of useable alignment fixtures (only Bomb Bay doors have alignment fixtures) requires operators to "know what" what skins can be removed at the same time without losing alignment. This is especially true of the wing tips and spoilers.

The Manufacturing shop is responsible for providing sheetmetal parts not available from supply. 35% of their work load is line generated, the other 15% is from MABFF.E.

The parts are produced with very limited equipment.

James Petters
Deer Creek

2.5 Workload Volume & Mix

The workload within MAB PFF consists of PDM, MISTR and Manufacturing.

The refurbishment of sheet metal assemblies removed from the B52G aircraft line is the PDM workload.

Certain parts of spoilers, flight controls, wing flaps I B & wing flaps O B are removed from the aircraft as PDM worked as MISTR then put back on the aircraft. These plus nose cowl, upper & lower bomb bay doors from supply constitute the MISTR workload -

MISTR WORK	- 70 %
PDM	25 %
MFG	5 %

2.6 Material Handling

Material Handling in WAB PFF involves a sling, holding & transport carts & wing flap dollies.

the Wing flaps are moved from wash & strip by operators using special dollies. They remain on these dollies during their entire repair process. They are then moved to a holding location waiting to be moved to the aircraft.

The remainder of the carts are moved from wash & strip to WAB PFF by Transport on Carts. They are stored on the carts, repaired then moved to paint.

~~The carts are repaired at one location unless a weld special process is required. Internal moves require operators to move parts to cart using a flat bed.~~

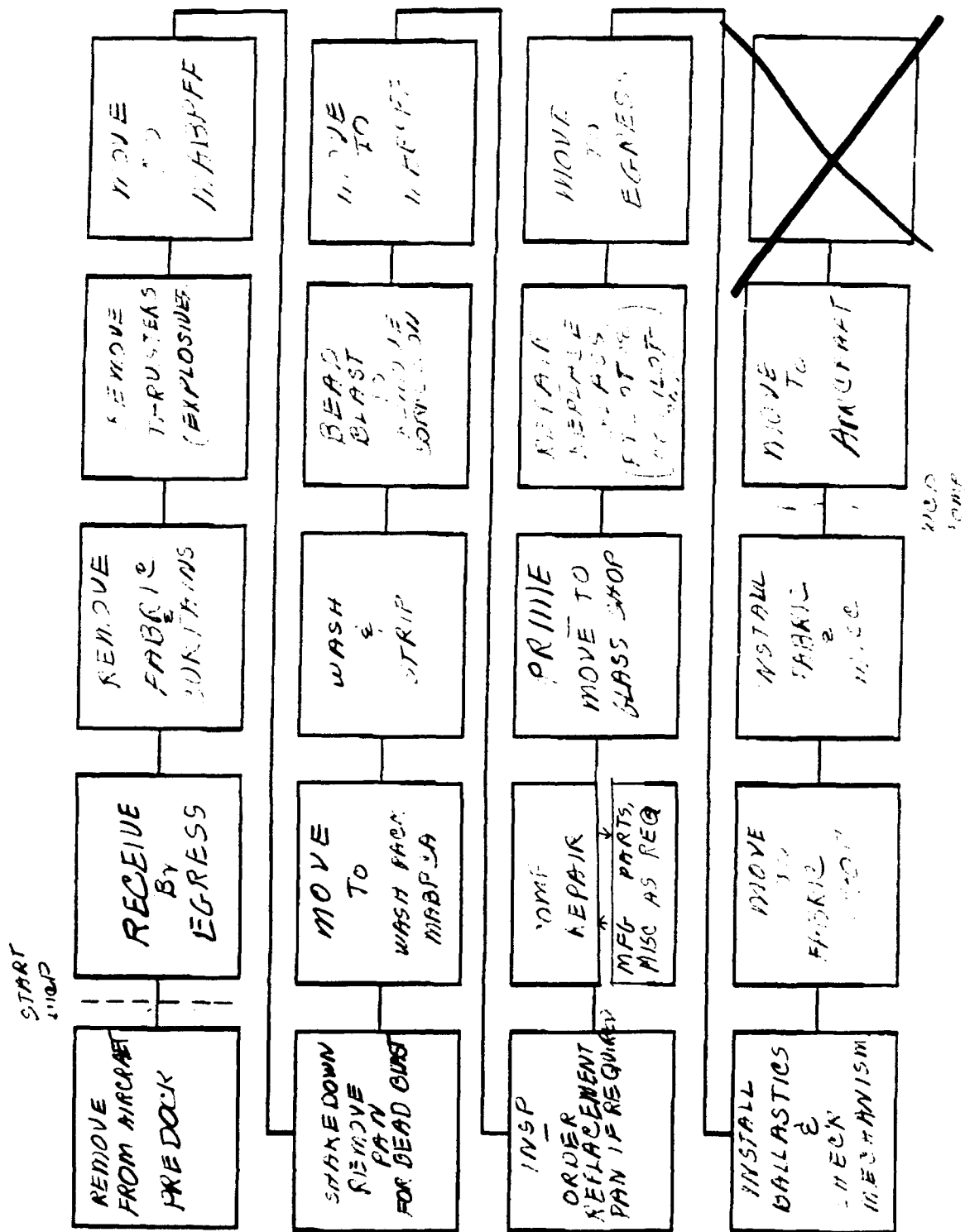
Minimum ^{internal} moves were observed because the repair work is performed at the same location.

2.7 Storage

The storage area for NABPFF consists of one taxi room ^{30' x 50'} used to store nose coils and ^{the} area used to park carts where incoming carts are stored ^{the} until ready to work.

2.8 Process Flow Charts

ESCAPE ROUTE



FLOW PROCESS CHART

SUBJECT B52G Escape Hatch

DATE 4-6-89

PCN: 15027A WCD: 15027A WCDDATE: 89060

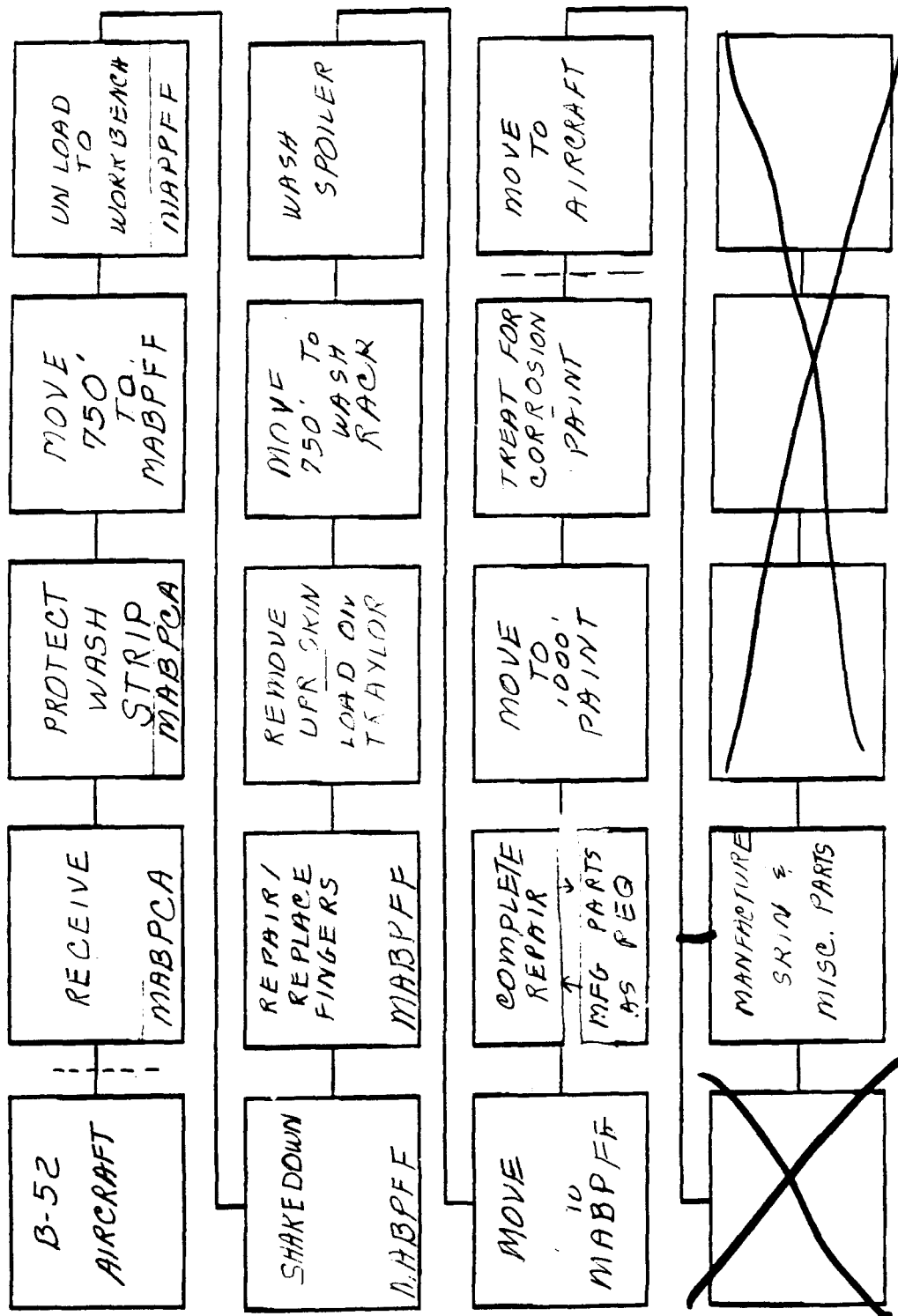
CHART BEGINS _____

CHART ENDS _____

PREPARED BY: B. Hiscox

SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
010 ● ◊ ◊ ◊ ◊ ◊	Receive 2122 MBPFG	125 ● ◊ ◊ ◊ ◊ ◊	Prime 2121 MBPCA
020 ● ◊ ◊ ◊ ◊ ◊	Remove fabric+curtains	◊ ◊ ◊ ◊ ◊	Delay
◊ ◊ ◊ ◊ ◊	Delay	◊ ◊ ◊ ◊ ◊	Move
◊ ◊ ◊ ◊ ◊	Move	◊ ◊ ◊ ◊ ◊	Delay
◊ ◊ ◊ ◊ ◊	Delay	130 ● ◊ ◊ ◊ ◊ ◊	Repair/replace glass 2121 MBPFA
030 ● ◊ ◊ ◊ ◊ ◊	Remove thrusters 2121 MBPFG	◊ ◊ ◊ ◊ ◊	Delay
◊ ◊ ◊ ◊ ◊	Delay	◊ ◊ ◊ ◊ ◊	Move
◊ ◊ ◊ ◊ ◊	Move	◊ ◊ ◊ ◊ ◊	Delay
◊ ◊ ◊ ◊ ◊	Delay	140 ● ◊ ◊ ◊ ◊ ◊	Repair/replace dome lighting 2122 MBPFG
040 ● ◊ ◊ ◊ ◊ ◊	Shakedown 2121 MBPFF	150 ● ◊ ◊ ◊ ◊ ◊	Install ballist
◊ ◊ ◊ ◊ ◊	Delay	160 ● ◊ ◊ ◊ ◊ ◊	Repair/replace mechanism
◊ ◊ ◊ ◊ ◊	Move to WAREHOUSE	170 ● ◊ ◊ ◊ ◊ ◊	Repair/replace ballist line
◊ ◊ ◊ ◊ ◊	Delay	180 ◊ ◊ ◊ ◊ ◊	Check alignment+connections
050 ● ◊ ◊ ◊ ◊ ◊	Wash+strip 2122 MBPCA	190 ● ◊ ◊ ◊ ◊ ◊	Adjust hatch mechanism
061 ● ◊ ◊ ◊ ◊ ◊	Bead blast gun	200 ● ◊ ◊ ◊ ◊ ◊	Check locking mechanism, warning switch, + lock pin
◊ ◊ ◊ ◊ ◊	Delay	210 ● ◊ ◊ ◊ ◊ ◊	Replace applicable seal
◊ ◊ ◊ ◊ ◊	Move	220 ● ◊ ◊ ◊ ◊ ◊	Replace hatch damperassy
◊ ◊ ◊ ◊ ◊	Delay	230 ● ◊ ◊ ◊ ◊ ◊	Check hatch litter, + replace sealant
062 ● ◊ ◊ ◊ ◊ ◊	ORDER NEW HATCH MBPFF	240 ◊ ◊ ◊ ◊ ◊	Inspect hatch
065 ● ◊ ◊ ◊ ◊ ◊	Replace pushrods	◊ ◊ ◊ ◊ ◊	Delay
070 ● ◊ ◊ ◊ ◊ ◊	Remove corrosion+rusture	◊ ◊ ◊ ◊ ◊	Move
080 ● ◊ ◊ ◊ ◊ ◊	Repair cracks	◊ ◊ ◊ ◊ ◊	Delay
090 ● ◊ ◊ ◊ ◊ ◊	Replace nut plates	250 ● ◊ ◊ ◊ ◊ ◊	Install fabric+other components
100 ● ◊ ◊ ◊ ◊ ◊	Repair outer skins	260 ● ◊ ◊ ◊ ◊ ◊	Tag
110 ● ◊ ◊ ◊ ◊ ◊	Repair/replace ribs	◊ ◊ ◊ ◊ ◊	Delay
120 ● ◊ ◊ ◊ ◊ ◊	Replace fasteners	◊ ◊ ◊ ◊ ◊	Move to aircraft
◊ ◊ ◊ ◊ ◊	Delay	◊ ◊ ◊ ◊ ◊	
◊ ◊ ◊ ◊ ◊	Move	◊ ◊ ◊ ◊ ◊	
◊ ◊ ◊ ◊ ◊	Delay	◊ ◊ ◊ ◊ ◊	

SPOILERS



FLOW PROCESS CHART

SUBJECT B 52 G Spoiler

DATE 4-6-89

PCN:

WCD:

WCDDATE:

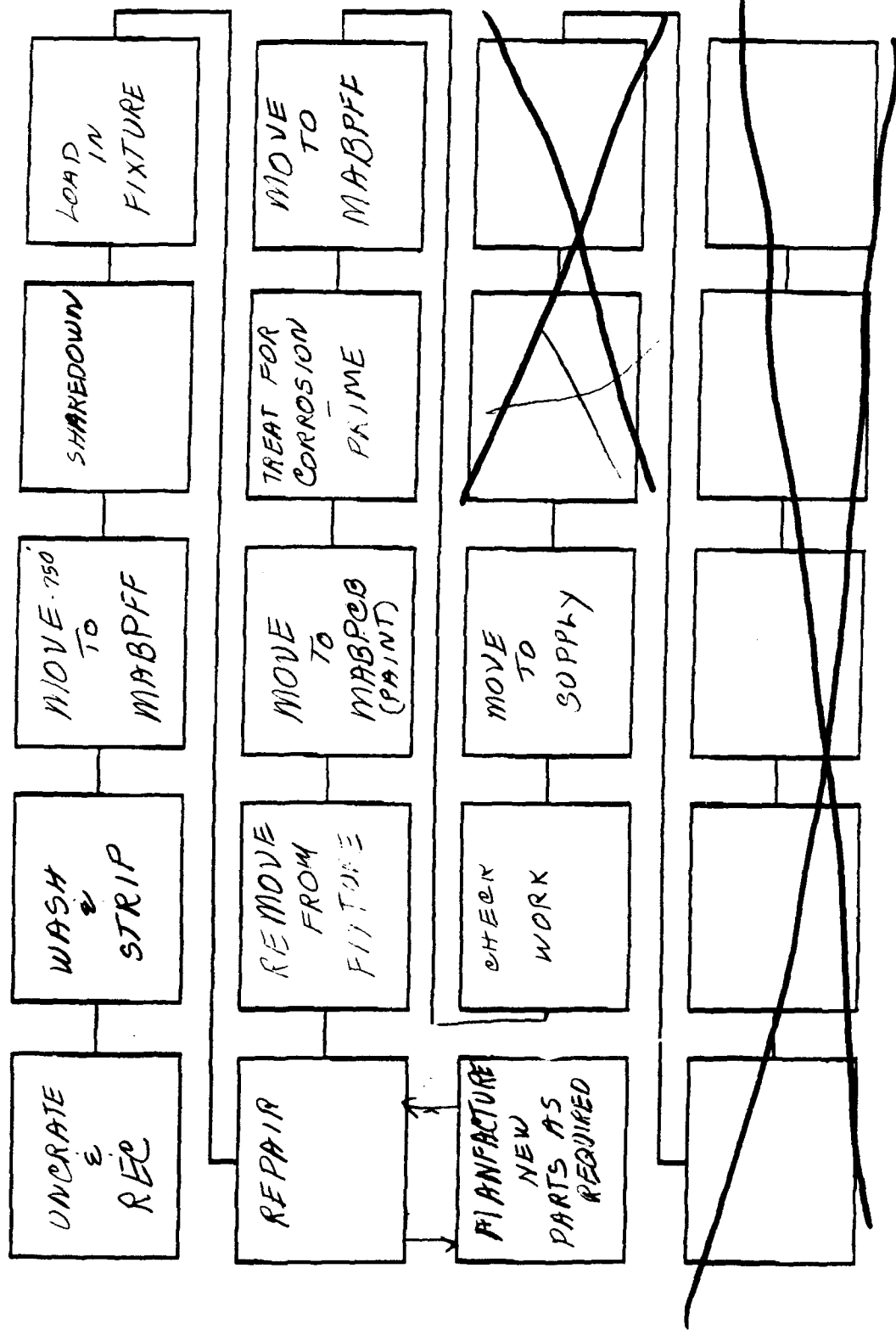
CHART BEGINS

CHART ENDS

PREPARED BY: B. HIGGINS

SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
010 ● ◇ □ ▽	Receive 2122 MBPCA	270 ● ◇ □ ▽	Install rivets
020 ● ◇ □ ▽	Plug all holes	280 ● ◇ □ ▽	Remove corrosion
030 ● ◇ □ ▽	Cover hinge bearings	290 ● ◇ □ ▽	Replace 2B interlink fty
040 ● ◇ □ ▽	Wash + strip	300 ● ◇ □ ▽	Replace 2B interlink fty
050 ● ◇ □ ▽	Rinse	310 ● ◇ □ ▽	Install spoiler hinge fty
060 ● ◇ □ ▽	Remove plugs + coloring	320 ● ◇ □ ▽	Repair/replace end ribs
070 ○ ◇ □ ▽	Delay	330 ● ◇ □ ▽	APPLY SEALANT TO OBTAIN AERO DYNAMIC SURF
080 ○ ◇ □ ▽	Move	340 ○ ◇ □ ▽	DELAY MOVE
090 ○ ◇ □ ▽	Delay	350 ○ ◇ □ ▽	DELAY
100 ● ◇ □ ▽	Shakedown 2121 MBPFF	360 ● ◇ □ ▽	Apply corrosion finish 2122 MBPCA
110 ● ◇ □ ▽	Replace nameplate/decal	370 ● ◇ □ ▽	Apply epoxy primer
120 ● ◇ □ ▽	Repair/replace fingers	380 ● ◇ □ ▽	Apply polyurethane + paint
130 ● ◇ □ ▽	Replace bearings	390 ● ◇ □ ▽	Ttg
140 ● ◇ □ ▽	Install missing parts	400 ○ ◇ □ ▽	Delay
150 ● ◇ □ ▽	Replace fasteners	410 ○ ◇ □ ▽	Move to AIR CRAFT
160 ● ◇ □ ▽	Remove skin	420 ○ ◇ □ ▽	
170 ○ ◇ □ ▽	Inspect actuator hinge lug holes	430 ○ ◇ □ ▽	
180 ● ◇ □ ▽	Install bushings	440 ○ ◇ □ ▽	
190 ● ◇ □ ▽	Replace skin	450 ○ ◇ □ ▽	
200 ● ◇ □ ▽	Replace front spar	460 ○ ◇ □ ▽	
210 ● ◇ □ ▽	Replace inner ribs	470 ○ ◇ □ ▽	
220 ● ◇ □ ▽	Replace actuator rib	480 ○ ◇ □ ▽	
230 ● ◇ □ ▽	Replace hinge rib	490 ○ ◇ □ ▽	
240 ● ◇ □ ▽	Replace rear spar	500 ○ ◇ □ ▽	
250 ● ◇ □ ▽	Replace rear spar b. heads	510 ○ ◇ □ ▽	
260 ● ◇ □ ▽	Replace spiner plate seals	520 ○ ◇ □ ▽	
270 ● ◇ □ ▽	Repair spinnec interconnect	530 ○ ◇ □ ▽	
280 ● ◇ □ ▽	Repair/replace spinnec	540 ○ ◇ □ ▽	
290 ● ◇ □ ▽	Rep. for panel work	550 ○ ◇ □ ▽	

○ ◇ □ ▽	Delay
○ ◇ □ ▽	move
○ ◇ □ ▽	delay
● ◇ □ ▽	CLEAN
○ ◇ □ ▽	DELAY
○ ◇ □ ▽	MOVE
○ ◇ □ ▽	DELAY

[illegible]

FLOW PROCESS CHART

SUBJECT B52 G Lower Bomb Bay Door

DATE 4-6-89

PCN: 15059A WCD: 15059A WCD DATE: 89052

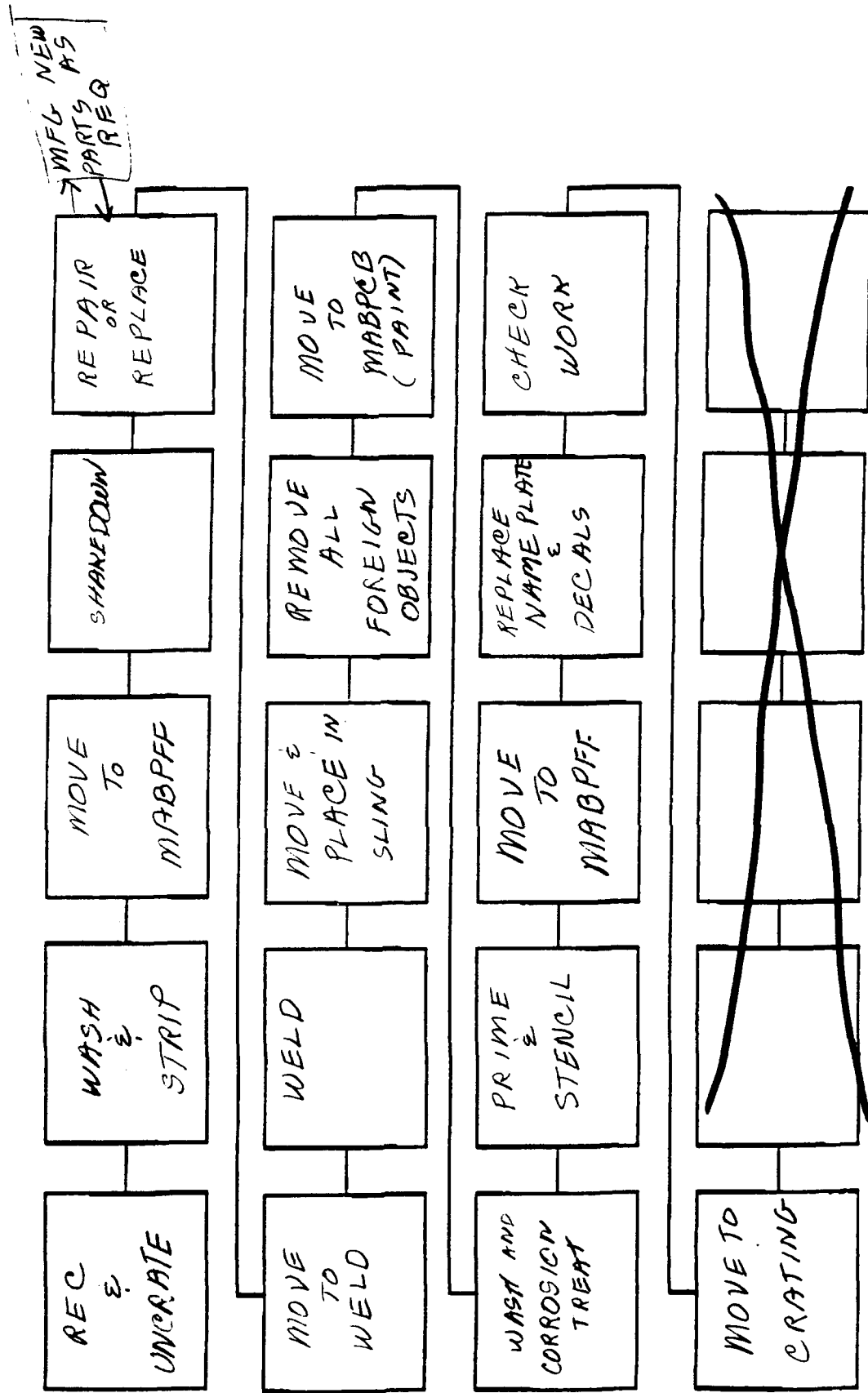
CHART BEGINS _____

CHART ENDS _____

PREPARED BY: B. Hisey

SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
010 ● ◊ ◊ ◊ ◊ ◊	Receive 2122 MAPCA	250 ● ◊ ◊ ◊ ◊ ◊	Tag
030 ● ◊ ◊ ◊ ◊ ◊	Wash interior & exterior	● ◊ ◊ ◊ ◊ ◊	Load doors on cart
040 ● ◊ ◊ ◊ ◊ ◊	Strip exterior finish	○ ◊ ◊ ◊ ◊ ◊	Move to MBPFF
○ ◊ ◊ ◊ ◊ ◊	Delay	● ◊ ◊ ◊ ◊ ◊	Switch doors onto another cart
○ ◊ ◊ ◊ ◊ ◊	Move	○ ◊ ◊ ◊ ◊ ◊	Move to supply
○ ◊ ◊ ◊ ◊ ◊	Delay	○ ◊ ◊ ◊ ◊ ◊	
050 ○ ◊ ◊ ◊ ◊ ◊	Visual inspection 2121 MBPFF	○ ◊ ◊ ◊ ◊ ◊	
060 ● ◊ ◊ ◊ ◊ ◊	Replace upper spar	○ ◊ ◊ ◊ ◊ ◊	
070 ● ◊ ◊ ◊ ◊ ◊	Replace lower spar	○ ◊ ◊ ◊ ◊ ◊	
080 ● ◊ ◊ ◊ ◊ ◊	Replace hinge fitting	○ ◊ ◊ ◊ ◊ ◊	
090 ● ◊ ◊ ◊ ◊ ◊	Replace internal ribs	○ ◊ ◊ ◊ ◊ ◊	
100 ● ◊ ◊ ◊ ◊ ◊	Replace clips	○ ◊ ◊ ◊ ◊ ◊	
110 ● ◊ ◊ ◊ ◊ ◊	Replace end ribs	○ ◊ ◊ ◊ ◊ ◊	
115 ● ◊ ◊ ◊ ◊ ◊	Replace chords	○ ◊ ◊ ◊ ◊ ◊	
120 ● ◊ ◊ ◊ ◊ ◊	Replace external skin	○ ◊ ◊ ◊ ◊ ◊	
130 ● ◊ ◊ ◊ ◊ ◊	Replace inner skin	○ ◊ ◊ ◊ ◊ ◊	
140 ● ◊ ◊ ◊ ◊ ◊	Replace inner & outer skin INFO	○ ◊ ◊ ◊ ◊ ◊	
150 ● ◊ ◊ ◊ ◊ ◊	Repair buffet fairing	○ ◊ ◊ ◊ ◊ ◊	
160 ● ◊ ◊ ◊ ◊ ◊	Replace upper seals	○ ◊ ◊ ◊ ◊ ◊	
170 ● ◊ ◊ ◊ ◊ ◊	Replace lower seals	○ ◊ ◊ ◊ ◊ ◊	
180 ● ◊ ◊ ◊ ◊ ◊	Attach I.D. plate to door	○ ◊ ◊ ◊ ◊ ◊	
○ ◊ ◊ ◊ ◊ ◊	Delay 1-1/2 for sign-off	○ ◊ ◊ ◊ ◊ ◊	
○ ◊ ◊ ◊ ◊ ◊	Move	○ ◊ ◊ ◊ ◊ ◊	
○ ◊ ◊ ◊ ◊ ◊	Delay	○ ◊ ◊ ◊ ◊ ◊	
200 ● ◊ ◊ ◊ ◊ ◊	Treat for corrosion 2280 MBPFB	○ ◊ ◊ ◊ ◊ ◊	
210 ● ◊ ◊ ◊ ◊ ◊	Apply epoxy primer	○ ◊ ◊ ◊ ◊ ◊	
220 ● ◊ ◊ ◊ ◊ ◊	Apply polysulfide primer	○ ◊ ◊ ◊ ◊ ◊	
230 ● ◊ ◊ ◊ ◊ ◊	Apply polyurethane topcoat	○ ◊ ◊ ◊ ◊ ◊	
240 ● ◊ ◊ ◊ ◊ ◊	Maintain smoothness	○ ◊ ◊ ◊ ◊ ◊	

ENGINE & SEOWL



FLOW PROCESS CHART

SUBJECT B 52 G Engine Nose Cowl

DATE 4-6-59

PCN: 74445A

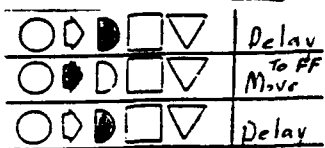
WCD: 00445A

WCDDATE: 37052

CHART BEGINS _____

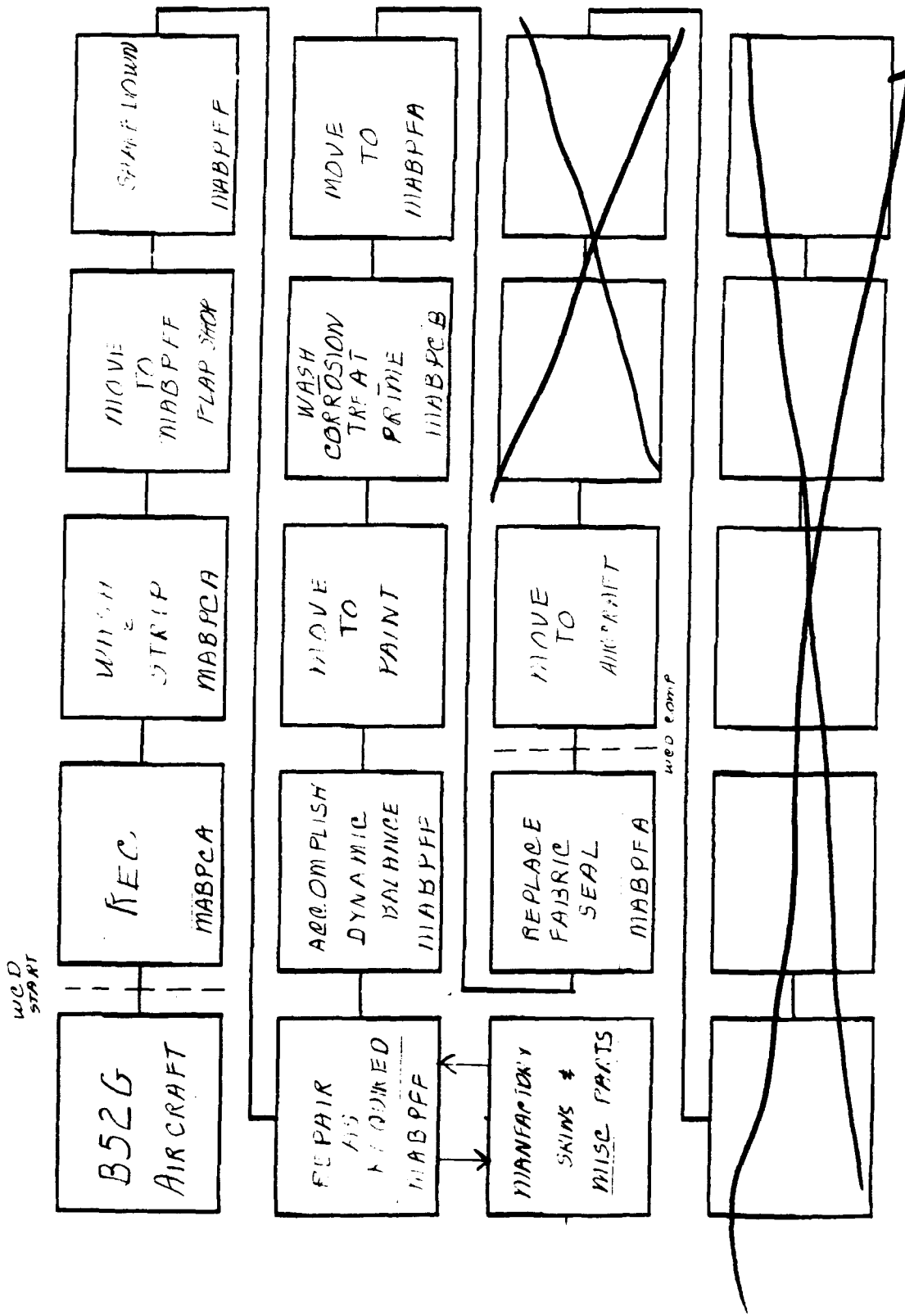
CHART ENDS _____

PREPARED BY: B. Higgins

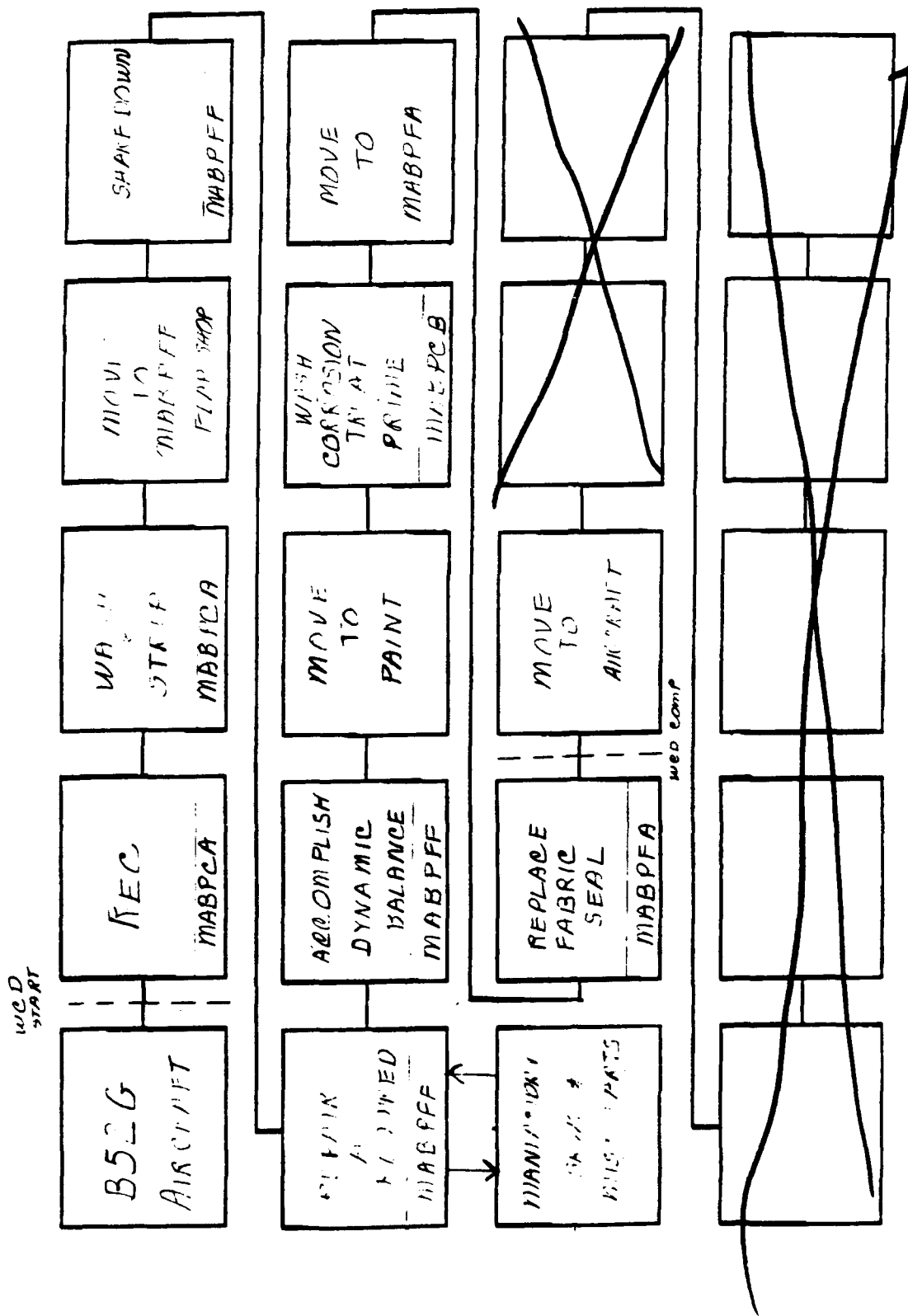


SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
○● □ ▽	010 Receive UNERATE 2122 MBPCA	○● □ ▽	300 Move to welding
○● □ ▽	020 Wash + strip MBPCA	○● □ ▽	Delay *
○● □ ▽	030 Sharpen MBPEE	○● □ ▽	310 Clean + remove foreign matter
○● □ ▽	040 Remove inner skin	○● □ ▽	Delay
○● □ ▽	050 Remove leading edge skin	○● □ ▽	Move
○● □ ▽	060 Remove outer skin	○● □ ▽	Delay
○● □ ▽	070 Repair inner skin	○● □ ▽	320 Final wash + corrosion treat MBPEE
○● □ ▽	080 Repair upper/lower RH inner skin	○● □ ▽	330 Apply smoother prime + Tencel
○● □ ▽	090 Repair upper/lower RH inner skin	○● □ ▽	340 Replace name plate + decal MBPEE
○● □ ▽	100 Repair upper/lower RH inner skin	○● □ ▽	350 Tag
○● □ ▽	110 Replace inner skin for RH	○● □ ▽	Delay
○● □ ▽	120 Repair outer skin	○● □ ▽	Move to coating
○● □ ▽	130 Replace outer skin	○● □ ▽	
○● □ ▽	140 Replace splitter skin	○● □ ▽	* INSERT
○● □ ▽	150 Repair/replace outer skin	○● □ ▽	WELD
○● □ ▽	160 Repair leading edge skin	○● □ ▽	DELAY
○● □ ▽	170 Replace leading edge skin	○● □ ▽	MOVE TO FF 50'
○● □ ▽	180 Repair frame damage	○● □ ▽	Delay
○● □ ▽	190 Fab dual lines + replace	○● □ ▽	
○● □ ▽	200 Burnish scratches	○● □ ▽	
○● □ ▽	210 Replace LH oil cooler seal	○● □ ▽	
○● □ ▽	220 Replace RH oil cooler seal	○● □ ▽	
○● □ ▽	230 Repair/replace upper cowl latch	○● □ ▽	
○● □ ▽	240 Repair/replace lower cowl latch	○● □ ▽	
○● □ ▽	250 Replace LH lock pin + chain	○● □ ▽	
○● □ ▽	260 Replace RH lock pin + chain	○● □ ▽	
○● □ ▽	270 Replace fasteners	○● □ ▽	
○● □ ▽	280 Sharpen existing rivets	○● □ ▽	
○● □ ▽	Delay	○● □ ▽	

FLIGHT CONTROLS - RUDDERS, ELEVATORS



FLIGHT CONTROLS - RUDDERS, ELEVATORS



FLOW PROCESS CHART

SUBJECT B 52 G Elevator

DATE 4-6-89

PCN: 17298A WCD: 17298A WCD DATE: 89052

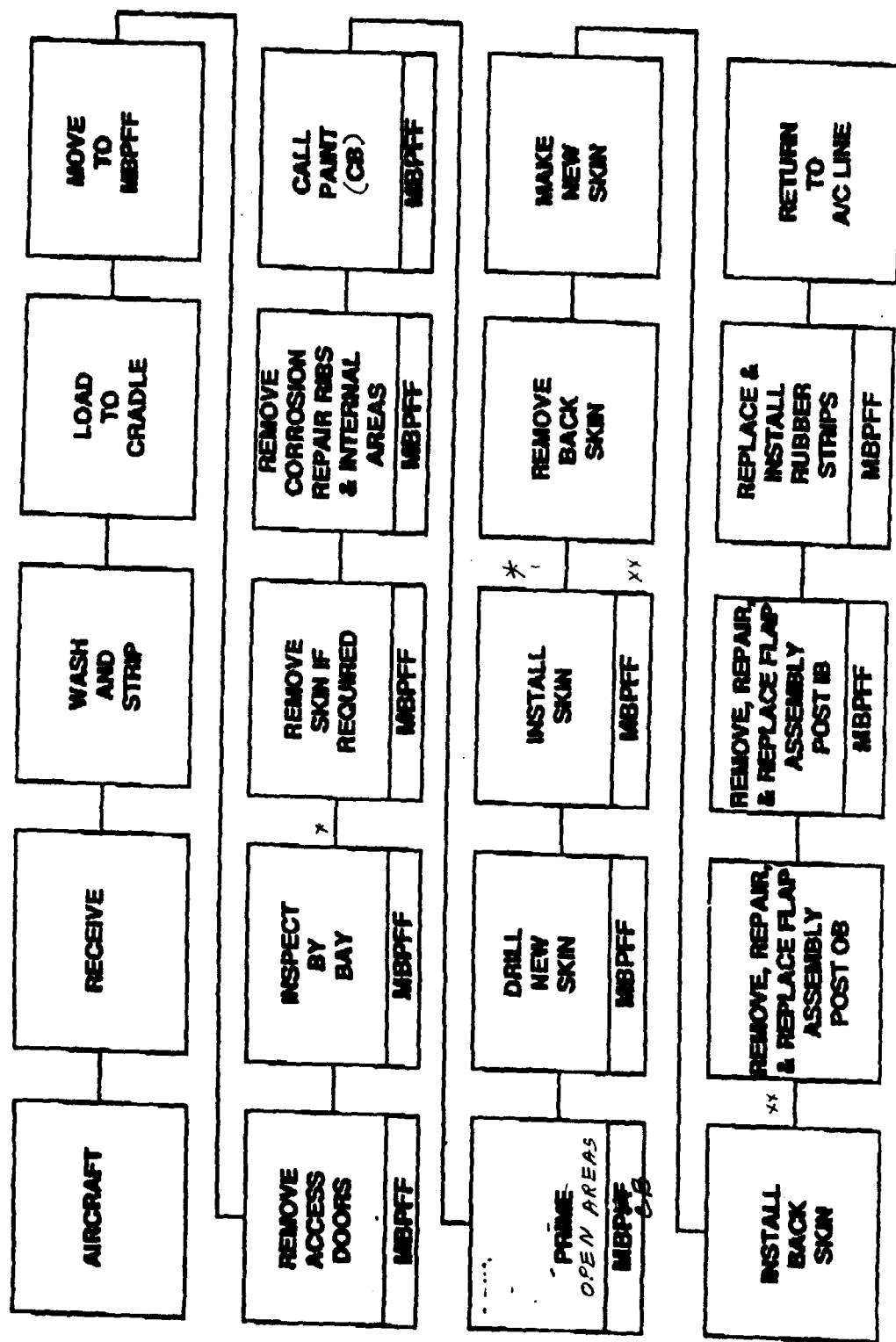
CHART BEGINS _____

CHART ENDS _____

PREPARED BY: B. Hiscax

SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
010 ● ◊ ◊ ◊ ◊ ▽	Receive 2122 MBPCA	○ ◊ ◊ ◊ ◊ ▽	
020 ● ◊ ◊ ◊ ◊ ▽	Plug all holes	○ ◊ ◊ ◊ ◊ ▽	
030 ● ◊ ◊ ◊ ◊ ▽	Wash + strip	○ ◊ ◊ ◊ ◊ ▽	
○ ◊ ◊ ◊ ◊ ▽	Delay	○ ◊ ◊ ◊ ◊ ▽	
○ ◊ ◊ ◊ ◊ ▽	Move	○ ◊ ◊ ◊ ◊ ▽	
○ ◊ ◊ ◊ ◊ ▽	Delay	○ ◊ ◊ ◊ ◊ ▽	
040 ● ◊ ◊ ◊ ◊ ▽	E+I Shakedown 2121 MBPFF	○ ◊ ◊ ◊ ◊ ▽	
050 ● ◊ ◊ ◊ ◊ ▽	Check bushings + hinge attach pts	○ ◊ ◊ ◊ ◊ ▽	
060 ● ◊ ◊ ◊ ◊ ▽	Repair/replace skin panels	○ ◊ ◊ ◊ ◊ ▽	
070 ● ◊ ◊ ◊ ◊ ▽	Replace damaged ribs	○ ◊ ◊ ◊ ◊ ▽	
080 ● ◊ ◊ ◊ ◊ ▽	Repair/replace trailing edge	○ ◊ ◊ ◊ ◊ ▽	
090 ● ◊ ◊ ◊ ◊ ▽	Work corrosion	○ ◊ ◊ ◊ ◊ ▽	
100 ● ◊ ◊ ◊ ◊ ▽	Replace fasteners	○ ◊ ◊ ◊ ◊ ▽	
110 ● ◊ ◊ ◊ ◊ ▽	Replace seals	○ ◊ ◊ ◊ ◊ ▽	
120 ● ◊ ◊ ◊ ◊ ▽	Replace nameplate/decals	○ ◊ ◊ ◊ ◊ ▽	
130 ● ◊ ◊ ◊ ◊ ▽	Repair/replace balance panels	○ ◊ ◊ ◊ ◊ ▽	
140 ● ◊ ◊ ◊ ◊ ▽	Dynamic balance	○ ◊ ◊ ◊ ◊ ▽	
○ ◊ ◊ ◊ ◊ ▽	Delay	○ ◊ ◊ ◊ ◊ ▽	
○ ◊ ◊ ◊ ◊ ▽	Move	○ ◊ ◊ ◊ ◊ ▽	
○ ◊ ◊ ◊ ◊ ▽	Delay	○ ◊ ◊ ◊ ◊ ▽	
150 ● ◊ ◊ ◊ ◊ ▽	Final wash + corrosion treat 2122 MBPCA	○ ◊ ◊ ◊ ◊ ▽	
160 ● ◊ ◊ ◊ ◊ ▽	Apply primer	○ ◊ ◊ ◊ ◊ ▽	
○ ◊ ◊ ◊ ◊ ▽	Delay	○ ◊ ◊ ◊ ◊ ▽	
○ ◊ ◊ ◊ ◊ ▽	Move	○ ◊ ◊ ◊ ◊ ▽	
○ ◊ ◊ ◊ ◊ ▽	Delay	○ ◊ ◊ ◊ ◊ ▽	
170 ● ◊ ◊ ◊ ◊ ▽	Replace fabric seals 2121 MBPFA	○ ◊ ◊ ◊ ◊ ▽	
180 ● ◊ ◊ ◊ ◊ ▽	Tag	○ ◊ ◊ ◊ ◊ ▽	
○ ◊ ◊ ◊ ◊ ▽	Delay	○ ◊ ◊ ◊ ◊ ▽	
○ ◊ ◊ ◊ ◊ ▽	Move to go off	○ ◊ ◊ ◊ ◊ ▽	

WING FLAPS



NOTE: REJECT *1 AND *10 ** AS REQUIRED

2) TWO TEARS OF TWO EACH USUALLY WORN EAC-FLAP

FLOW PROCESS CHART

SUBJECT B52 G Wing Flap DATE 4-6-87
 PCN: WCD: WCD DATE:

CHART BEGINS

CHART ENDS

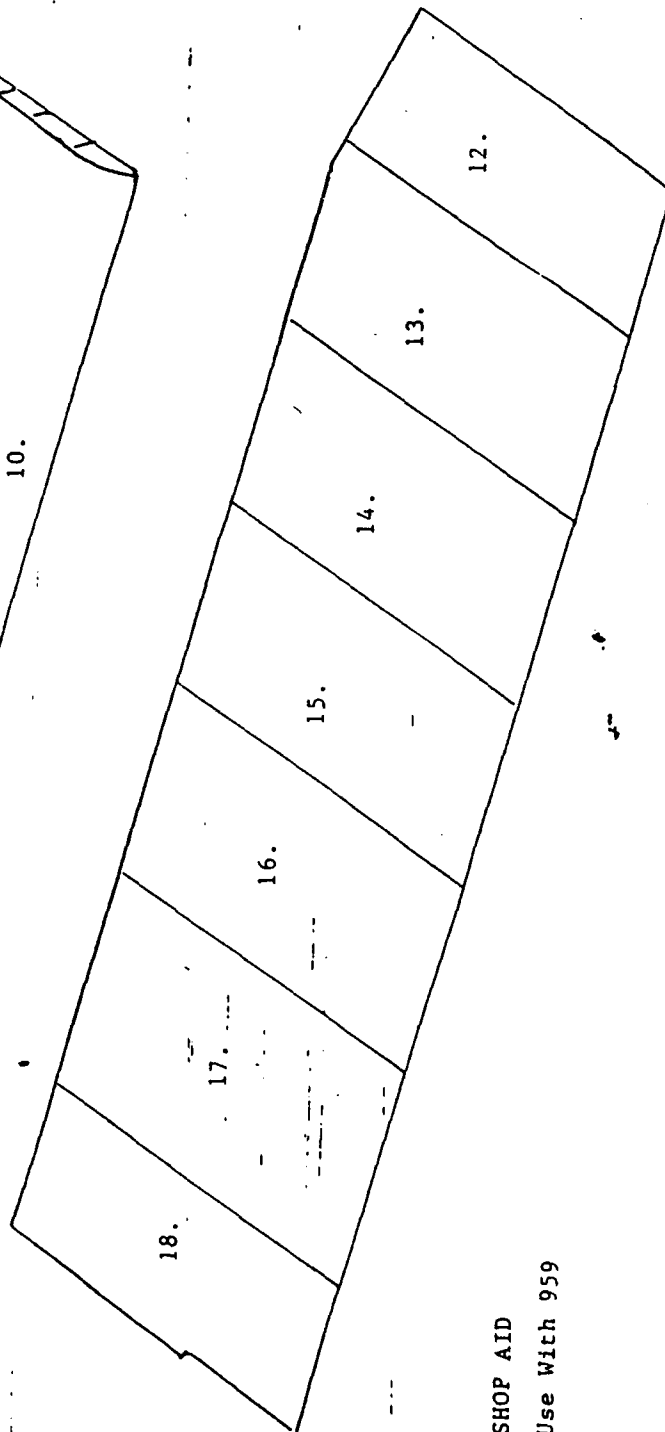
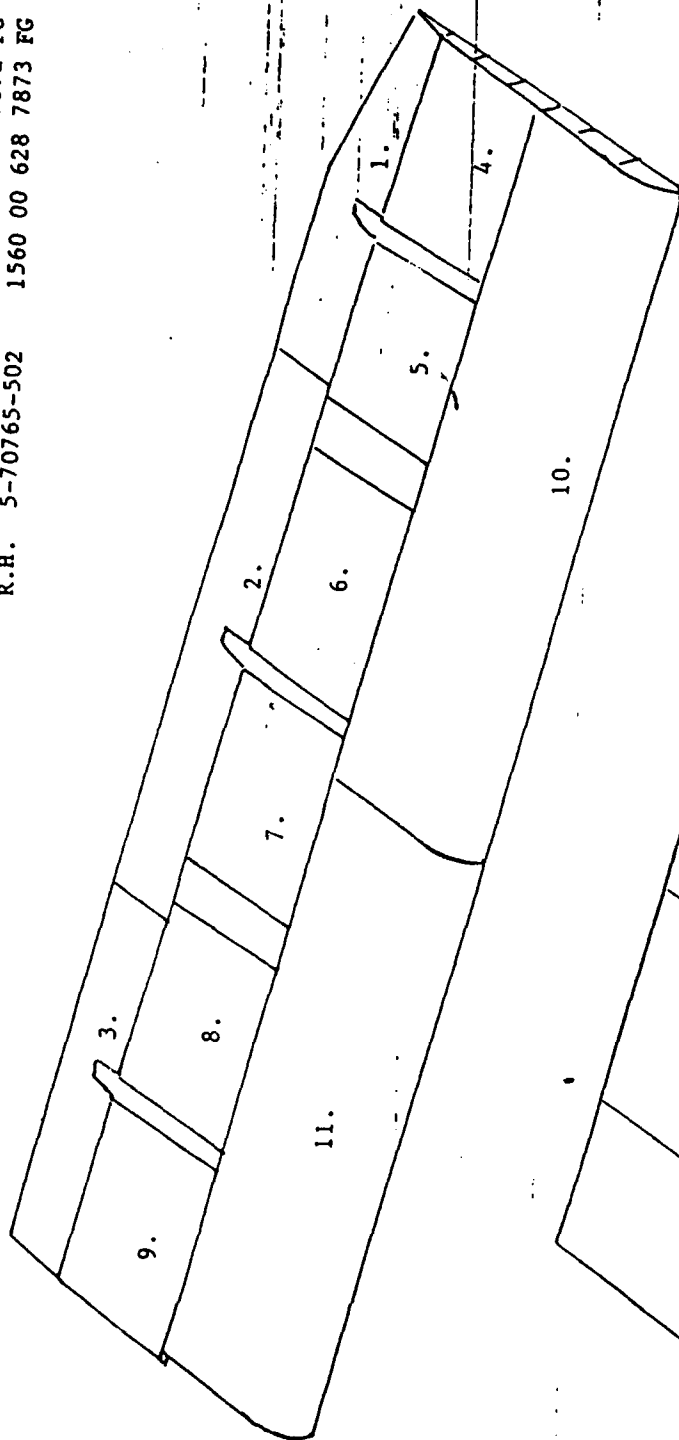
PREPARED BY: B. Hiscok

COVERS-
 OPERATION
 Nos. 50-210
 DO AS REQ'D

SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
●○○□▽	Receive MPBCA	○○○□▽	
●○○□▽	Wash & strip	○○○□▽	
●○○□▽	Load to cradle	○○○□▽	
●○○□▽	Move to floor	○○○□▽	
●○○□▽	Remove inspection access covers	○○○□▽	
●○○□▽	INSPECT FLAP	○○○□▽	
○○○□▽	REMOVE FRONTSKIN	○○○□▽	
●○○□▽	Treat corrosion	○○○□▽	
●○○□▽	Repair/replace ribs	○○○□▽	
●○○□▽	MAKE/DRILL NEW SKIN	○○○□▽	
●○○□▽	PRIME AREA	○○○□▽	
●○○□▽	INSTALL SKIN	○○○□▽	
●○○□▽	REMOVE BACK SKIN	○○○□▽	
●○○□▽	MAKE NEW SKIN	○○○□▽	
●○○□▽	INSTALL SKIN	○○○□▽	
●○○□▽	REMOVE & REPAIR FLAP ASSY POST OB	○○○□▽	
●○○□▽	REINSTALL	○○○□▽	
●○○□▽	REMOVE, REPAIR FLAP ASSY POST IB	○○○□▽	
●○○□▽	REINSTALL	○○○□▽	
●○○□▽	TORQUE BOLTS	○○○□▽	
●○○□▽	REPLACE/INSTALL RUB STRIPS	○○○□▽	
●○○□▽	REPLACE N/P, DECALS	○○○□▽	
●○○□▽	FINAL WALKAROUND	○○○□▽	
○○○□▽	DELAY	○○○□▽	
○○○□▽	MOVE TO A/C LINE	○○○□▽	
○○○□▽		○○○□▽	
○○○□▽		○○○□▽	
○○○□▽		○○○□▽	
○○○□▽		○○○□▽	

FLAP, Outbd.

L.H. 5-70765-501 1560 00 628 7872 FG 17302 A
 R.H. 5-70765-502 1560 00 628 7873 FG 17303 A

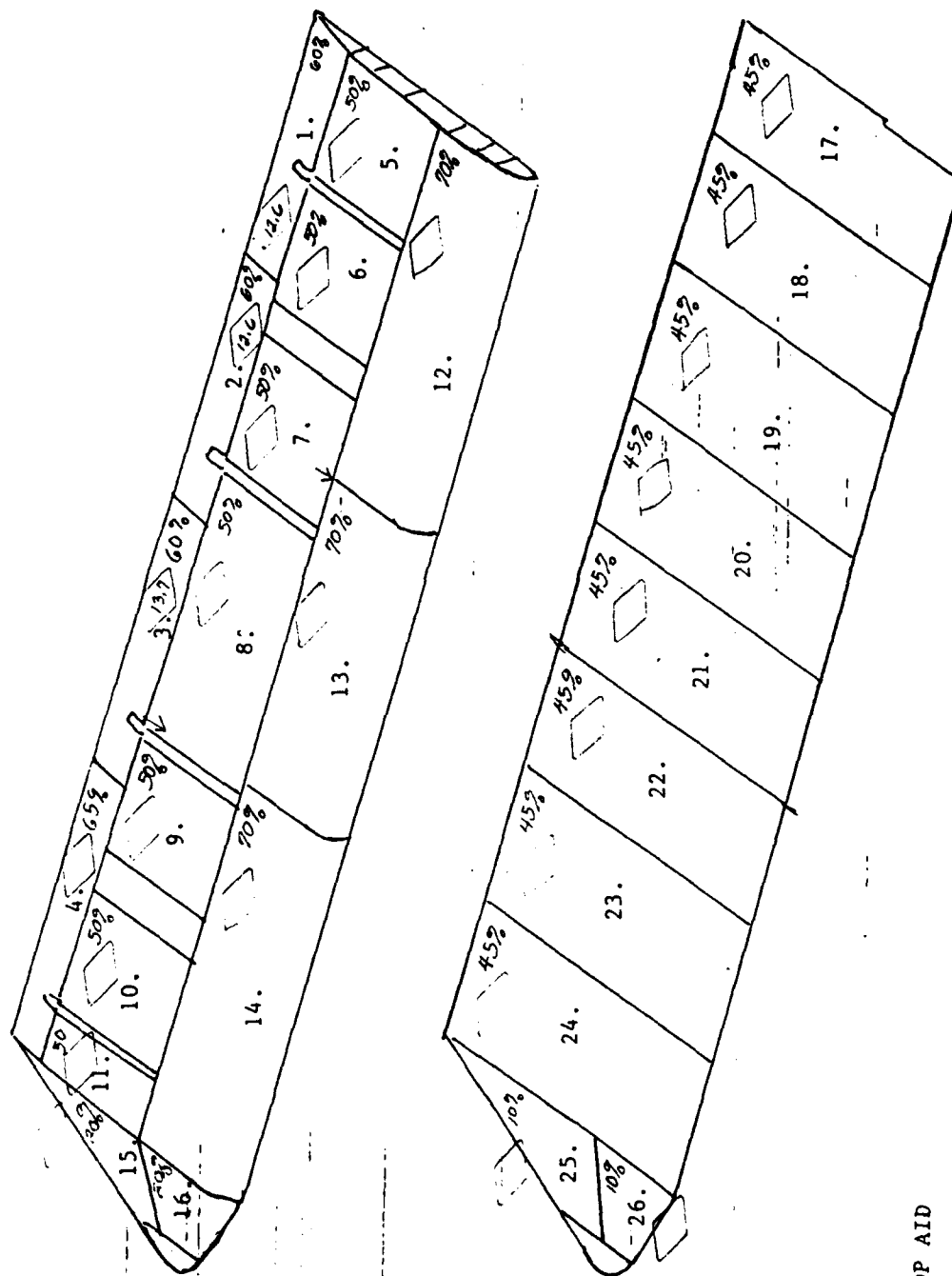


SHOP AID
 For Use With 959

TOTAL MRS x 1/2

FLAP, Inbd.

L.H. 5-70764-505 1560 00 628 7870 FG 17300 A
 R.H. 5-70764-506 1560 00 628 7871 FG 17301 A



SHOP AID
 For Use With 959

MAR PFF
FLOW PROCESS CHART

SUBJECT NOSE CONES-MATERIAL HANDLING. DATE 6-15-89

PCN: - WCD: - WCD DATE: -

CHART BEGINS TRUCK TO BLDG* 228C (PAINT)

CHART ENDS TRUCK TO Supply PREPARED BY: G. FALLO

[illegible]

NOTE: # 2121 (MAG PFF) TO # 2280 (PAINT) = 1200 FT
2121 (") TO # 510 (SUPPLY) = 19680 "
2280 (PAINT) TO # 510 (") = 18480 "

3.0 80/20 workload Analysis

The 80/20 analysis was made in September 1987. at that time T. E. Donnell Douglas and J. C. ALC agreeded the attached list concludes 80% of the ^{main} workload; M.H.B.F.F.

characterizing all of the spoolers increased the percent meter ^{characterized} to 90%.

4.0 DATA COLLECTION*

Five different profile data sheets were made available to the working group for collection of data. The five different profile sheets are:

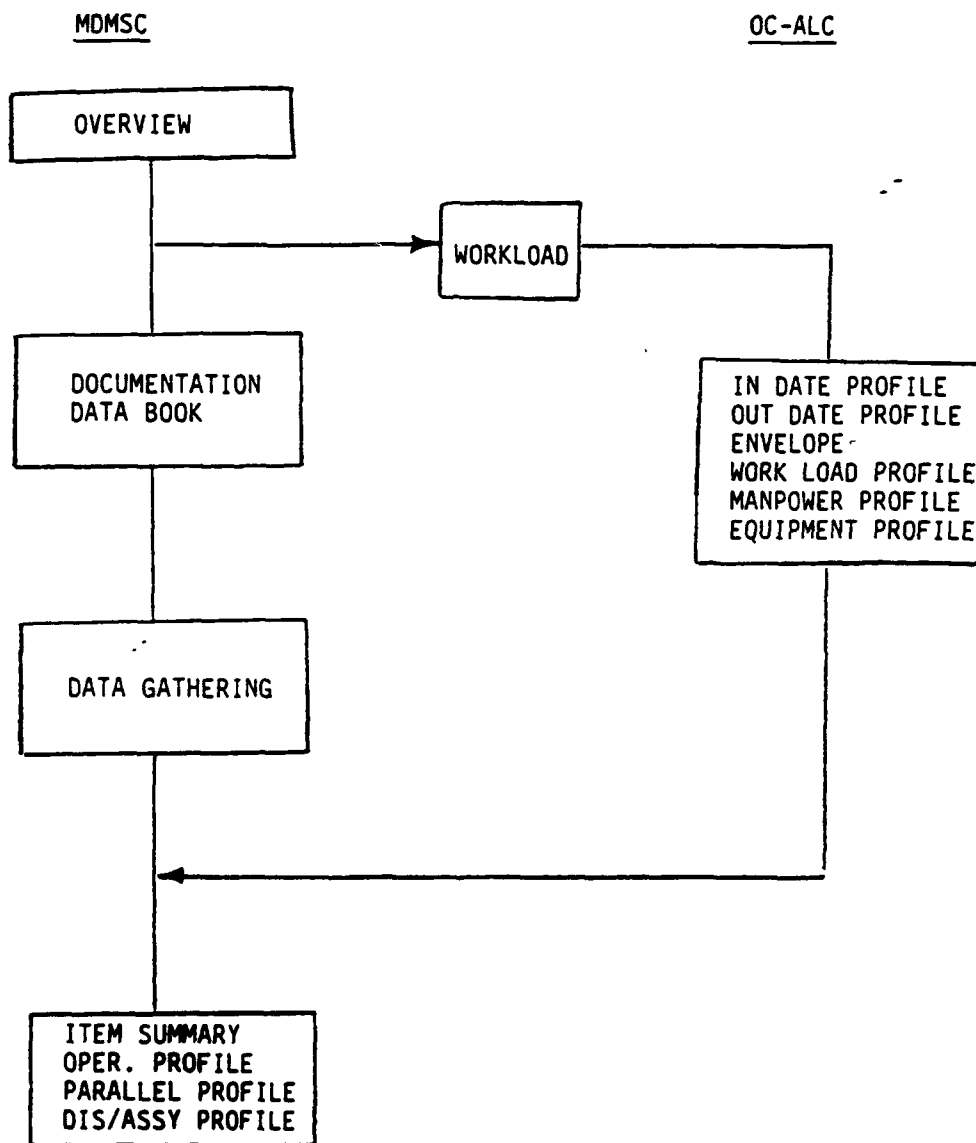
- IN/OUT PROFILES ;
- Operation Profile
- Equipment Profile
- Manpower Profile
- ~~WORK LOAD PROFILE~~
~~Manpower Profile~~
- Disassembly/Assembly Profile
- PARALLEL PROFILE
- ENVELOPE PROFILE

4.1 Examples of these profile sheets and their respective instructions on how to properly fill out these profile sheets is ~~included as Appendix A~~ ^{ATTACHED}. The data collected for each RCC was from shop interviews with the shop foreman, workleaders, mechanics and from appropriate ALC personnel. Collected data were compiled in proper profile sheet for that RCC.

4.1 (CT'D)

13 APRIL 1989

TECHNOLOGY INSERTION PROGRAM - RESPONSIBILITIES



AFLC TECHNOLOGY INSERTION PROGRAM OPERATION PROFILE INSTRUCTIONS

DATA ITEM	DESCRIPTION
NAME	NAME OF PERSON COLLECTING DATA
ALC	NAME OF ALC WHERE THIS DATA IS COLLECTED
DATE	START DATE OF DATA COLLECTION
RCC	NAME OF RCC WHERE THIS DATA IS COLLECTED (6 CHARACTERS)
ITEM CODE	LIST ONLY ONE ITEM CODE FROM THE FOLLOWING: PCN - PRODUCTION CONTROL NO. NSN - NATIONAL STOCK NO. P/N - PART NO. SHOULD BE SAME ITEM CODE AS ON 80/20 LISTING (16 CHARACTERS) CIRCLE ITEM CODE USED.
WCD	NAME/NUMBER OF WORK CONTROL DOCUMENT (THE PRESENT WCD IN USE BY PRODUCTION) (8 CHARACTERS)
WCD DATE	WORK CONTROL DOCUMENT REVISION DATE (6 CHARACTERS)
OPERATION NO.	A THREE DIGIT NUMBER THAT SEQUENCE THE STEPS OF WORK BEING PERFORMED AS LISTED IN WCD (4 CHARACTERS)

SOURCE

SM - McCLELLAN AIR BASE
OC - TINKER AIR BASE
SA - KELLY AIR BASE
WR - WARNER ROBINS AIR BASE
OO - HILL AIR BASE

- 80/20 LISTING
- ITEM 14, 15 OR 16 OF WCD
- G037E (PDM)
- FORM 206 (T&M)

- TOP LEFT CORNER OF THE 1ST PAGE OF THE WCD.
- G037E WCD (PDM)
- FORM 206 (T&M)

- ITEM NO. 1 OF WCD.
- G037E
- FORM 206 PLAN DATE

LISTED IN COLUMNS UNDER ITEM 19 OF WCD.

4.1 (CT'D)

AFLC TECHNOLOGY INSERTION PROGRAM OPERATION PROFILE INSTRUCTIONS (CONTINUED)

DATA ITEM	DESCRIPTION	SOURCE
RCC	ENTER RCC NAME FOR THAT OPERATION	RCC WILL BE LISTED UNDER THE OPERATION NO. IN COLUMN 19 OF WCD
OPERATION DESCRIPTION	ENTER AN ABBREVIATED DESCRIPTION OF WORK BEING PERFORMED. LIMIT FOUR CHARACTERS. USE THE FOLLOWING ABBREVIATIONS AND CREATE ADDITIONAL ABBREVIATIONS AS REQUIRED.	ITEM 20 OF WCD

ABBREVIATION	DESCRIPTION
ASSY	ASSEMBLY
DIS	DISASSEMBLY
NDI	NON-DESTRUCTIVE INSPECTION
MOVE	TRAVEL BETWEEN OPERATIONS
PROC	PROCESS OPERATION
REP	REPAIR
REPL	REPLACE
MFG	MANUFACTURE
LOAD	LOAD
UNLD	UNLOAD
TEST	TEST
INSP	INSPECTION
REC	RECEIVE OF ITEM
SHIP	SHIPMENT OF ITEM
INFO	INFORMATION
MACH	MACHINING
CLN	CLEAN
IND	INDUCTION
SELL	SELL DATE

AFLC TECHNOLOGY INSERTION PROGRAM OPERATION PROFILE INSTRUCTIONS (CONTINUED)

DATA ITEM	DESCRIPTION	SOURCE
MANDATORY OCCURRENCE FACTOR	ENTER MANDATORY OCCURRENCE FACTOR FOR ALL THE OPERATIONS.	INTERVIEWEE
OPERATION TYPE TRANSIENT (T) SETUP (S) PROCESS (P)	TRANSIENT - THE MOVEMENT BETWEEN OPERATIONS. SETUP - MAKING READY OR PREPARING FOR THE PERFORMANCE OF A JOB OR OPERATION. MACHINE SETUP INVOLVES EQUIPPING A MACHINE WITH APPROPRIATE ACCESSORIES, TOOLS AND FIXTURES, SETTING THE PROPER FEED, SPEED AND DEPTH OF CUT AND SO FORTH. IN MANUAL WORK, SETUP IS THE ARRANGEMENT PRIOR TO COMMENCING THE WORK, OF THE TOOLS, ACCESSORIES, COMPONENT PARTS AND DETAILS INVOLVED. IT ALSO INCLUDES THE TEARDOWN TO RETURN THE MACHINE OR WORK AREA TO ITS ORIGINAL OR NORMAL CONDITION. PROCESS - ACTUAL WORK PERFORMED ON THE ITEM. A PLANNED SERIES OF ACTIONS WHICH ADVANCES A MATERIAL OR PROCEDURE FROM ONE STAGE OF COMPLETION TO ANOTHER.	INTERVIEWEE
MANDATORY FLOW HOURS	MANDATORY FLOW HOURS REQUIRED TO COMPLETE AN OPERATION (INCLUDE TRANSIT TIME) (I.E., WAITING 24 HOURS MINIMUM FOR SEALANT TO CURE. (5 CHARACTERS WITH ONE DECIMAL PLACE) ALL BACK SHOP MUST HAVE FLOW HOURS.	INTERVIEWEE
SKILL CODE/LEVEL	INDICATE THE SKILL CODE/LEVEL REQUIRED TO PERFORM THE OPERATION (8 CHARACTERS) (I.E., SHEET METAL MECHANIC - SA WG 10 ENTER SA10)	INTERVIEWEE/ SUPERVISOR
QTY	QUANTITY OF MANPOWER AT THE SKILL CODE/LEVEL REQUIRED TO PERFORM THE OPERATION (3 CHARACTERS)	INTERVIEWEE

AFLC TECHNOLOGY INSERTION PROGRAM OPERATION PROFILE INSTRUCTIONS (CONTINUED)

DATA ITEM	DESCRIPTION	SOURCE
TIME REQUIRED	THE TIME MANPOWER IS REQUIRED TO PERFORM THE OPERATION. IF THE TIMES ARE CONSTANT, ENTER TIME WITHOUT A PERCENT. IF THE TIMES ARE VARIABLE DUE TO A CHANGING LEVEL OF EFFORT, ENTER VARIABLE TIMES WITH A PERCENT. IF AN OPERATION IS PERFORMED : 20% OF THE TIME IN 1 HOUR 80% OF THE TIME IN 2 HOURS ENTER: TIME REQUIRED % HRS 20 1 80 2 (5 CHARACTERS MAX. WITH ONE DECIMAL PLACE)	INTERVIEWEE
EQUIPMENT CODE	ENTER ALPHANUMERIC CODE OF EQUIPMENT NEEDED TO PERFORM THE OPERATION. USE ALC CODES AND SHORTEN TO 8 CHARACTERS. THIS CODE WILL ALSO BE USED ON THE EQUIPMENT PROFILE SHEET. (8 CHARACTERS)	INTERVIEWEE LOCATION OF EQUIP. EQUIPMENT LIST
QTY	INDICATE THE QUANTITY OF EQUIPMENT NEEDED TO PERFORM OPERATION (3 CHARACTERS)	INTERVIEWEE
TIME REQUIRED	SEE TIME REQUIRED FOR MANPOWER	INTERVIEWEE
DATA SOURCE	PLEASE INDICATE THE SOURCE OF INFORMATION (I.e., PERSONNEL DATABASE, PAPER REPORT) ALSO LIST ANY PECULIARITIES ASSOCIATED WITH AN OPERATION NUMBER.	INTERVIEWEE

OPERATION PROFILE

NAME S. McFarland ALC CC DATE 4-20-89 RCC NABPFF SHEET 1 OF 2

WCD 20055A WCD DATE 88070

OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS		MANPOWER		EQUIPMENT		TIME REQUIRED		DATA SOURCE COMMENTS
					%	HRS.	SKILL CODE/LEVEL	QTY.	%	HRS.	QTY.	%	
010	mrb PCA		1.0	TRANSIT									CAROLYN HAMMER Super-Sally
				SETUP									
				PROCESS		24							
020			1.0	TRANSIT									
				SETUP									
				PROCESS		2							
030			1.0	TRANSIT									
				SETUP									
				PROCESS		2							
040			1.0	TRANSIT									
				SETUP									
				PROCESS		48							
050			1.0	TRANSIT									
				SETUP									
				PROCESS		2							

OPERATION PROFILE

NAME <u>S. McFarland, ALC OC</u> DATE <u>4-20-89</u> RCC <u>MABPFF</u> SHEET <u>2</u> OF <u>8</u>														
WCD <u>00055A</u>		WCD <u>88070</u>		MANPOWER		EQUIPMENT		TIME REQUIRED		DATA SOURCE COMMENTS				
OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS %	SKILL CODE/LEVEL	QTY.	%	HRS.	EQUIPMENT CODE	QTY.	%	HRS.	
060	MAB PCA		1.0	TRANSIT										
				SETUP										
				PROCESS										
070	MAB PFF	INSP	1.0	TRANSIT										
				SETUP										
				PROCESS										
080		REP		TRANSIT										
				SETUP										
				PROCESS										
090		REP	1.0	TRANSIT										
				SETUP										
				PROCESS										
100		REP	1.0	TRANSIT										
				SETUP										
				PROCESS										

OPERATION PROFILE

NAME <u>2. M. FARLAND, ALC OC</u>		DATE <u>4-20-89</u>		RCC <u>MABPFF</u>		SHEET <u>3</u> OF <u>8</u>									
WCD <u>000550</u>		WCD DATE <u>88070</u>													
PCN <u>7446</u> A															
OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS		MANPOWER		EQUIPMENT			TIME REQUIRED		DATA SOURCE COMMENTS	
					%	HRS.	QTY.	%	HRS.	EQUIPMENT CODE	QTY.	%	HRS.		
110	MAB PFF	ASSY	.05	TRANSIT											
				SETUP											
				PROCESS											
120		REP	.05	TRANSIT											
				SETUP											
				PROCESS											
130		DSY	.40	TRANSIT											
				SETUP											
				PROCESS											
140		REP	1.0	TRANSIT											
				SETUP											
				PROCESS											
150		REP	.4	TRANSIT											
				SETUP											
				PROCESS											

OPERATION PROFILE

NAME <u>3. McFARLAND ALC OC</u> DATE <u>4-20-89</u> RCC <u>MABPFF</u> SHEET <u>1</u> OF <u>8</u>														
WCD _____ WCD DATE _____														
OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS		SKILL CODE/LEVEL	MANPOWER		EQUIPMENT		TIME REQUIRED		DATA SOURCE COMMENTS
					%	HRS.		QTY.	%	HRS.	QTY.	%	HRS.	
160	MAB PFF	ASSY	.4	TRANSIT SETUP PROCESS			A905 ↓	2 2	5 95	8.0 14				
170		ASSY	.4	TRANSIT SETUP PROCESS			A905 	1 1	15 75	6 8				
180		ASSY	.2	TRANSIT SETUP PROCESS			A905	1		1.0				
190		ASSY	.05	TRANSIT SETUP PROCESS			A905	1		4.0				
200		ASSY	.05	TRANSIT SETUP PROCESS			A905	1		4.0				

OPERATION PROFILE

NAME S. McFARLAND, ALC OC DATE 4-20-89 RCC MABPFF SHEET 5 OF 8

PCB		WCD		WCD DATE		MANPOWER		EQUIPMENT		TIME REQUIRED		TIME REQUIRED		DATA SOURCE COMMENTS
OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS	SKILL CODE/LEVEL	QTY.	%	HRS.	EQUIPMENT CODE	QTY.	%	HRS.	
210	MAB PFF	ASSY	.6	TRANSIT										
				SETUP										
				PROCESS		AS05	1		6.0					
220			.05	TRANSIT										
				SETUP										
				PROCESS		↓	1		1.0					
230		N/A		TRANSIT										
				SETUP										
				PROCESS										
240		↓		TRANSIT										
				SETUP										
				PROCESS		↓	1		1.0					
250	↓	REP	.05	TRANSIT										
				SETUP		↑	2		5.8					
				PROCESS		AS05	2		95.5					

OPERATION PROFILE

NAME 2. McFarland, ALC DATE 4-20-89 RCC MABPFF SHEET 6 OF 8

OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS		SKILL CODE/LEVEL	MANPOWER		EQUIPMENT		TIME REQUIRED		DATA SOURCE COMMENTS
					%	HRS.		QTY.	EQUIPMENT CODE	QTY.	TIME REQUIRED			
											%	HRS.		
260	MAB PFF	Rep	.25	TRANSIT			AS05		2			5	8.	
				PROCESS					2			95	15.5	
270			.25	TRANSIT			AS05		1				.3	
				SETUP										
				PROCESS										
280				TRANSIT					1			50	.5	
				SETUP					1			30	1.0	
				PROCESS					1			20	2.0	
290				TRANSIT										
				SETUP										
				PROCESS			AS05		1				4.0	
300				TRANSIT										
				SETUP										
				PROCESS										

OPERATION PROFILE

NAME 3. McFARLAND, ALC OC DATE 4-20-89 RCC MABPFF SHEET 7 OF 8

PCN		WCD		WCD DATE		MANPOWER		EQUIPMENT		DATA SOURCE				
OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS %	SKILL CODE/LEVEL	QTY.	TIME REQUIRED %	TIME REQUIRED HRS.	EQUIPMENT CODE	QTY.	TIME REQUIRED %	TIME REQUIRED HRS.	DATA SOURCE COMMENTS
310	MAB PFF	REP	.3	TRANSIT SETUP PROCESS		A505	1		1.0					
320			.25	TRANSIT SETUP PROCESS		A505	1		30					
330			1.0	TRANSIT SETUP PROCESS		A505	1		.3					
340	MAB PCB		1.0	TRANSIT SETUP PROCESS					24					
350			1.0	TRANSIT SETUP PROCESS					3.5					

OPERATION PROFILE

NAME <u>S. McFARLAND</u> ALC <u>OC</u> DATE <u>4-20-89</u> RCC <u>MABPFF</u> SHEET <u>8</u> OF <u>8</u>													
PCN <u>74461A</u> NNN <u>74462A</u> PIN		WCD <u>00055A</u>		WCD DATE <u>88070</u>									
OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS % HRS.	MANPOWER			EQUIPMENT			DATA SOURCE COMMENTS	
						SKILL CODE/LEVEL	QTY.	TIME REQUIRED % HRS.	EQUIPMENT CODE	QTY.	TIME REQUIRED % HRS.		
360	MAB PCB		1.0	TRANSIT									
				SETUP									
				PROCESS									
370	↓		1.0	TRANSIT									
				SETUP									
				PROCESS									
				TRANSIT									
				SETUP									
				PROCESS									
				TRANSIT									
				SETUP									
				PROCESS									
				TRANSIT									
				SETUP									
				PROCESS									

62055A
4456A
4457A
74460A
74452A
74453A

OPERATION PROFILE

NAME <u>S.M. FERLAND ALC OC</u> DATE <u>4-20-89</u> RCC <u>MARFFF</u> SHEET <u>1 OF 2</u>													
PCB HRS PM		<u>7446 A</u>		WCD <u>00055A</u>		WCD DATE <u>88070</u>							
OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS		SKILL CODE/LEVEL	MANPOWER		EQUIPMENT		TIME REQUIRED % HRS.	DATA SOURCE COMMENTS
					%	HRS.		QTY.	%	HRS.	EQUIPMENT CODE		
010	MAB PCA		1.0	TRANSIT									EAROLYN HAMMER SELF BY SUPP
				SETUP									
				PROCESS	25								
020			1.0	TRANSIT									
				SETUP									
				PROCESS	2								
030			1.0	TRANSIT									
				SETUP									
				PROCESS	2								
040			1.0	TRANSIT									
				SETUP									
				PROCESS	40								
050			1.0	TRANSIT									
				SETUP									
				PROCESS	2								

OPERATION PROFILE

NAME 3. M. FARLAND ALC OC DATE 4-20-89 RCC MABPFF SHEET 2 OF 8

PCN		WCD		WCD DATE		MANPOWER		EQUIPMENT		TIME REQUIRED		DATA SOURCE		
OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS %	SKILL CODE/LEVEL	QTY.	TIME REQUIRED %	QTY.	TIME REQUIRED %	QTY.	TIME REQUIRED %	DATA SOURCE COMMENTS	
060	MAB PCA		1.0	TRANSIT										
				SETUP										
				PROCESS										
070	MAB PFF	INSP	1.0	TRANSIT										
				SETUP										
				PROCESS		AS05	1							
080		REP	.8	TRANSIT										
				SETUP										
				PROCESS		AS05	1							
090		REP	1.	TRANSIT			1	5	3					
				SETUP			1	90	8					
				PROCESS			1	5	12.0					
100		REP	1.	TRANSIT										
				SETUP										
				PROCESS		AS05	1							

OPERATION PROFILE

NAME S. McFARLAND ALC OC DATE 4-20-89 RCC MABPFF SHEET 3 OF 8

PCB
INCH
PDI

WCD

WCD DATE

OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS		SKILL CODE/ LEVEL	MANPOWER		EQUIPMENT			DATA SOURCE COMMENTS
					%	HRS.		QTY.	%	TIME REQUIRED	QTY.	%	
110	MAB PFF	ASSY	.05	TRANSIT									
				SETUP									
				PROCESS			A505	1	2				
120		REP	.05	TRANSIT									
				SETUP									
				PROCESS			A505	1	.3				
130		PSY	.4	TRANSIT									
				SETUP									
				PROCESS			A505	1	60				
140		REP	1.0	TRANSIT									
				SETUP									
				PROCESS			A505	1	.1				
150		REP	.4	TRANSIT									
				SETUP									
				PROCESS			A505	1	.5				

OPERATION PROFILE

NAME S. Mc FARLAND ALC OC DATE 4-20-89 RCC MABPFF SHEET 4 OF 8

OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS %	MANPOWER			EQUIPMENT			TIME REQUIRED %	DATA SOURCE COMMENTS		
						SKILL CODE/ LEVEL	QTY.	TIME REQUIRED %	HRS.	EQUIPMENT CODE	QTY.			TIME REQUIRED %	HRS.
160	MAB PFF	ASSY	.4	TRANSIT ↑ PROCESS											
170			.33	TRANSIT ↑ PROCESS										includes make 2.0 and shine	
180			.2	TRANSIT SETUP PROCESS											
190			.05	TRANSIT SETUP PROCESS											
200			.05	TRANSIT SETUP PROCESS											

NAME <u>S. McFARLAND</u> ALC <u>OC</u> DATE <u>4-20-89</u> RCC <u>MABPFF</u> SHEET <u>5 of 8</u>														
WCD <u>00055A</u>		WCD <u>88020</u>		WCD DATE <u>88020</u>										
OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS		SKILL CODE/LEVEL	MANPOWER		EQUIPMENT		TIME REQUIRED		DATA SOURCE COMMENTS
					%	HRS.		QTY.	HRS.	EQUIPMENT CODE	QTY.	%	HRS.	
210	MAB PFF	ASSY	.6	TRANSIT			A505	1						
				SETUP										
				PROCESS										
220			.05	TRANSIT			A505	1						
				SETUP										
				PROCESS										
230		NA		TRANSIT										
				SETUP										
				PROCESS										
240		ASSY	.05	TRANSIT			A505	1						
				SETUP										
				PROCESS										
250		REP	.25	TRANSIT										
				SETUP				2	5	8				
				PROCESS			A505	2	25	15.5				

OPERATION PROFILE

NAME S. Mc FARLAND ALC OC DATE 4-20-89 RCC MABPFF SHEET 6 OF 8

OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANDATORY FLOW HOURS		MANPOWER		EQUIPMENT		TIME REQUIRED %	DATA SOURCE COMMENTS		
					%	HRS	QTY.	%	HRS	QTY.			%	HRS
260	MAB PFF	REP	.25	TRANSIT										
				PROCESS										
270		REP	.25	TRANSIT										
				SETUP										
280		REP		PROCESS										
				TRANSIT										
290		REP.		SETUP										
				PROCESS										
300		N/A	—	TRANSIT										
				SETUP										
				PROCESS										

OPERATION PROFILE

NAME <u>3. M. FARLAND ALC OC</u>		DATE <u>4-20-89</u>		RCC <u>MABPFF</u>		SHEET <u>7</u> OF <u>8</u>						
WCD <u>00055A</u>		WCD DATE <u>88070</u>										
PCN <u>7446 A</u>												
OPERATION NUMBER	RCC	OPERATION DESCRIPTION	MANDATORY OCCURRENCE FACTOR	OPERATION TYPE	MANPOWER			EQUIPMENT			DATA SOURCE COMMENTS	
					MANDATORY FLOW HOURS %	SKILL CODE/ LEVEL	QTY.	TIME REQUIRED %	QTY.	TIME REQUIRED %		
310	MAB PFF	REP	.3	TRANSIT								
				SETUP								
				PROCESS		AS05	1		1.0			
320			.25	TRANSIT								
				SETUP								
				PROCESS		AS05	1		3.0			
330		↓	1.0	TRANSIT								
				SETUP								
				PROCESS		AS05	1		.5			
340	MAB PCB		1.0	TRANSIT								
				SETUP								
				PROCESS								
350		↓	1.0	TRANSIT								
				SETUP								
				PROCESS								

[illegible]

5.2 MODEL INPUT FILES

The model input files for RCC MABPFF were previously submitted under memo number NKE-E016-7605/REV. A, dated July 6, 1989/July 31, 1989.

6.0 VALIDATION OF INPUT DATA

All profile data was validated in accordance with paragraph 7.2 and 7.3 of the Simulation Model Definition Document (SMDD). The profile data files included in this document were validated and accurately represent this RCC.

7.0 COMPUTER SIMULATION ANALYSIS OF RCC

The computer simulation analysis for RCC MABPFF was previously submitted under memo number NKE-E016-7605/REV. A, dated July 6, 1989/July 31, 1989.

8.0 VALIDATION OF SIMULATION ANALYSIS

The validation of simulation analysis for RCC MABPFF was previously submitted under memo number NKE-E016-7605/REV. A, dated July 6, 1989/July 31, 1989.

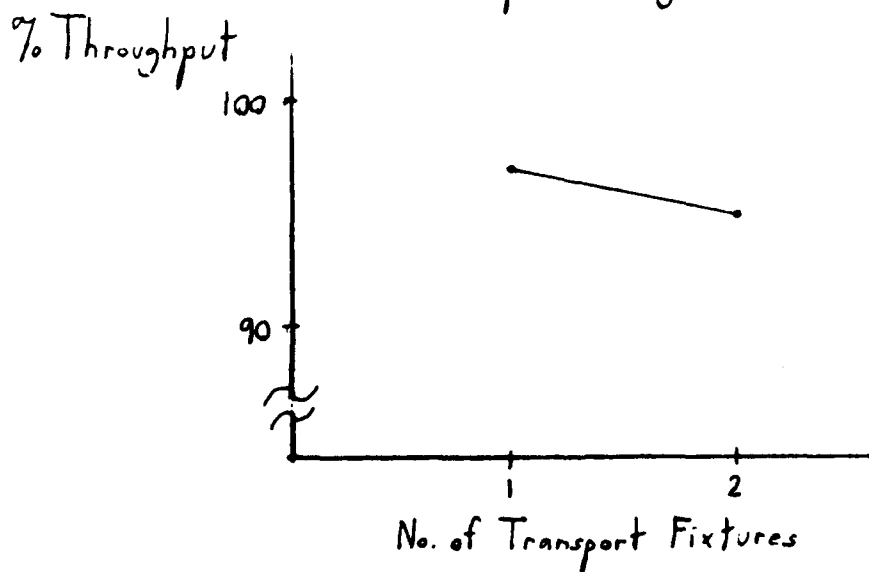
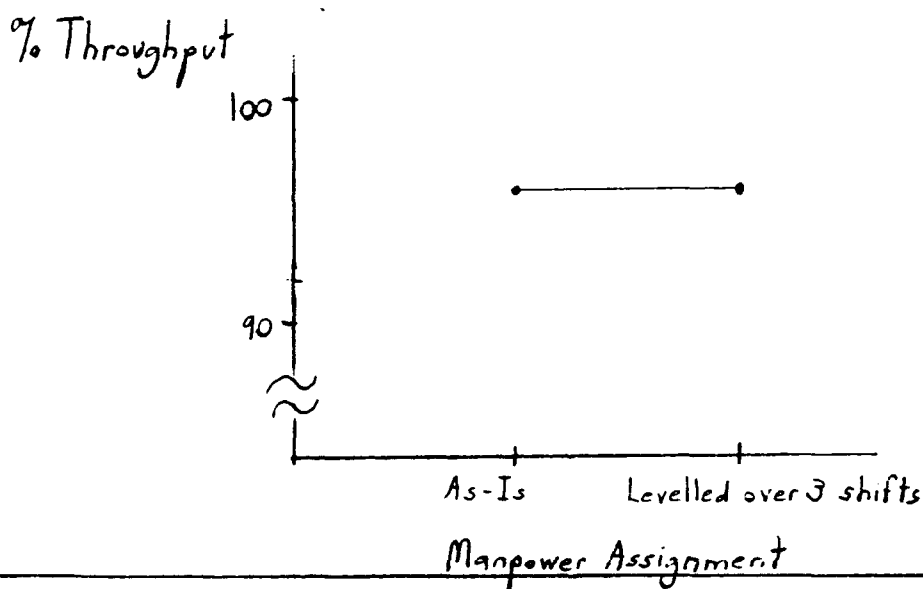
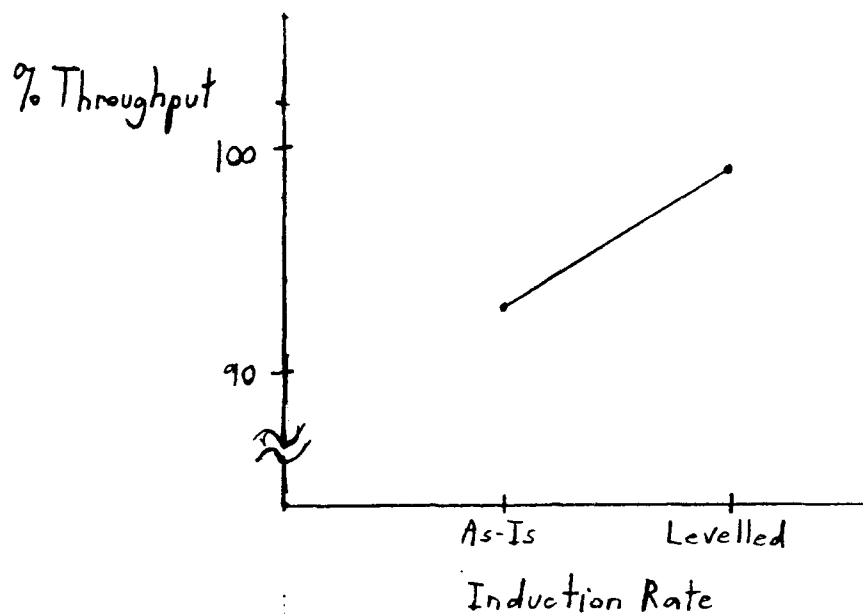
9.0 BRAINSTORMING

The minutes for RCC MABPFF brainstorming were previously submitted under memo number NKE-E016-7605/REV. A, dated July 6, 1989/July 31, 1989.

Flow Time Variances for MABPFF

PCN	Actual Hours	Simulated Flow Time Hours	Simulated vs Actual Variance (%)
74445 A	1037.2	851.04	-17.9
74450 A	729.6	439.37	-39.8
74451 A	830.4	404.91	-51.2
74452 A	723.5	379.45	-47.6
74453 A	867.5	402.90	-53.6
74454 A	809.5	382.71	-52.7
15026 A	1534.8	907.97	-40.8
15027 A	1440.0	857.96	-40.4
15028 A	1206.0	915.71	-24.0
15029 A	1125.6	893.07	-20.7
15030 A	1244.4	877.59	-29.5
15031 A	1167.6	890.45	-23.7
15074 A	1042.3	861.51	-17.3
15075 A	1434.9	762.91	-46.8
17297 A	848.8	439.02	-48.3
17298 A	732.0	458.89	-38.1
17299 A	777.6	447.82	-42.4
17300 A	768.0	1046.53	26.6
17301 A	729.6	1059.33	33.0
17302 A	436.8	779.90	79.0
17303 A	678.9	829.85	18.2
74455 A	1406.4	422.64	-69.9
74456 A	732.3	374.52	-48.7
74457 A	868.0	371.17	-57.2
74458 A	928.0	437.75	-52.8
74459 A	1817.6	443.68	-75.6
74460 A	805.7	392.42	-51.3
74461 A	568.8	463.56	-18.5
74462 A	840.0	453.36	-46.0

Factor Diagrams for Throughput for MABPFF



UC DC.

141

[illegible]

[illegible]

6.1c

6.1c

[illegible]

164

[illegible]

Flow Time Variances for MATPAA

PCN	Actual Hours	Simulated Flow Time Hours	Simulated vs. Actual Variance (%)
30775A	168.0	149.95	- 10.7
31179A	168.0	167.30	- 0
31320A	168.0	159.80	- 4.9
31321A	168.0	178.29	5.8
31336A	168.0	182.96	8.2
37649A	192.0	189.05	- 1.5
39622A	192.0	185.13	- 3.6
49208A	144.0	125.90	- 12.6
49234A	168.0	157.78	- 6.1
49381A	168.0	137.60	- 18.1
49384A	192.0	178.10	- 7.2
49386A	168.0	182.39	7.9
49450A	168.0	162.70	- 3.2
49669A	144.0	181.77	20.8
49699A	168.0	165.39	- 1.5
49764A	240.0	248.75	3.5
50102A	168.0	150.24	- 10.6
50205A	264.0	257.41	- 2.5
50226A	240.0	226.07	- 5.8
61127A	144.0	146.76	1.9
61184A	432.0	237.19	- 45.1
61340A	168.0	172.51	2.6
92028A	144.0	128.35	- 10.9
92033A	144.0	184.67	22.0
92040A	216.0	211.59	- 2.0
92041A	216.0	223.61	3.4
92047A	144.0	129.41	- 7.4
92050A	144.0	134.31	- 4.0
92051A	216.0	214.79	- .1
92052A	192.0	202.36	5.1
92063A	192.0	199.70	3.9
92062A	192.0	202.87	5.4
92068A	192.0	252.90	31.7
92076A	144.0	156.08	7.7
92084A	144.0	156.32	7.9
92140A	144.0	141.49	- 1.7
93978A	168.0	174.34	3.6
93979A	192.0	174.72	- 9.0
94297A	216.0	207.94	- 3.7

TANIGUCHI EXPERIMENT ANALYSIS

ALC : QC

REC : HADPFF

PCN: 15028A

L4 ARRAY

30-Aug-89

FILE : PFF15028

RUN NO.	FACTOR FACTOR FACTOR			TOTAL		NET			THRU PUT		THRU PUT	
	A	B	C	FLOW TIME	THRU PUT	RESULT	INDUCTED	THRU PUT	EFFECT	PERCENT	EFFECT	PERCENT
LEVEL	LEVEL	LEVEL	LEVEL	RESULT	FOR RUN	FOR RUN	FOR RUN	FOR RUN	PERCENT	PERCENT	PERCENT	PERCENT
1	1	1	1	898	0.88	0	7	A 1	885.6	0.18	0.88	-15.15
2	1	2	2	873	0.88	0	7	A 2	888.7	-0.18	1.19	15.15
3	2	1	2	904	1.13	0	9	B 1	900.6	-1.52	1.00	-3.03
4	2	2	1	874	1.25	0	10	B 2	873.6	1.52	1.06	3.03
								C 1	885.7	0.15	1.06	3.03
								C 2	888.5	-0.15	1.00	-3.03
TOTAL				3548	4.13	32	33					
AVERAGE				887.1	1.03	8.0	8.3		887.1	0.00	1.03	0.00
MAXIMUM				904	1.25	0	10		900.6	1.52	1.19	15.15
MINIMUM				873	0.88	0	7		873.6	-1.52	0.88	-15.15

TAMMONT EXPERIMENT ANALYSIS

ALC : DC

RCC :

RADFF

PCN:

15029A

L4 ARRAY

30-Aug-89

FILE : PFFJ5029

FACTOR FACTOR FACTOR									
ROW NO.		LEVEL		LEVEL		FLOW TIME		THRU PUT	
1		1		1		032		0.63	
2		1		2		093		0.63	
3		2		1		020		1.00	
4		2		2		1		055	
TOTAL		3420		3.25		32		26	
AVERAGE		055.0		0.01		0.0		6.5	
MAXIMUM		093		1.00		0		0	
MINIMUM		020		0.63		0		5	

TAMUCCI EXPERIMENT ANALYSIS

ALC : DC

RCC :

WAPFF

PCN:

15030A

L4 ARRAY

30-Aug-89

FILE : PFF15030

FACTOR FACTOR FACTOR				TOTAL		NET		THRU PUT		FLOW TIME		THRU PUT	
ROW NO.	LEVEL	LEVEL	LEVEL	RESULT	THRU PUT	INDUCTED	THRU PUT	RESULT	THRU PUT	EFFECT	PERCENT	EFFECT	PERCENT
1	1	1	1	637	0.75	8	6	A 1	822.3	-0.13	0.75	-7.69	
2	1	2	2	808	0.75	8	6	A 2	820.2	0.13	0.88	7.69	
3	2	1	2	846	0.88	8	7	B 1	841.2	-2.43	0.81	0.00	
4	2	2	1	795	0.88	8	7	B 2	801.3	2.43	0.81	0.00	
TOTAL				3285	3.25	32	26	C 1	815.6	0.69	0.81	0.00	
								C 2	826.9	-0.69	0.81	0.00	
AVERAGE				821.2	0.81	8.0	6.5		821.2	0.00	0.81	0.00	
MAXIMUM				846	0.88	8	7		841.2	2.43	0.88	7.69	
MINIMUM				795	0.75	8	6		801.3	-2.43	0.75	-7.69	

TARGET EXPERIMENT ANALYSIS

ALC : DC

BCC : BAPFF

PCN: 13031A

L4 ARRAY

30-Aug-89

FILE : PFF15031

RUN NO.	FACTOR		LEVEL	TOTAL		THRU PUT	FLOW TIME		THRU PUT	
	A	B		RESULT	NET		EFFECT	PERCENT	EFFECT	PERCENT
1	1	1	1	837	0	9	817.7	1.77	1.13	12.50
2	1	2	2	799	0	9	847.1	-1.77	0.88	-12.50
3	2	1	2	893	0	7	859.9	-3.30	1.00	0.00
4	2	2	1	811	0	7	804.9	3.30	1.00	0.00
							C 1	824.1	1.00	0.00
							C 2	840.7	-1.00	0.00
TOTAL				3330	4.00	32				
AVERAGE				832.4	1.00	8.0	832.4	0.00	1.00	0.00
MAXIMUM				893	1.13	0	859.9	3.30	1.13	12.50
MINIMUM				799	0.88	0	804.9	-3.30	0.88	-12.50

L4 ARRAY 30-AUG-89
FILE : PFF15074

PCN: 15079A

20 APR 67

FILE : PFF15074

RUN NO.	FACTOR FACTOR FACTOR			FLOW TIME RESULT	THRU PUT RESULT	THRU PUT INDUCED	TOTAL NET	FACTOR	FLOW TIME		THRU PUT		
	A	B	C						LEVEL	LEVEL	EFFECT	PERCENT	EFFECT
1	1	1	1	783	1.14	14	16	A 1	636.6	5.27	1.04	-1.69	
2	1	2	2	491	0.93	14	13	A 2	707.4	-5.27	1.07	1.69	
3	2	1	2	874	1.07	14	15	B 1	828.5	-23.30	1.11	5.08	
4	2	2	1	540	1.07	14	15	B 2	515.4	23.30	1.00	-5.08	
								C 1	661.4	1.57	1.11	5.08	
								C 2	682.5	-1.57	1.00	-5.08	
				TOTAL	2688	4.21	56	59					
				AVERAGE	672.0	1.05	14.0	14.8		672.0	0.00	1.05	0.00
				MAXIMUM	874	1.14	14	16		828.5	23.30	1.11	5.08
				MINIMUM	491	0.93	14	13		515.4	-23.30	1.00	-5.08

YAGUCHI EXPERIMENT ANALYSIS

ALC : GC

RCC :

NADPF

PCN:

15075A

L4 ARRAY

30-Aug-89

FILE : PFF15075

FACTOR FACTOR FACTOR		TOTAL		NET		THRU PUT		THRU PUT	
A	B	C	FLOW TIME	THRU PUT	INDUCTED THRU PUT	THRU PUT	THRU PUT	FLOW TIME	THRU PUT
ROW NO.	LEVEL	LEVEL	LEVEL	RESULT	RESULT FOR RUN	FOR RUN	FOR RUN	EFFECT PERCENT	EFFECT PERCENT
1	1	1	1	696	0.88	8	7	615.5	-9.11
2	1	2	2	535	0.88	8	7	512.7	9.11
3	2	1	2	501	0.88	8	7	638.5	-13.20
4	2	2	1	444	0.88	8	7	489.6	13.20
TOTAL		2256	3.50	32	28			570.3	-1.10
AVERAGE		564.1	0.88	8.0	7.0			564.1	0.00
MAXIMUM		696	0.88	8	7			638.5	13.20
MINIMUM		444	0.88	8	7			489.6	-13.20

TABULAR EXPERIMENT ANALYSIS

MLC : DC DEC : MDPFF PCN: 17297A L4 ARRAY 30-Aug-85 FILE : PFF17297

RUN NO.	FACTOR FACTOR FACTOR			TOTAL		NET		FLOW TIME THRU PUT INDUCED THRU PUT		RESULT FOR RUN FOR RUN		FACTOR		FLOW TIME		THRU PUT		
	A	B	C	LEVEL	LEVEL	LEVEL	LEVEL	RESULT	THRU PUT	INDUCED	THRU PUT	RESULT	FOR RUN	FOR RUN	EFFECT	PERCENT	EFFECT	PERCENT
1	1	1	1					420	1.00	8	8	A 1			347.4	-2.78	1.00	-5.88
2	1	2	2					275	1.00	8	8	A 2			328.6	2.78	1.13	5.88
3	2	1	2					373	1.13	8	9	B 1			396.4	-17.27	1.06	0.00
4	2	2	1					284	1.13	8	9	B 2			279.7	17.27	1.06	0.00
												C 1			352.0	-4.14	1.06	0.00
												C 2			324.0	4.14	1.06	0.00
								TOTAL	1352	4.25	32	34						
								AVERAGE	338.0	1.06	8.0	8.5			338.0	0.00	1.06	0.00
								MAXIMUM	420	1.13	8	9			396.4	17.27	1.13	5.88
								MINIMUM	275	1.00	8	8			279.7	-17.27	1.00	-5.88

MLC : DE

PCN: 17299A

FILE : PFF17299

ROW NO.	FACTOR			TOTAL				NET		FLOW TIME		THRU PUT	
	A	B	C	RESULT	THRU PUT	INDUCTED	THRU PUT	FOR RUN	FOR RUN	EFFECT	PERCENT	EFFECT	PERCENT
1	1	1	1	320	1.00	8	8	A 1	301.8	1.34	1.00	3.23	
2	1	2	2	293	1.00	8	8	A 2	310.0	-1.34	0.94	-3.23	
3	2	1	2	376	0.88	8	7	B 1	348.3	-13.85	0.94	-3.23	
4	2	2	1	244	1.00	8	8	B 2	263.5	13.85	1.00	3.23	
								C 1	282.2	7.75	1.00	3.23	
								C 2	320.6	-7.75	0.94	-3.23	
			TOTAL	1224	3.88	32	31						
			AVERAGE	305.9	0.97	8.0	7.8		305.9	0.00	0.97	0.00	
			MAXIMUM	376	1.00	8	8		348.3	13.85	1.00	3.23	
			MINIMUM	244	0.88	8	7		263.5	-13.85	0.94	-3.23	

TAGUCHI EXPERIMENT ANALYSIS

ALC : DC

RCC :

WAPFF

PCH:

17300A

L4 ARRAY

30-Aug-89

FILE : PFF17300

FACTORS			TOTAL			MET		
ROW NO.	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL
1	1	1	1	1	1	1	1	1
2	1	2	2	2	2	2	2	2
3	2	1	2	2	2	2	2	2
4	2	2	1	1	1	1	1	1
TOTAL			2955	4.00	32	32		
AVERAGE			738.7	1.00	0.0	0.0	0.0	0.0
MAXIMUM			976	1.13	0	9	965.1	30.65
MINIMUM			507	0.88	0	7	512.3	-30.65
							0.94	-6.25

FACTORS			TOTAL			MET		
ROW NO.	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL
1	1	1	1	1	1	1	1	1
2	1	2	2	2	2	2	2	2
3	2	1	2	2	2	2	2	2
4	2	2	1	1	1	1	1	1
TOTAL			2955	4.00	32	32		
AVERAGE			738.7	1.00	0.0	0.0	0.0	0.0
MAXIMUM			976	1.13	0	9	965.1	30.65
MINIMUM			507	0.88	0	7	512.3	-30.65
							0.94	-6.25

FACTORS			TOTAL			MET		
ROW NO.	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL
1	1	1	1	1	1	1	1	1
2	1	2	2	2	2	2	2	2
3	2	1	2	2	2	2	2	2
4	2	2	1	1	1	1	1	1
TOTAL			2955	4.00	32	32		
AVERAGE			738.7	1.00	0.0	0.0	0.0	0.0
MAXIMUM			976	1.13	0	9	965.1	30.65
MINIMUM			507	0.88	0	7	512.3	-30.65
							0.94	-6.25

TAGUCHI EXPERIMENT ANALYSIS

MLC : DC RCC : MADPF PCN: 17301A

L4 ARRAY 30-Aug-89
FILE : PFF17301

FACTOR		FACTOR		TOTAL		NET	
A	B	C	FLOW TIME	THRU PUT	INDUCTED	THRU PUT	
RUN NO.	LEVEL	LEVEL	RESULT	RESULT	FOR RUN	FOR RUN	PUT
1	1	1	1	878	0.50	8	4
2	1	2	2	476	0.75	8	6
3	2	1	2	756	1.25	8	10
4	2	2	1	538	1.00	8	8
TOTAL			2648	3.50	32	28	
AVERAGE			662.0	0.88	8.0	7.0	
MAXIMUM			878	1.25	8	10	
MINIMUM			476	0.50	8	4	

FLOW TIME		THRU PUT	
EFFECT	PERCENT	EFFECT	PERCENT
676.9	-2.26	0.63	-28.57
647.0	2.26	1.13	28.57
816.8	-23.40	0.88	0.00
507.1	23.40	0.88	0.00
708.3	-7.00	0.75	-14.29
615.6	7.00	1.00	14.29

FACTOR		THRU PUT	
EFFECT	PERCENT	EFFECT	PERCENT
662.0	0.00	0.88	0.00
816.8	23.40	1.13	28.57
507.1	-23.40	0.63	-28.57

TANUCHI EXPERIMENT ANALYSIS

ALC : DC

RCC : MADFF

PCN: 17302A

L4 ARRAY

30-Aug-89

FILE : PFF17302

RUN NO.	FACTOR FACTOR FACTOR			TOTAL	MET	FLOW TIME THRU PUT INDUCED THRU PUT		FLOW TIME		THRU PUT	
	A	B	C			RESULT	FOR RUN	EFFECT PERCENT	EFFECT PERCENT	EFFECT PERCENT	EFFECT PERCENT
1	1	1	1	694	0.75	8	6	585.8	1.67	0.81	-13.33
2	1	2	2	478	0.88	8	7	605.7	-1.67	1.06	13.33
3	2	1	2	782	1.00	8	8	737.7	-23.82	0.88	-6.67
4	2	2	1	430	1.13	8	9	433.9	23.82	1.00	6.67
TOTAL				2383	3.75	32	30	561.9	5.69	0.94	0.00
AVERAGE				595.8	0.94	8.0	7.5	595.8	0.00	0.94	0.00
MAXIMUM				782	1.13	8	9	737.7	23.82	1.06	13.33
MINIMUM				430	0.75	8	6	433.9	-23.82	0.81	-13.33

總C : 祝

DEC : 1400FF PCN:

17393A

PCI:

L4 ARRAY

30-Aug-89

FILE : PFF17303

ROW NO.	FACTOR FACTOR FACTOR				TOTAL NET				FLOW TIME		THRU PUT		
	A	B	C	LEVEL	RESULT	THRU PUT	INDUCTED	THRU PUT	FACTOR	EFFECT	PERCENT	EFFECT	PERCENT
	LEVEL	LEVEL	LEVEL	LEVEL	RESULT	THRU PUT	INDUCTED	THRU PUT	FACTOR	EFFECT	PERCENT	EFFECT	PERCENT
1	1	1	1	1	739	0.08	8	7	A 1	598.6	1.11	0.88	-15.15
2	1	2	2	2	458	0.08	8	7	A 2	612.1	-1.11	1.19	15.15
3	2	1	2	2	778	1.25	8	10	B 1	758.7	-25.33	1.06	3.03
4	2	2	1	1	446	1.13	8	9	B 2	452.0	25.33	1.00	-3.03
									C 1	592.5	2.12	1.00	-3.03
									C 2	618.2	-2.12	1.06	3.03
	TOTAL				2421	4.13	32	33					
	AVERAGE				605.4	1.03	8.0	8.3		605.4	0.00	1.03	0.00
	MAXIMUM				778	1.25	8	10		758.7	25.33	1.19	15.15
	MINIMUM				446	0.08	8	7		452.0	-25.33	0.88	-15.15

TAMUCCI EXPERIMENT ANALYSIS

ALC : DC

REC : NAMOFF

PCN: 62055A

L4 ARRAY

30-Aug-89

FILE : PFF62055

RUN NO.	LEVEL	FACTOR		TOTAL	NET	FLOW TIME THRU PUT INDUCED THRU PUT		FLOW TIME		THRU PUT	
		A	B			RESULT	RESULT FOR RUN	EFFECT	PERCENT	EFFECT	PERCENT
1	1	1	1	304	1.13	0	9	313.2	-2.63	1.06	0.00
2	1	2	2	243	1.00	0	8	297.2	2.63	1.06	0.00
3	2	1	2	342	1.13	0	9	362.7	-18.85	1.13	5.88
4	2	2	1	253	1.00	0	8	247.7	18.85	1.00	-5.88
								C 1	-4.32	1.06	0.00
								C 2	4.32	1.06	0.00
TOTAL				1221	4.25	32	34				
AVERAGE				305.2	1.06	8.0	8.5	305.2	0.00	1.06	0.00
MAXIMUM				394	1.13	0	9	362.7	18.85	1.13	5.88
MINIMUM				243	1.00	0	8	247.7	-18.85	1.00	-5.88

TARGET EXPERIMENT ANALYSIS
ALC : QC

RCC : HADFF PCN: 74443A

L4 ARRAY 30-Aug-89
FILE : PFF74443

FACOR FACTOR FACTOR		TOTAL MET		FLOW TIME THRU PUT INDUCED THRU PUT		FLOW TIME		THRU PUT	
ROW NO.	LEVEL	LEVEL	RESULT	RESULT FOR RUN	FOR RUN	EFFECT	PERCENT	EFFECT	PERCENT
1	1	1	859	1.02	65	637.7	-0.56	0.98	0.00
2	1	2	416	0.95	65	630.7	0.56	0.98	0.00
3	2	1	843	0.98	65	850.9	-34.16	1.00	1.56
4	2	2	419	0.98	65	417.5	34.16	0.97	-1.56
TOTAL			2537	3.94	260	639.0	-0.76	1.00	1.56
AVERAGE			634.2	0.98	65.0	629.4	0.76	0.97	-1.56
MAXIMUM			859	1.02	65	634.2	0.00	0.98	0.00
MINIMUM			416	0.95	65	850.9	34.16	1.00	1.56

TAMUCCI EXPERIMENT ANALYSIS

ALC : BC

RCC :

RCC : MADOFF

PCN :

74450A

L4 ARRAY

30-Aug-89

FILE : PFF74450

RUN NO.	FACTOR FACTOR FACTOR		TOTAL		NET		FLOW TIME		THRU PUT	
	A	B	C	FLOW TIME	THRU PUT	IMDUCTED THRU PUT	EFFECT	PERCENT	EFFECT	PERCENT
LEVEL	LEVEL	LEVEL	RESULT	RESULT	FOR RUN	FOR RUN	FACTOR			
1	1	1	1	431	1.00	0	A 1	358.9	-3.65	0.88
2	1	2	2	267	0.75	0	A 2	333.7	3.65	1.06
3	2	1	2	395	1.13	0	B 1	422.8	-22.08	1.06
4	2	2	1	273	1.00	0	B 2	269.9	22.08	0.88
TOTAL							C 1	361.7	-4.45	1.00
							C 2	330.9	4.45	0.94
TOTAL										-3.23
AVERAGE								346.3	0.00	0.97
MAXIMUM								422.8	22.08	1.06
MINIMUM								269.9	-22.08	0.88
										-9.68

TANUCHI EXPERIMENT ANALYSIS
 ALC : DC DEC : MARPEF PCN: 74451A L4 ARRAY 30-Aug-89
 FILE : PFF74451

FACOR FACTOR FACTOR		TOTAL		MET		FLOU TIME THRU PUT INDUCED THRU PUT		FLOU TIME		THRU PUT	
ROW NO.	LEVEL	LEVEL	LEVEL	RESULT	RESULT	FOR RUN	FOR RUN	EFFECT	PERCENT	EFFECT	PERCENT
1	1	1	1	395	0.00	0	7	A 1	327.2	1.31	0.00
2	1	2	2	259	0.00	0	7	A 2	335.8	-1.31	0.94
3	2	1	2	395	0.00	0	7	B 1	395.4	-19.28	0.00
4	2	2	1	276	1.00	0	0	B 2	267.6	19.28	0.94
								C 1	335.8	-1.29	0.94
								C 2	327.2	1.29	0.00
TOTAL		1326		3.63		32		29			
AVERAGE		331.5		0.91		0.0		7.3		331.5	
MAXIMUM		395		1.00		0		0		395.4	
MINIMUM		259		0.00		0		7		267.6	

TIAMCHI EXPERIMENT ANALYSIS

ALC : DC

DCC : MDPFF

PCN: 74452A

L4 ARRAY

30-Aug-89

FILE : PFF74452

FACTOR FACTOR FACTOR		TOTAL NET		FLOW TIME THRU PUT INDUCED THRU PUT		FLOW TIME		THRU PUT	
ROW NO.	LEVEL	LEVEL	LEVEL	RESULT	RESULT FOR RUN	FACTOR	EFFECT PERCENT	EFFECT PERCENT	EFFECT PERCENT
1	1	1	1	352	0.00	7 A 1	304.8	5.35	0.88
2	1	2	2	298	0.88	7 A 2	339.2	-5.35	1.00
3	2	1	2	400	1.00	8 B 1	379.9	-17.99	0.94
4	2	2	1	270	1.00	8 B 2	264.1	17.99	0.94
TOTAL		1280	3.75	32	30	C 1	311.1	3.39	0.94
AVERAGE		322.0	0.94	8.0	7.5	C 2	332.9	-3.39	0.94
MAXIMUM		400	1.00	0	8		379.9	17.99	1.00
MINIMUM		250	0.88	0	7		264.1	-17.99	0.88

-6.67

TANUCHI EXPERIMENT ANALYSIS

ALC : DC RCC : HADPFF PCN: 74454A L4 ARRAY 30-Aug-89 FILE : PFF7445A

RUN NO.	FACTOR FACTOR FACTOR			TOTAL		THRU PUT	FLOW TIME		THRU PUT	
	A	B	C	LEVEL	RESULT		EFFECT	PERCENT	EFFECT	PERCENT
1	1	1	1	1	410	1.00	8	335.8	-4.07	1.00
2	1	2	2	2	261	1.00	8	309.5	4.07	0.94
3	2	1	2	2	350	0.88	8	384.0	-19.03	0.94
4	2	2	1	1	261	1.00	8	261.2	19.03	1.00
TOTAL					1291	3.88	32	335.6	-4.01	1.00
AVERAGE					322.6	0.97	8.0	309.7	4.01	0.94
MAXIMUM					410	1.00	8	322.6	0.00	0.97
MINIMUM					261	0.88	8	384.0	19.03	1.00
								261.2	-19.03	0.94
										-3.23

TAGUCHI EXPERIMENT ANALYSIS
 ALC : DC

REC : MADFF PCN: 15026A

L4 ARRAY 30-Aug-89
 FILE : PFF15026

FACTOR FACTOR FACTOR														
ROW NO.	A		B		C		FLOW TIME		TOTAL		NET			
	LEVEL	LEVEL	LEVEL	LEVEL	RESULT	RESULT	THRU PUT	INDUCTED	THRU PUT	FOR RUN	FOR RUN	THRU PUT		
1	1	1	1	1	871	0.75	8	6	858.1	1.75	0.75	-7.69		
2	1	2	2	2	845	0.75	8	6	888.6	-1.75	0.88	7.69		
3	2	1	2	2	912	0.88	8	7	891.5	-2.08	0.81	0.00		
4	2	2	1	1	866	0.88	8	7	855.2	2.08	0.81	0.00		
TOTAL					3493	3.25	32	26					0.81	0.00
AVERAGE					873.3	0.81	8.0	6.5	873.3	0.00	0.81	0.00		
MAXIMUM					912	0.88	8	7	891.5	2.08	0.88	7.69		
MINIMUM					845	0.75	8	6	855.2	-2.08	0.75	-7.69		

TASCHU EXPERIMENT ANALYSIS

ALC : 00 RCC : HADFF PCN: 15027A

L4 ARRAY 30-Aug-89
FILE : PFF15027

RUN NO.	FACTOR FACTOR FACTOR			TOTAL	NET	FLOW TIME THRU PUT INDUCED THRU PUT		RESULT	THRU PUT		FLOW TIME		THRU PUT	
	A	B	C			LEVEL	LEVEL		RESULT FOR RUN	FOR RUN	EFFECT PERCENT	EFFECT PERCENT	EFFECT PERCENT	EFFECT PERCENT
1	1	1	1	836	1.00	8	8	A 1	823.5	-0.14	1.00	14.29	1.00	14.29
2	1	2	2	811	1.00	8	8	A 2	821.1	0.14	0.75	-14.29	0.75	-14.29
3	2	1	2	830	0.75	8	6	B 1	832.9	-1.30	0.88	0.00	0.88	0.00
4	2	2	1	812	0.75	8	6	B 2	811.6	1.30	0.88	0.00	0.88	0.00
TOTAL				3289	3.50	32	28	C 1	824.2	-0.24	0.88	0.00	0.88	0.00
								C 2	820.3	0.24	0.88	0.00	0.88	0.00
AVERAGE				822.3	0.88	8.0	7.0		822.3	0.00	0.88	0.00	0.88	0.00
MAXIMUM				836	1.00	8	8		832.9	1.30	1.00	14.29	1.00	14.29
MINIMUM				811	0.75	8	6		811.6	-1.30	0.75	-14.29	0.75	-14.29

TASUCCI EXPERIMENT ANALYSIS

ALC : OC

REC : MADPF

PCN:

74455A

L4 ARRAY

30-AUG-89

FILE : PFF74455

FACOR FACTOR		TOTAL				THRU PUT		THRU PUT	
		A	B	C	FLOW TIME	RESULT	INDUCTED	EFFECT	PERCENT
RUN NO.	LEVEL	LEVEL	LEVEL	LEVEL	THRU PUT	RESULT	FOR RUN	FOR RUN	EFFECT PERCENT
1	1	1	1	1	458	0.88	8	7	A 1
2	1	2	2	2	261	0.88	8	7	A 2
3	2	1	2	2	379	0.88	8	7	B 1
4	2	2	1	1	283	0.88	8	7	B 2

MC : 36

PCN:

79456A

L4 ARRAY

30-Aug-89

FILE : PFF79936

RUN NO.	FACTOR			TOTAL				THRU PUT	EFFECT	PERCENT		
	A	B	C	FLOW TIME	THRU PUT	INDUCTED	THRU PUT					
1	1	1	1	402	0.88	8	7	A 1	330.1	-1.75	0.88	-6.67
2	1	2	2	258	0.88	8	7	A 2	318.7	1.75	1.00	6.67
3	2	1	2	365	1.00	8	8	B 1	383.6	-18.25	0.94	0.00
4	2	2	1	272	1.00	8	8	B 2	265.2	18.25	0.94	0.00
								C 1	337.2	-3.96	0.94	0.00
								C 2	311.6	3.96	0.94	0.00
	TOTAL			1298	3.75	32	30					
	AVERAGE			324.4	0.94	8.0	7.5		324.4	0.00	0.94	0.00
	MAXIMUM			402	1.00	8	8		383.6	18.25	1.00	6.67
	MINIMUM			258	0.88	8	7		265.2	-18.25	0.88	-6.67

TASCHER EXPERIMENT ANALYSIS

ALC : DC

RCC :

PCN :

74457A

L4 ARRAY

30-Aug-89

FILE : PFF74457

FACTOR FACTOR FACTOR				TOTAL		NET		THRU PUT		THRU PUT	
RUN NO.	LEVEL	LEVEL	LEVEL	RESULT	THRU PUT	RESULT	THRU PUT	EFFECT	PERCENT	EFFECT	PERCENT
1	1	1	1	357	0.88	8	7	306.2	4.27	0.88	-3.45
2	1	2	2	255	0.88	8	7	333.5	-4.27	0.94	3.45
3	2	1	2	426	0.88	8	7	391.9	-22.52	0.88	-3.45
4	2	2	1	241	1.00	8	8	247.8	22.52	0.94	3.45
TOTAL				1279	3.63	32	29	299.1	6.47	0.94	3.45
								340.5	-6.47	0.88	-3.45
AVERAGE				319.8	0.91	8.0	7.3	319.8	0.00	0.91	0.00
MAXIMUM				426	1.00	8	8	391.9	22.52	0.94	3.45
MINIMUM				241	0.88	8	7	247.8	-22.52	0.88	-3.45

TABUCHI EXPERIMENT ANALYSIS

ALC : DC RCC : MADFF PCN: 74458A

L4 ARRAY 30-Aug-89
FILE : PFF74458

FACTORS		TOTAL		NET		THRU PUT		FLOW TIME		THRU PUT	
ROW NO.	LEVEL	A	B	C	FLOW TIME	RESULT	THRU PUT	INDUCTED	THRU PUT	EFFECT PERCENT	EFFECT PERCENT
1	1	1	1	1	413	1.00	8	8	332.2	2.92	0.94
2	1	2	2	2	251	0.88	8	7	352.2	-2.92	0.88
3	2	1	2	2	426	0.88	8	7	419.5	-22.57	0.94
4	2	2	1	1	279	0.88	8	7	265.0	22.57	0.88
TOTAL		1369		3.63		32		29		345.8	
AVERAGE		342.2		0.91		8.0		7.3		342.2	
MAXIMUM		426		1.00		8		8		419.5	
MINIMUM		251		0.88		8		7		265.0	
										-3.45	

TANUCHI EXPERIMENT ANALYSIS

ALC : QC

RCC : MADFF

PCN:

74459A

L4 ARRAY

30-Aug-89

FILE : PFF74459

ROW NO.	FACTOR			TOTAL		NET		THRU PUT		THRU PUT	
	A	B	C	FLOW TIME	RESULT	THRU PUT	INDUCTED	THRU PUT	FLOW TIME	EFFECT PERCENT	
LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	LEVEL	PERCENT	
1	1	1	1	434	1.00	8	8	8	356.9	-5.34	
2	1	2	2	280	1.00	8	8	8	320.7	5.34	
3	2	1	2	390	1.13	8	9	9	411.8	-21.55	
4	2	2	1	252	1.00	8	8	8	265.8	21.55	
TOTAL				1355	4.13	32	33		342.7	-1.17	
								C 1	334.8	1.17	
AVERAGE				338.8	1.03	8.0	8.3				
MAXIMUM				434	1.13	8	9		411.8	21.55	
MINIMUM				252	1.00	8	8		265.8	-21.55	
</											

YAGUCHI EXPERIMENT ANALYSIS

ALC : DC

RCC :

MDPFF

PCN:

74460A

L4 ARRAY

30-Aug-89

FILE : PFF74460

FACTOR FACTOR FACTOR				TOTAL		NET		THRU PUT		FLOW TIME		THRU PUT	
ROW NO.	LEVEL	LEVEL	LEVEL	A	B	C	FLOW TIME	THRU PUT	INDUCTED	THRU PUT	EFFECT PERCENT	EFFECT PERCENT	EFFECT PERCENT
1	1	1	1	399	1.25	8	10	A 1	324.4	2.67	1.19	2.70	2.70
2	1	2	2	250	1.13	8	9	A 2	342.2	-2.67	1.13	-2.70	-2.70
3	2	1	2	422	1.13	8	9	B 1	410.5	-23.17	1.19	2.70	2.70
4	2	2	1	262	1.13	8	9	B 2	256.1	23.17	1.13	-2.70	-2.70
TOTAL				1333	4.63	32	37	C 1	330.6	0.82	1.19	2.70	2.70
AVERAGE				333.3	1.16	8.0	9.3	C 2	336.1	-0.82	1.13	-2.70	-2.70
MAXIMUM				422	1.25	8	10						
MINIMUM				250	1.13	8	9						

TASCHET EXPERIMENT ANALYSIS

ALC : GC

RCC : HARPEF

PCN:

74461A

LA ARRAY

30-Aug-89

FILE : PFF74461

RUN NO.	FACTOR			TOTAL	NET	FLOW TIME		THRU PUT	
	A	B	C			EFFECT	PERCENT	EFFECT	PERCENT
LEVEL	LEVEL	LEVEL	LEVEL	RESULT	THRU PUT	INDUCTED	THRU PUT	RESULT	THRU PUT
1	1	1	1	440	0.88	8	7	A 1	360.0
2	1	2	2	280	1.00	8	8	A 2	340.0
3	2	1	2	422	1.00	8	8	B 1	431.3
4	2	2	1	258	1.13	8	9	B 2	268.7
								C 1	348.9
								C 2	351.1
TOTAL				1400	4.00	32	32		
AVERAGE				350.0	1.00	8.0	8.0	350.0	0.00
MAXIMUM				440	1.13	8	9	431.3	23.22
MINIMUM				258	0.88	8	7	268.7	-23.22
								0.94	-6.25

L4 ARRAY

PCN: 744612A

RCC : MABPFF

PCM:

FILE : PFF74462

30-Aug-89

PFF74462

ROW NO.	FACTOR			TOTAL				THRU PUT		THRU PUT	
	FACTOR			FLOW TIME		INDUCTED		FLOW TIME		EFFECT PERCENT	
	A	B	C	RESULT	THRU PUT	RESULT	THRU PUT	EFFECT	PERCENT	EFFECT	PERCENT
1	1	1	1	458	0.88	8	7	370.5	-2.95	0.94	-9.09
2	1	2	2	283	1.00	8	8	349.3	2.95	1.13	9.09
3	2	1	2	414	1.13	8	9	435.9	-21.13	1.00	-3.03
4	2	2	1	285	1.13	8	9	283.9	21.13	1.06	3.03
								371.4	-3.19	1.00	-3.03
								348.4	3.19	1.06	3.03
	TOTAL			1440	4.13	32	33				
	AVERAGE			359.9	1.03	8.0	8.3	359.9	0.00	1.03	0.00
	MAXIMUM			458	1.13	8	9	435.9	21.13	1.13	9.09
	MINIMUM			283	0.88	8	7	283.9	-21.13	0.94	-9.09

MCDONNELL DOUGLAS

McDonnell Douglas Missile Systems Company

CC/RESPONSE
ACTION
ITEM
RESPONSE
☐ YES ☐ NO

31 July 1989
NKE-E016-7605
Revision A

G. L. Dowdy
G. L. Dowdy

Subject: Contract F33600-88-D-0567, Technology Insertion Engineering Services, Submittal of Revised Validation Minutes

R. Donnelly
R. Donnelly

To: Department of the Air Force
Attention: Ms. J. Hoyt (PMRP)
Contracting Officer
Building 1, Area C
Wright-Patterson AFB, OH 45433-5320

Enclosure: (1) Task Order 1, Process Characterization, Validation of RCCs MABPFF and MATPCC at OC-ALC, 26-27 June 1989

1. For documentation purposes, McDonnell Missile Systems Company (MDMSC) herein submits revised Enclosure (1) validation minutes. The revision adds: (1) an explanation of why MDMSC did not use historical data for validation, (2) a listing of historical versus standard (G019) hours, and (3) historical data to the output report for each RCC.

2. Please address any questions or requests for additional information to the undersigned at (314)233-8724.

D. W. Engelbart
D. W. Engelbart
Senior Contracts Administrator
Advanced Programs

EC: Department of the Air Force
OC-ALC/MAWF
Attention: Mr. G. Leiterman
Tinker AFB, OK 73145

IC: F. Lauber *
D. Engelbart
Master Files
Contract Files

AFTER FINAL
SIGNATURE
RETURN TO:

Department of the Air Force
HQ AFLC/MAQF
Attention: Mr. Doxie Cripe
Building 262, Area A
Wright-Patterson AFB, OH 45433-5320

* Bldg. 92 Dist.

LETTER ☒
ENCLOSURE ☒

PLACE ✓ NEXT TO LADDER SIGNATURE
IN APPROPRIATE BOX
IF COPY IS DESIRED

MDE 14-27-1 (1 JUL 87)

MASTER FILE

0051P/85

P.O. Box 516, Saint Louis, MO 63166-0516 (314) 232-0232 TELEX 44-857

MEMO
31 Jul 89
TI-89-FJL-0219

Sub: TECHNOLOGY INSERTION-ENGINEERING SERVICES (TI-ES) TASK ORDER NO. 1,
REVISION "A" TO VALIDATION MINUTES FOR OC-ALC

To: R. G. Bolanos, R. Donnelly, Jr., G. L. Dowdy, G. Fallo, C. J. Gonzales,
M. S. McCoy, File

Encl: (1) Transmittal Letter NKE-E016-7605 Rev A, dtd 31 July 1989
(2) Task Order No. 1 Revised Validation Minutes for OC-ALC RCCs MABPFF
and MATPCC all without Computer Flat Files

1. Encl (1) and (2) are provided as internal distribution.
2. If you have any questions or comments, please contact me.


F.J. Lauber
T.I. Program Administration
E510/0922272, Sta. 925-5406

FJL:paw

OC/ALC

MABPFF

Intensive analysis of history data compiled from stamped WCDs indicates that this data is erroneous, and should not be used in validating the UDOS 2.0 model for this RCC.

Occasional alignment between historical and simulated flow times are purely coincidental.

It was observed during validation that the utilization of G019C flow days was more realistic and more in line with the experiences of the ALC personnel who were part of the validation team.

The inaccuracy of the WCD history is directly related to:

1) System of WCD release:

- a) Copies are batch-pulled on a bi-weekly basis and at times on a quarterly basis.
- b) Block 5 date is actually the date printed and not the actual induction date.

2) WCD inconsistencies:

- a) In many cases the WCDs do not depict the real world processing flow and actually produce backtracking of date due to incorrect operation sequences.

3) Recording inconsistencies:

- a) Operations are all being stamped on the same date. Where there are flows through more than one operator, such as assy/check/assy, the date stamping is arbitrary at best.

Conclusion: It is the general opinion of ALC and MDMSC personnel on the validation team that the WCD history is of little value and should be disregarded.

MABPFF

<u>ITEM</u>	<u>G019</u>	<u>HISTORICAL FLOWTIME HOURS</u>
62055A	360	0.0
74445A	696	1037.2
74450A	360	729.6
74451A	360	830.4
74452A	360	723.5
74453A	360	867.5
74454A	360	809.5
15026A	408	1534.8
15027A	408	1440.0
15028A	408	1206.0
15029A	408	1125.6
15030A	408	1244.4
15031A	408	1167.6
15074A	552	1042.3
15075A	576	1434.9
17297A	456	848.8
17298A	432	792.0
17299A	432	777.6
17300A	1104	768.0
17300A/S1	0	0.0
17301A	1104	729.6
17301A/S1	0	0.0
17302A	768	436.8
17302A/S1	0	0.0
17303A	768	678.9
17303A/S1	0	0.0
74455A	360	1406.4
74456A	360	730.3
74457A	360	868.0
74458A	360	928.0
74459A	360	1817.6
74460A	360	805.7
74461A	360	568.8
74462A	360	840.0

29 June 89

- I. Earl Stamps and Gene Leiterman reviewed these minutes and agreed with their content. Minor changes in the wording were requested, and are incorporated herein.
- II. Earl Stamps and Gene Leiterman accepted a copy of the final output of the MABPFF model and agreed that no further changes in the baseline data were required. It was agreed by all parties that the model was ready and the experimentation phase would begin in St. Louis next week.

8
MAPFF VALIDATION

27 June 89

I. All required changes in Model Data were made on the evening of 26 June 89. The effects on each variance are summarized as follows:

1. Variance #1 - The addition of over time hours and a 2nd shift substantially reduced the variance in flap's flow time. MDMSC will revise the Operation Profile of PCN 17303 to be identical to 17300. Another model run will be conducted.
2. Variance #2 - The reduction of spoiler backshop times to 48 hours lowered all spoiler flow times and reduced overall variance. MDMSC will increase the backshop hours to 144 for all spoilers. Another model run will be conducted.
3. Variance #3 - The changes made on 26 June reduced variance, but not sufficiently for acceptance. MDMSC will revise the Operation Profile fo PCN 17299 to be identical to that of PCN 17298. Another model run will be conducted.

PCN 74445 (Nose Cowl) have a high variance. MDMSC will revise the flow time to reflect 144 hours of back shop. This variance is otherwise considered acceptable.

3. (cont.)

The variance for PCNS 15704 and 15795 (Bomb Bay Doors) is high, but considered acceptable as is. The unusual induction pattern (all inductions in the 3rd and 4th qtr) are considered the primary cause of the variance. The process, as characterized, is considered accurate and should not be changed. An experiment, in which the inductions will be spread evenly across the entire year, will be performed to confirm this assumption.

- II. 1. No new variances developed, nor were any additional requirements levied on MDMSC. Some discussion of Brainstorming and Taguchi Array Development took place, without conclusion. The meeting adjourned at 12:00 for lunch.
2. MDMSC will conduct the new model runs after lunch and provide the results for review as soon as possible.
3. Validation of MATPCC was scheduled to begin at 09:00 on 28 June 1989.

28 June 89

- I. All required changes in model data were made. All variances were within acceptable levels. The model/data was considered validated for MABPFF and ready for experimentation.
- II. A Brainstorming session was conducted. Factors were selected as: Manpower, Equipment, and Workload. Levels tentatively selected for each factor, OC-ALC will confirm the factors and levels. MDMSC will conduct the appropriate model runs using the confirmed data in the appropriate Taguchi Orthogonal Array and deliver the experimental results to OC-ALC.

MABPFF/MATPCC VALIDATION

26 June 1989 - MINUTES

I. INTRODUCTION

1. Earl Stamps briefed the Data Collection Process.
2. Gene Leiterman briefed the Validation Process.
3. Ricardo Bolanos briefed:
 - A) Agenda
 - B) UDOS Summary Report
 - C) Model objectives, including; decreased flowtime, improved utilization of resources, cost reduction, and experimentation without capital investment.
 - D) Profile sheets and Flat File Data.
 - E) Possible pitfalls in the Validation Process.

II. MABPFF VALIDATION

MABPFF Data was examined, three areas of variance (Between simulated flow time and estimated flow times) were considered unacceptable:

1. Flaps - Simulated flow hours were excessive, discussion revealed the existence of a 2nd shift that was not reflected in the model. MDMSC will adjust the model data to move 30% of the flap's manpower to 2nd shift. MDMSC will add 5000 hours of overtime to the weekends of the 1st 2 quarters. A new model run will be performed.

MABPFF cont.

2. Spoiler - Simulated flow hours were excessive for several spoiler PCN'S. An examination of the backshop hours revealed discrepancies in the backshop dwell times. MDMSC will change all backshop times to reflect 24 hours at the beginning and end of each flow (48 hours total). MDMSC will add a 24 hour mandatory flow time to operation 330 (painting). A new model run will be performed.
3. Elevators/ Doors/ Nose Cows - Simulated flow hours were excessive. No obvious causes were identified. The results of the changes in variances # 1&2 will be evaluated before any further action on this variance will be taken.

One area was accepted as is:

1. Hatches - The simulated flow times were examined and found to be accurate by ALC personnel. Variance was determined to be caused by incomplete estimated flow times, which did not include waiting times for installation of pyrotechnic charges. The charges must be installed immediately prior to installation of the hatches on the aircraft. This waiting time was reflected in the model's flow times but not in the estimated standard flow times.

- 1). New standard flow day calculation
- 2). Space limitations (Equipment Reduction)
- 3). 71374 / 71375 test stand - elimintate one
- 4). 2 new test stands vs. 5 old
- 5). Surge by item (FY90)
- 6). Fy 90 work load
- 7). Man power adjustments
- 8). Shift work
- 9). Process improvements
- 10). Spare part availability
- 11). Mandatory flow times on AWP parts
- 12). Manpower- Skill specialization
- 13). OJT vs. Manpower factor
- 14). Backshop dwell - time reduction
- 15). 3rd Test stand

PRELIMINARY TAGUCHI ARRAY

CONTROL

FACTORS:

MANPOWER

EQUIPMENT

PROCESS FLOW TIMES

NOISE

FACTORS:

WORKLOAD

TASK ORDER 1 PROCESS CHARACTERIZATION
VALIDATION MEETING MINUTES

26 June 89

MABPFF

<u>NAME</u>	<u>COMPANY</u>	<u>PHONE NUMBER</u>
RICARDO BOLANOS	MDMSC	(314) 925-5840
GREG JOHN	MDMSC	(314) 925-5852
GREG GARDNER	MDMSC	62873
GUY FALLO	MDMSC	62873
ROGER WADDELL	MABEBS	65265
LARRY MULLINAX	MABEBS	65261
SHELBY LONG	MABPFF	63860
IDA GRAVES	MABPFF	63860
EARL STAMPS	MABEBS	65267
MARK THORNTON	MATEE	65568
MARK HARRIS	MABEP	65986
GENE LEITERMAN	MAWF	67981

27 June 89

GREG GARDNER	MDMSC	62873
GUY FALLO	MDMSC	62873
ROGER WADDELL	MABEBS	65265
LARRY MULLINAX	MABEBS	65261
EARL STAMPS	MABEBS	65267
DONNA J. MASON	MABPFF	63860
MARK THORNTON	MATEE	65985
MARK HARRIS	MABEP	65986
GENE LEITERMAN	MAWF	67987

11.0 DEVELOPMENT OF QUICK FIXES

TECHNOLOGY INSERTION ENGINEERING
SERVICES PROGRAM

TI PROGRAM
COST BENEFIT ANALYSIS REPORT

CONTROL NO.

TYPE PROPOSAL

- ☒ QUICK FIX
☐ FOCUS STUDY
☐ OTHER

ALC OC DATE _____NCC NAVEE ITEM NO. _____NOUN ICE BOX RIVETS

CURRENT METHOD ICE BOX RIVETS - RIVETS ARE HEAT TREATED THEN NEPT
AT $\approx -80^{\circ}$ TO KEEP THEM SOFT UNTILL THEY ARE INSTALLED.
CONTAINERS WITH DRY ICE ARE USED TO TRANSPORT THE RIVETS FROM THE
HEAT TREAT AREA TO POINT OF USAGE.

PROPOSED METHOD USE SUBSTITUTE RIVIT -

THIS RIVIT HAS BEEN AUTHORIZED FOR USE IN PLACE OF
ICE BOX RIVETS AT CIVILIAN REPAIR COMPANIES.

BENEFIT OF CHANGE SAVE HEAT TREAT & FREEZER REQUIREMENTS

PRODUCTIVITY IMPROVEMENT SUMMARY

LE-0031A

TECHNOLOGY INSERTION ENGINEERING
SERVICES PROGRAM

TI PROGRAM
COST BENEFIT ANALYSIS REPORT

CONTROL NO.

TYPE PROPOSAL

- ☒ QUICK FIX
☐ FOCUS STUDY
☐ OTHER

ALC OC DATE _____

RCC NUMBER ITEM NO. 1

NOUN Lower Bomb Bay Doors

CURRENT METHOD Doors can only be sent across base to supply our transport trailer with large wheel. Only and get, this type trailer is available for Bomb Bay Doors therefore Doors are sent to paint on small wheel cart then moved to the lower where they come back from paint. POM Doors go directly from paint to the line.

PROPOSED METHOD

Provide a second cart - load on cart trailer when moving to paint. AFTER PAINT SEND DIRECT TO SUPPLY

BENEFIT OF CHANGE

- It would save handling the Doors after paint
- Decrease possibility of damage moving Doors to supply.

PRODUCTIVITY IMPROVEMENT SUMMARY

LE-000000

TECHNOLOGY INSERTION ENGINEERING
SERVICES PROGRAM

CONTROL NO.

TYPE PROPOSAL

- ☒ QUICK FIX
☐ FOCUS STUDY
☐ OTHER

TI PROGRAM
COST BENEFIT ANALYSIS REPORT

ALC 0 C DATEHCC MAB PFF ITEM NO.NOUN Pure MISTR Items

CURRENT METHOD

The MISTR items that are to be sent to suppliers are returned to MABPFF after paint for dry off and final paper work. Reason on Noe could was that they had units picked back from supply because of minor damage that MABPFF claimed was caused by paint. Having a final look at them to repair the damage - assuming good unit to supply.

PROPOSED METHOD

Preferred 1) Send good unit to paint and make paint accept as "good". Then be responsible to send "good" unit to supply. Paint scheduler do final P.W.
2) Option: Send operator over to paint to final units.

BENEFIT OF CHANGE

Reduce flow time by days

PRODUCTIVITY IMPROVEMENT SUMMARY

LIC-0001A

Same as Done

TECHNOLOGY INSERTION ENGINEERING
SERVICES PROGRAMTI PROGRAM
COST BENEFIT ANALYSIS REPORTALC OC DATE _____
RCC/MABPFE ITEM NO. 74445
NOUN Non-cord

CONTROL NO. _____

TYPE PROPOSAL

☒ QUICK FIX
☐ FOCUS STUDY

CURRENT METHOD

Non-cord are worked in three separate locations. The supervisor also has the small part repair and Mfg shop - in still a different location. This also separates the the Bomb bay door & lower upper and spoolers. Thus both supervisors have their assigned work in separate areas.

PROPOSED METHOD

moving work areas so that all associated are worked in an area that is the in close proximity to both PDM side cord, and small part repair / Mfg shop. Also attached drawings. This will also allow the other work to be closer to each other.

BENEFIT OF CHANGE

Supervisor will better control of their areas because they will spend more time there. The non-cord string will be close to all non-cord

PRODUCTIVITY IMPROVEMENT SUMMARY

1) Better supervi

12.0 DEVELOPMENT OF FOCUS STUDIES

TECHNOLOGY INSERTION ENGINEERING
SERVICES PROGRAM

JUL 27 '89 12:59

PAGE .006

CONTROL NO. _____ TYPE PROPOSAL ☒ QUICK FIX ☒ FOCUS STUDY ☐ OTHER _____	
T1 PROGRAM COST BENEFIT ANALYSIS REPORT ALC <u>0C</u> DATE <u>17300A 17301A 17302A 17303A</u> NCC <u>MAZEE</u> ITEM NO. <u>17300A 17301A 17302A 17303A</u> NOUN <u>Wing flaps FB & OB</u>	
CURRENT METHOD <u>When skins are replaced on wing flaps the new skins are drilled & holes cut using the old skin as a pattern. The access openings are being cut with a hole saw then completed by sanding device.</u>	
PROPOSED METHOD <u>0 MFL SKINS w/ACCESS HOLES - EXCESS MATERIAL ON TOP & BOTTOM WOULD ALLOW LINE UP (1) setup punch on floor to punch holes (2) use router provided (3) setup punch w/mount holes & provide cover w/same unit pattern.</u>	
BENEFIT OF CHANGE <u>would save 2-4 more x number of flaps out lead time for new process (for 33 access holes - flap FB)</u>	
PRODUCTIVITY IMPROVEMENT SUMMARY	
LSC-0001A	

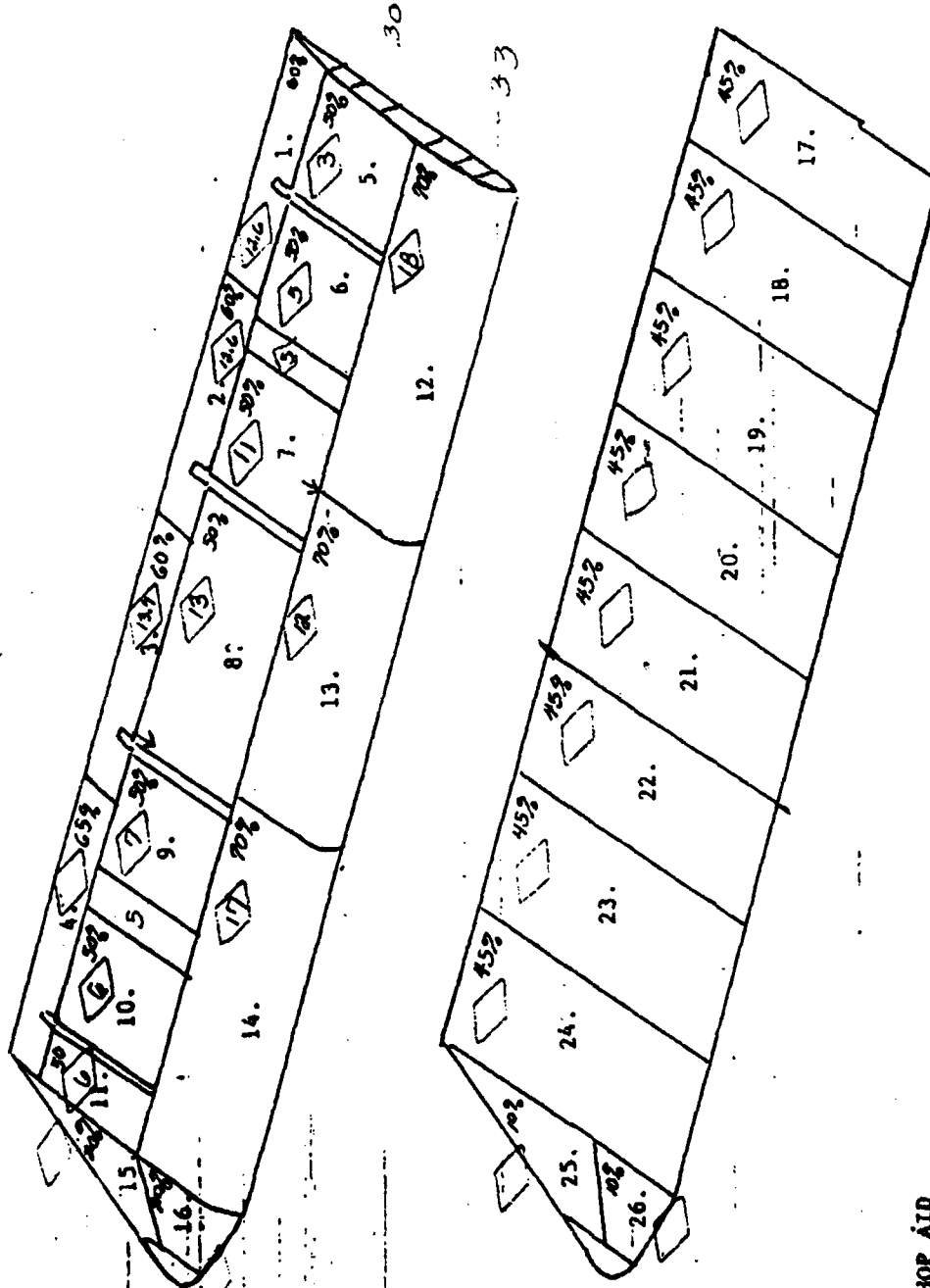
①

FLAP, Inbd.

L.H. 5-70764-505 1560 00 628 7870 FG 17300 A
R.H. 5-70764-506 1560 00 628 7871 FG 17301 A



#OF ACCESS HOLES



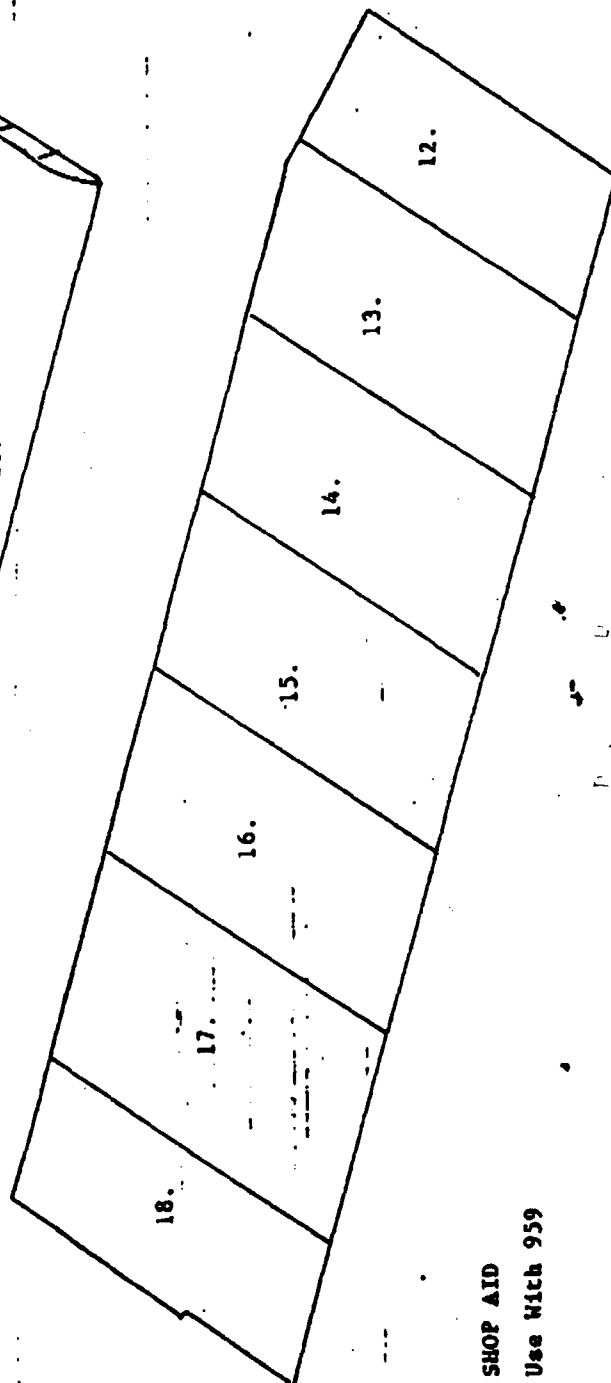
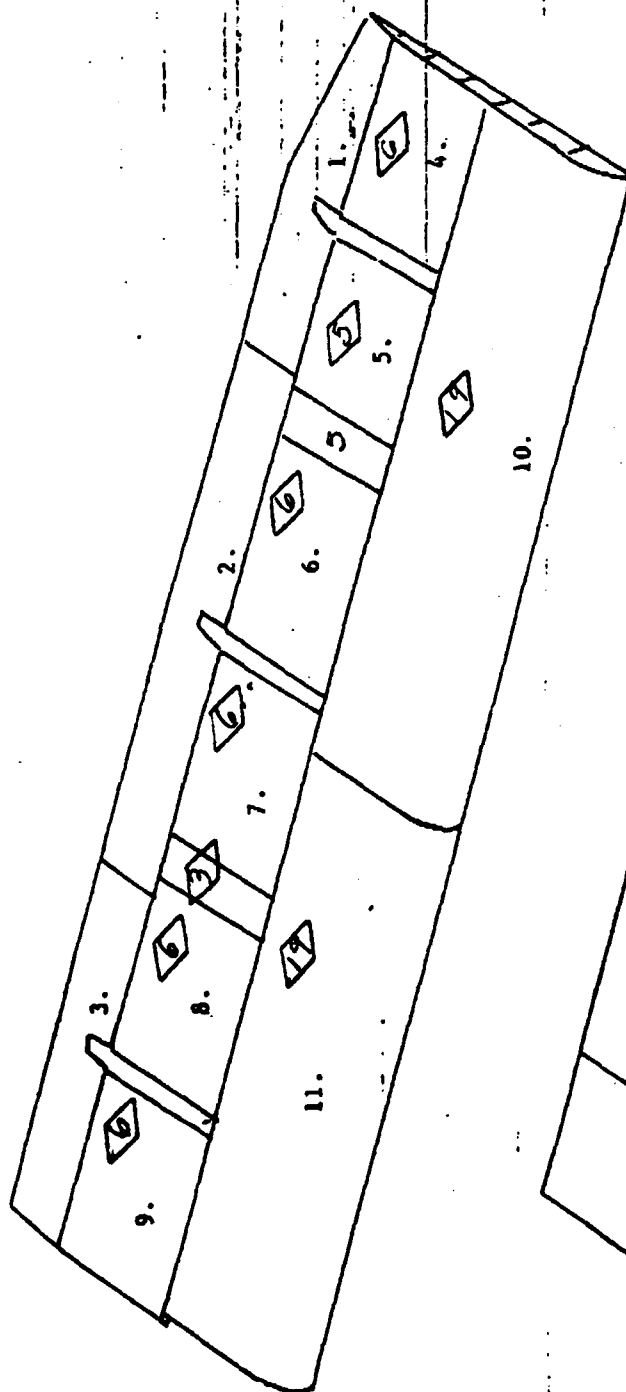
SHOP AID
For Use With 959

24
Diagram

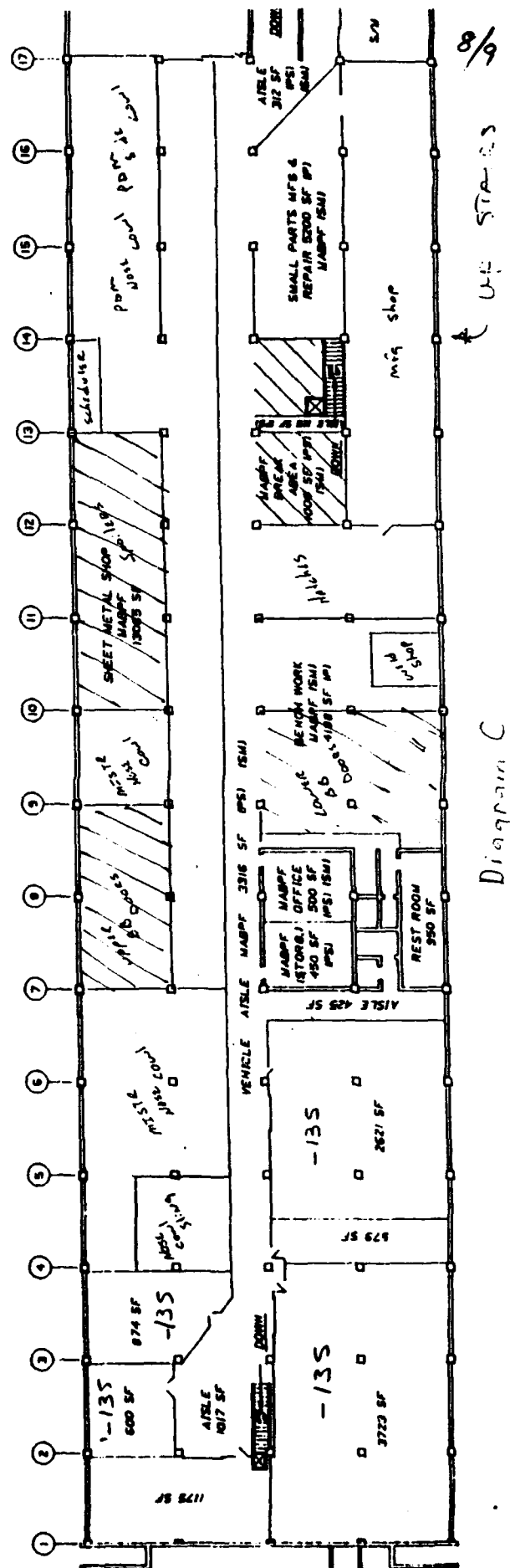
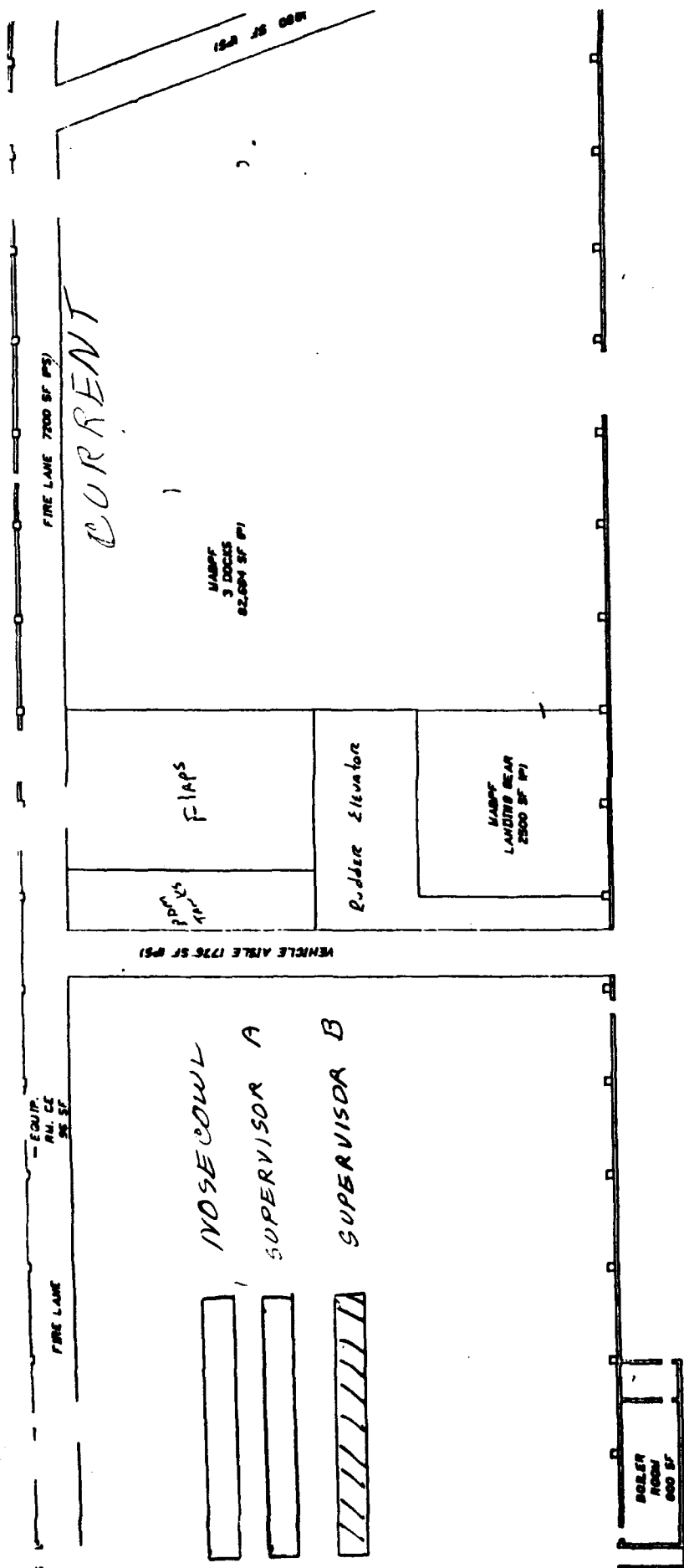
①

FLAP, Outbd.

L.H. 5-70765-501 1560 00 628 7872 FG 17302 A
R.H. 5-70765-502 1560 00 628 7873 FG 17303 A



SHOP AID
For Use With 959



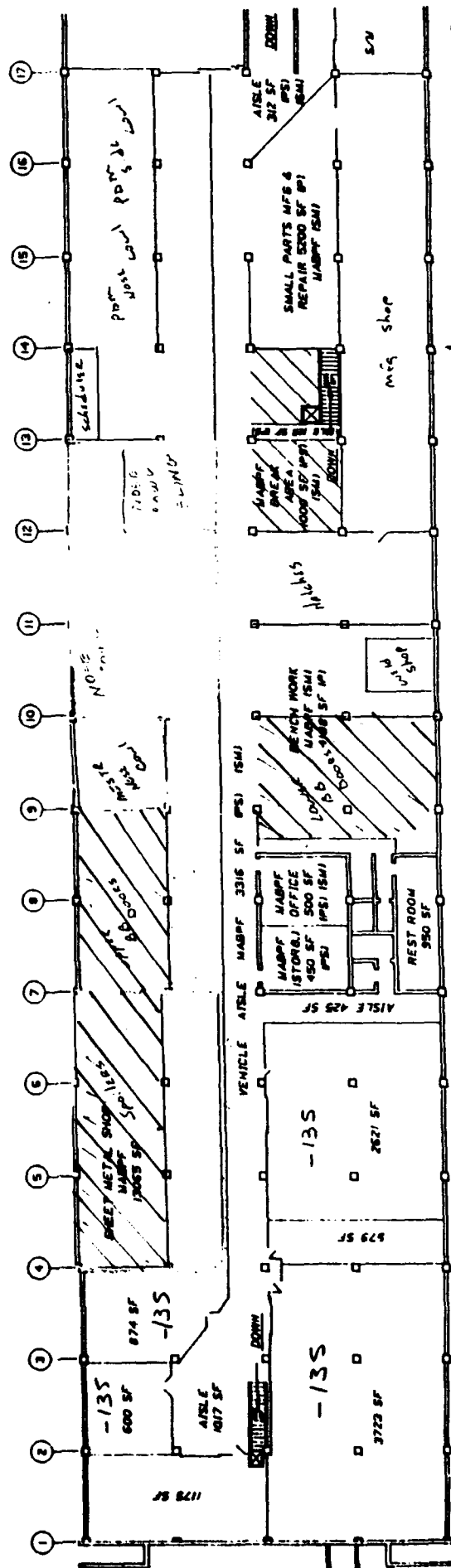
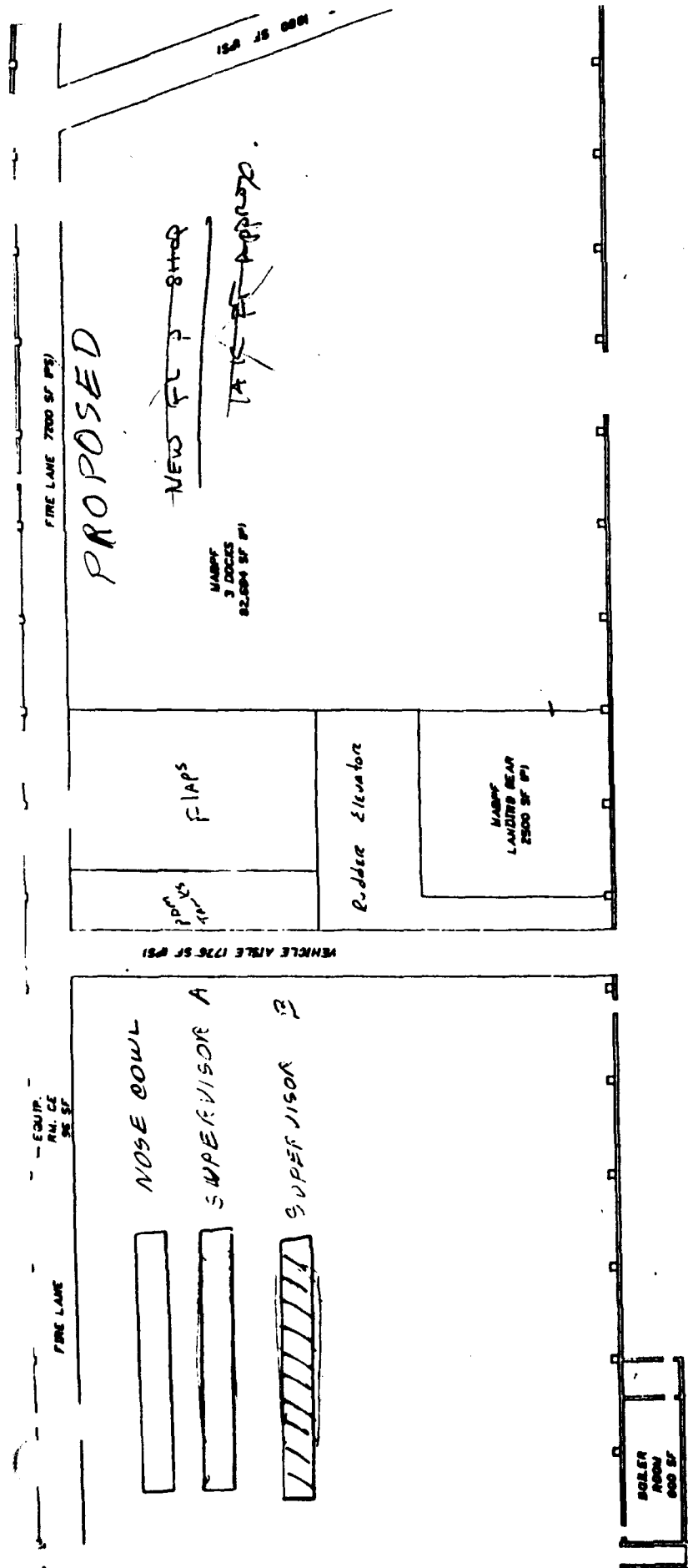


Diagram D

SUPPORTING DATA

13.0 ADDITIONAL SUPPORT DATA

Engineering Notes

OC - ALC

REC MABPFF

Sadie M. Farland

Engineering
Sade M. Tartand

4-8-89

#1

Some PCN ^(cont.) worked in
several areas of MABPFF.

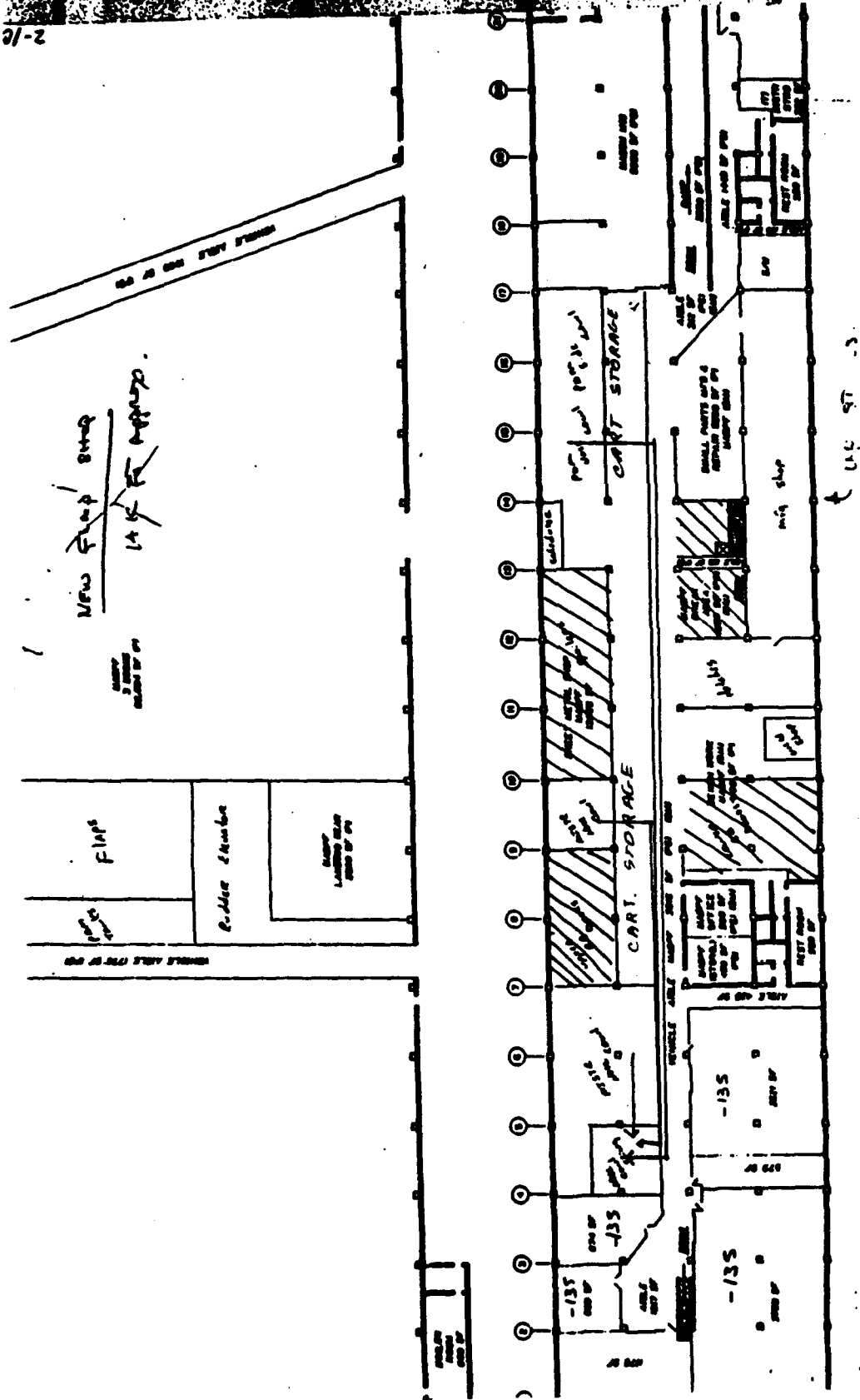
MABPFF
2121

Supervisors are spread checker board on
a large fenced area.

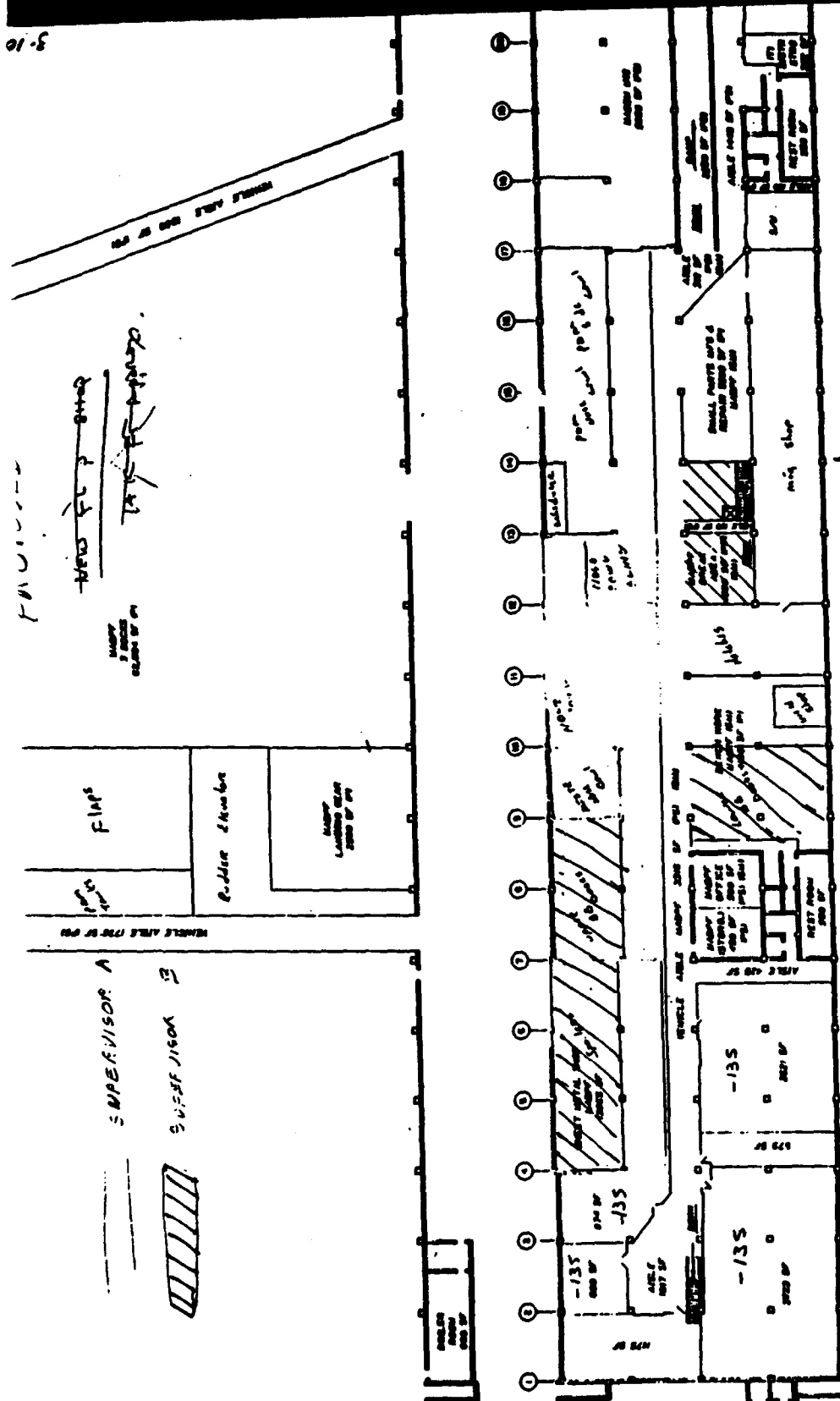
#2

Escape Hatch: Damage to skin:

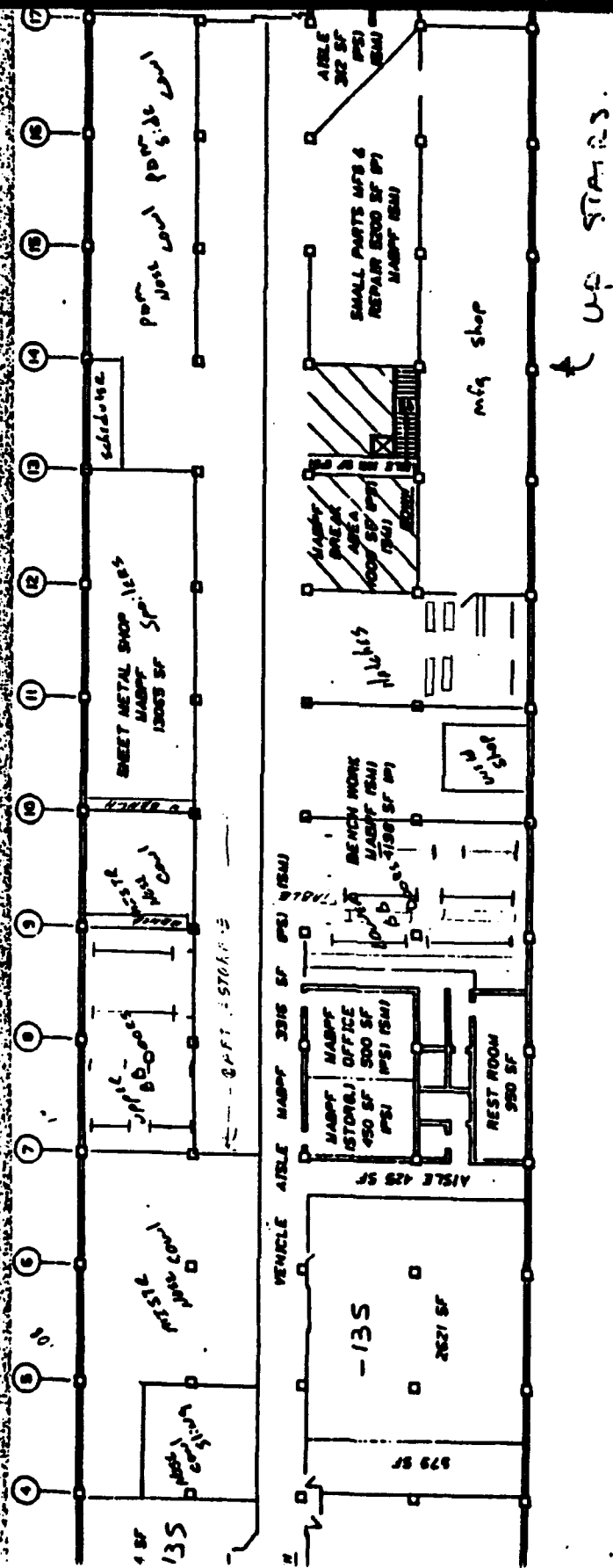
- Prol & CoP possibly from method
of removing from APC
- Damage results from prying off
Pan -
- May be from refueling



← 14 ft 6 in



۱۰۰



3-7-37

3 ^{Four Spots}

Parts are fabricated by MEPPF
• operator in the area using
hand tools. They ran one power
break-off, 1 large power shear -
no scale on front - power roller.
summit.

• operator also make their own
form brick & form brick using
arbor press & lead - if not gun
form.

• Did not see any ability to rout
but there were punches.

• Need ability to get faster turn around
so parts can be made in 3001.

11/11/77

4-26

#4

Thurs
Fix

• Master parts are completed by the Mac. sent to paint. After paint they are returned to Mac who again gives it over then gives it schedule to Art for labor work.

shop floor
2/21

- 1) why not send to supply after paint
- 2) if Mac so state in WED.

4-11

Thurs
May

• King Slabs ^{inboard & outboard} are worked by 2 teams of 2. Care must be taken when skins are removed at one time because they are worked in holding dolly not fixtures.

2/21 - 3/21
shop

- Handle in mold by assigning Team #1 to one half and team #2 to other half. using parallel operation
- operators may remove and replace skins but mold will

wing flap: WAD written to
remove access & clean: inspect
, repair replace bay 1-26
then (3) remove, drill new skin
& replace. clean, repair
under skin - if it is
damaged. Suggest note
to "accomplish inspection."

Note on opn 320 changed
to "Remove, Repair
Clean & Pick for frame --
etc."

or Inspect, remove & repair
opn 40 → 290 then ruff,
replace on 320 → 570.

Remove
WAD
Q. Fix

4-12

5 -
Quick Fix

Need additional trailer
for Bomb bay Doors -
only have one (large wheel)
capable of going

Over Fix
6

Need fixture for
spallars. Have one
but super visor reports
they are not usable

4-17-89

#1

Quick Fix

Working Does Coult in
separate area

- cart extra to move
from area to sling to remove
foreign objects. see marked in red on layout

- operator manually
move parts ≈ 180 lbs from
work stands to cart to
move to sling.

MIAB PFF

m

4-12-89

M.F.F.

= 7

Operator uses hole saw to cut access door opening on replacement skin.

Quick Fix

Situation alt #1 power.
• From lunch/dinner to
hole would still have to
be drilled.

• alt #2
power saw down then
power through dirt to skin -

Need • time to cut access door 340mm
opening - time to drill skin

• cost of power & time (2 hrs)
with 100% sure

4-20-89

#7

• Total 9374 & 108 access holes
• Calculate to cut on in repair

4-21-89

Mfg area suits in FF ^{urgent} & down.
M.F.F.F.F. - 15%

• air = 3m. top
elevated 2m. per
ruler 1m. per
door 30-40 per door
spoke 1.5 m. per spoke

• line 25% effect

11-10-77 - 4, 15, 19

Note: Pass program - only
qualified (PAC certified)
operator may start
operation. (Altman & DJS)
Certification - see meeting
to do which order book
only then study on that
particular PBN.

Part 2.5 to worker rather than
supervisor.

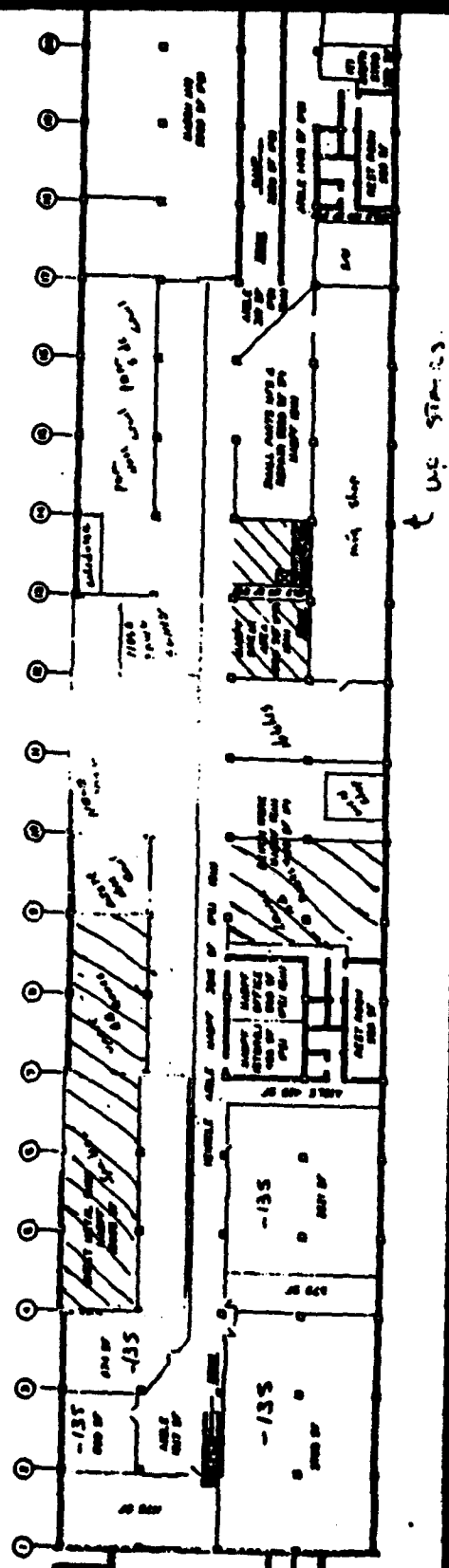
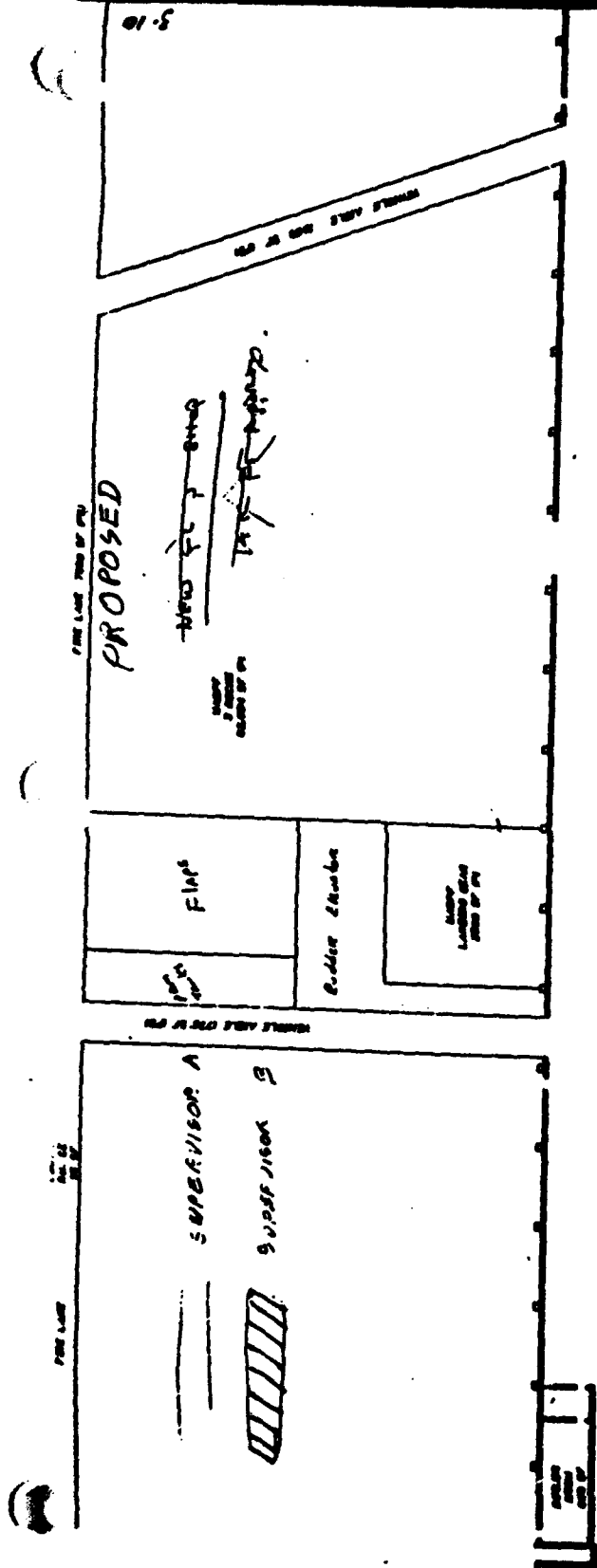
4-10-77 - Told a high degree of pride
in the BSE Embryo. i.e. that their
effort was responsible for
a good aircraft in "good" condition.

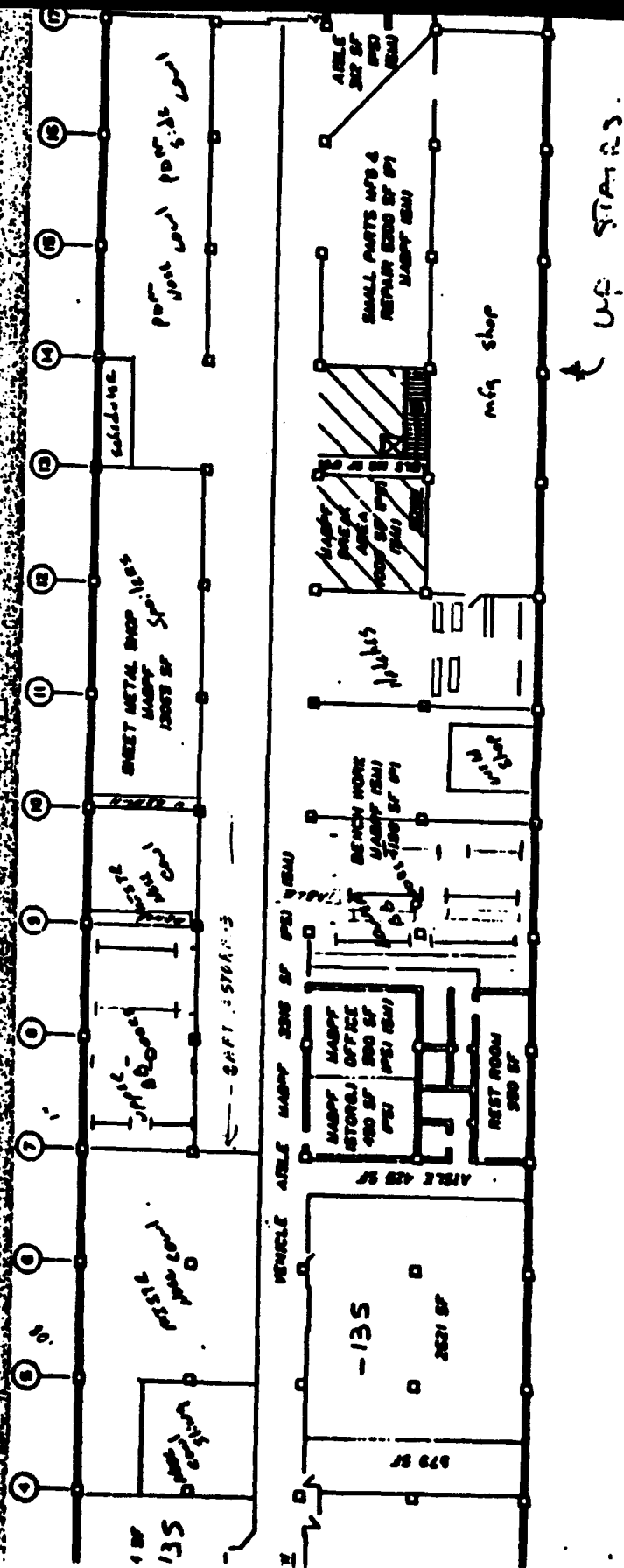
This was said by all area
planners, supervisors, operators.

#8 4-21
PWR F1*

ICE Box RIVITS

substitute are available for
the Ice Box Rivits





3. 3. 3. 4.