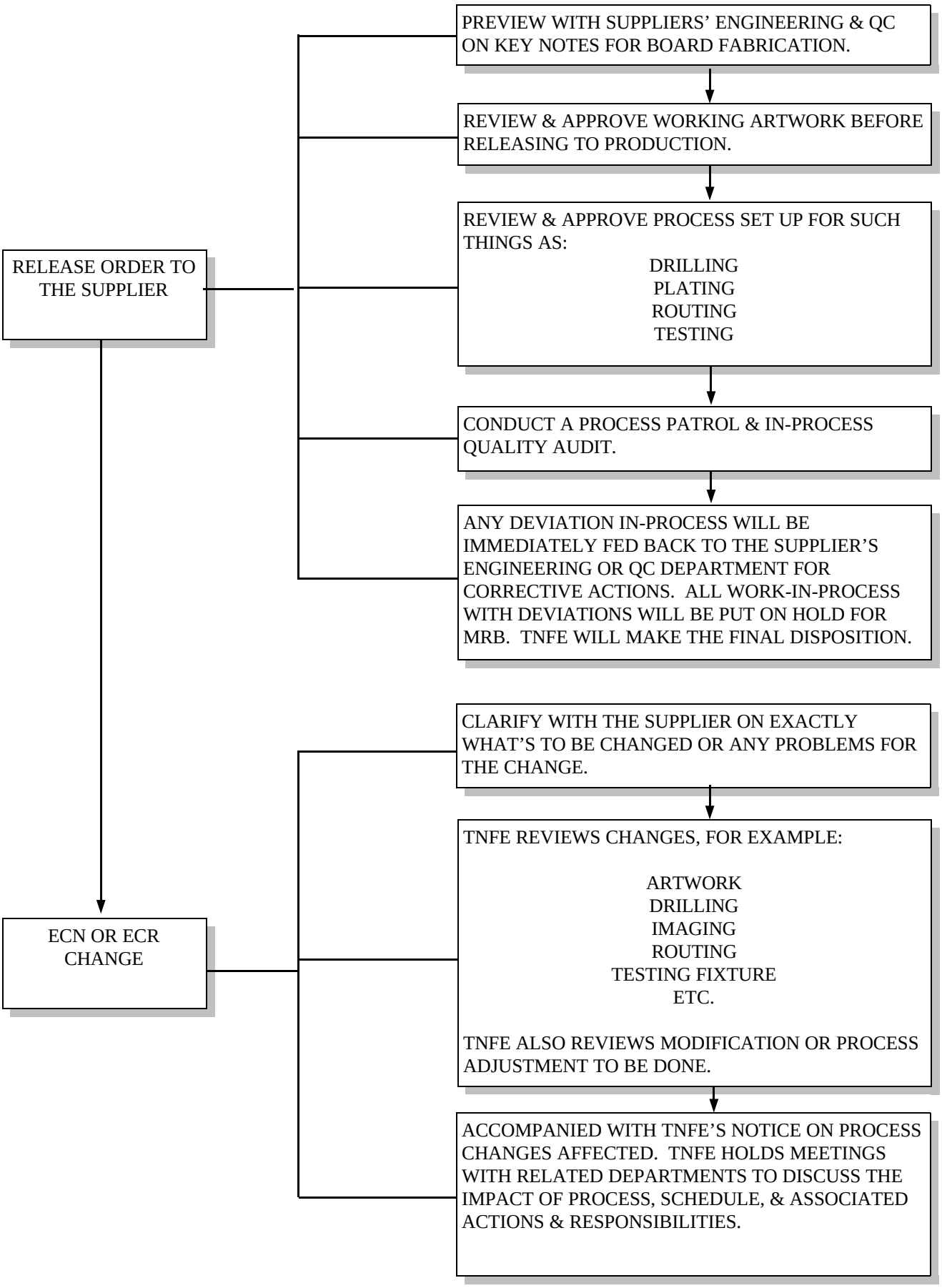
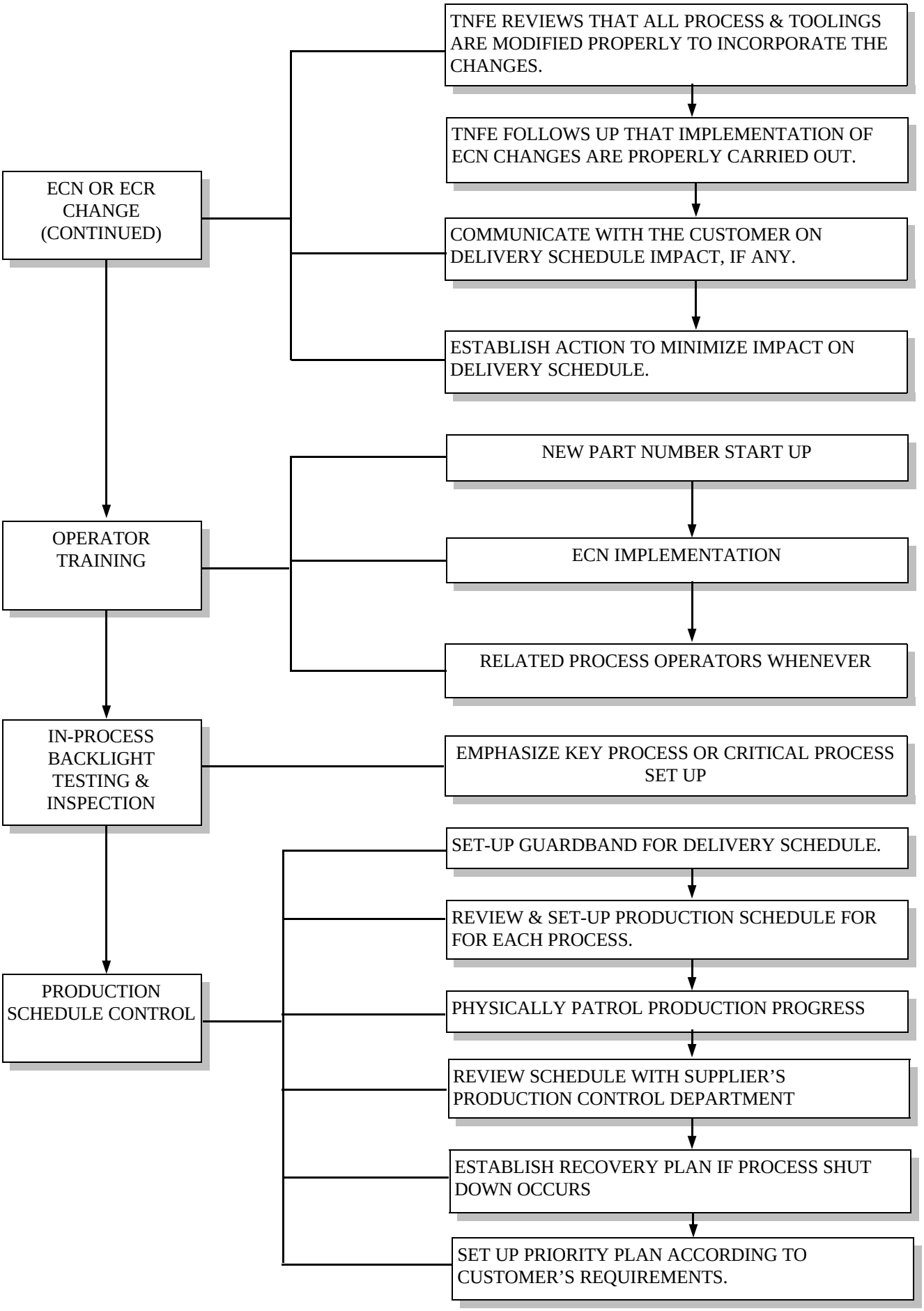
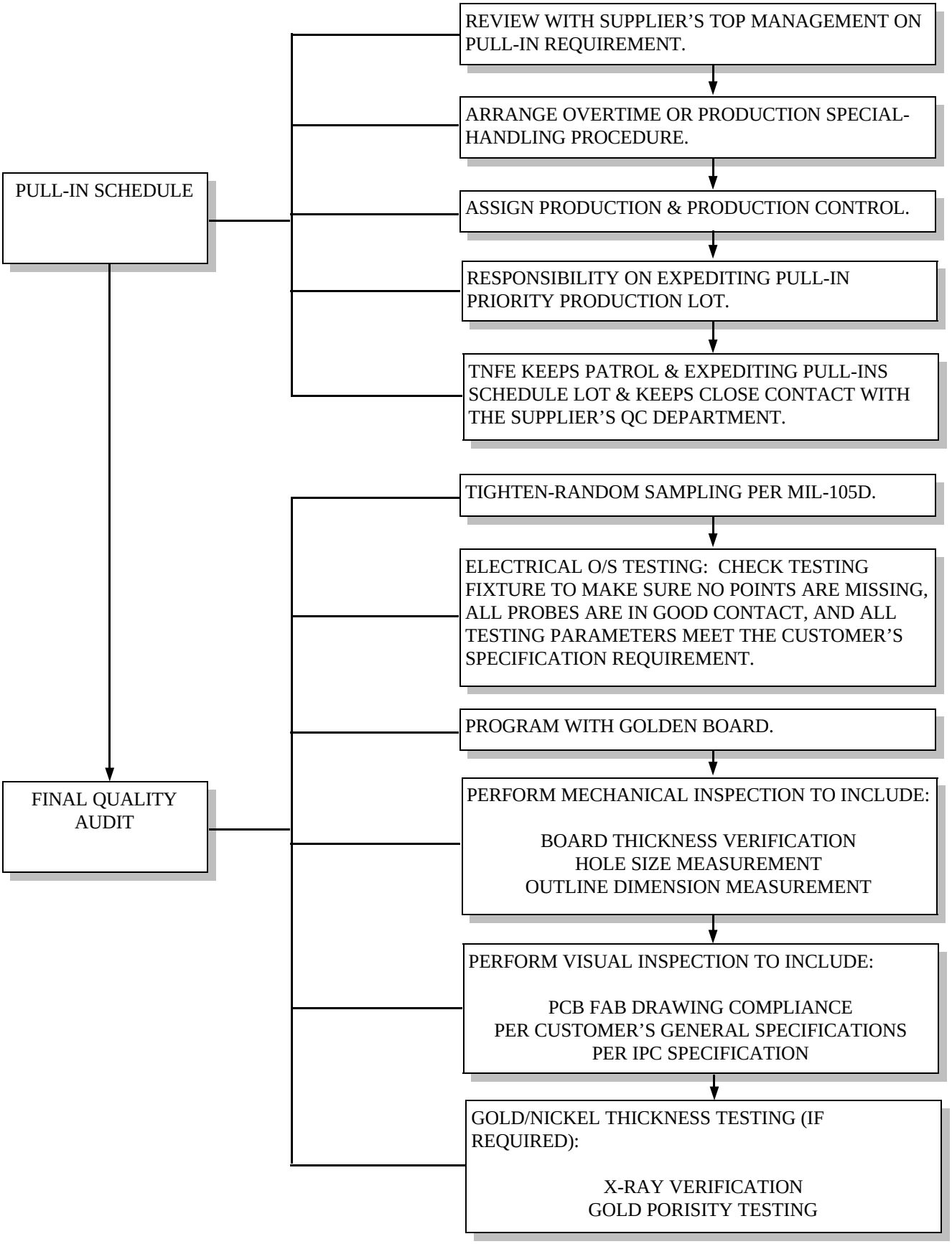
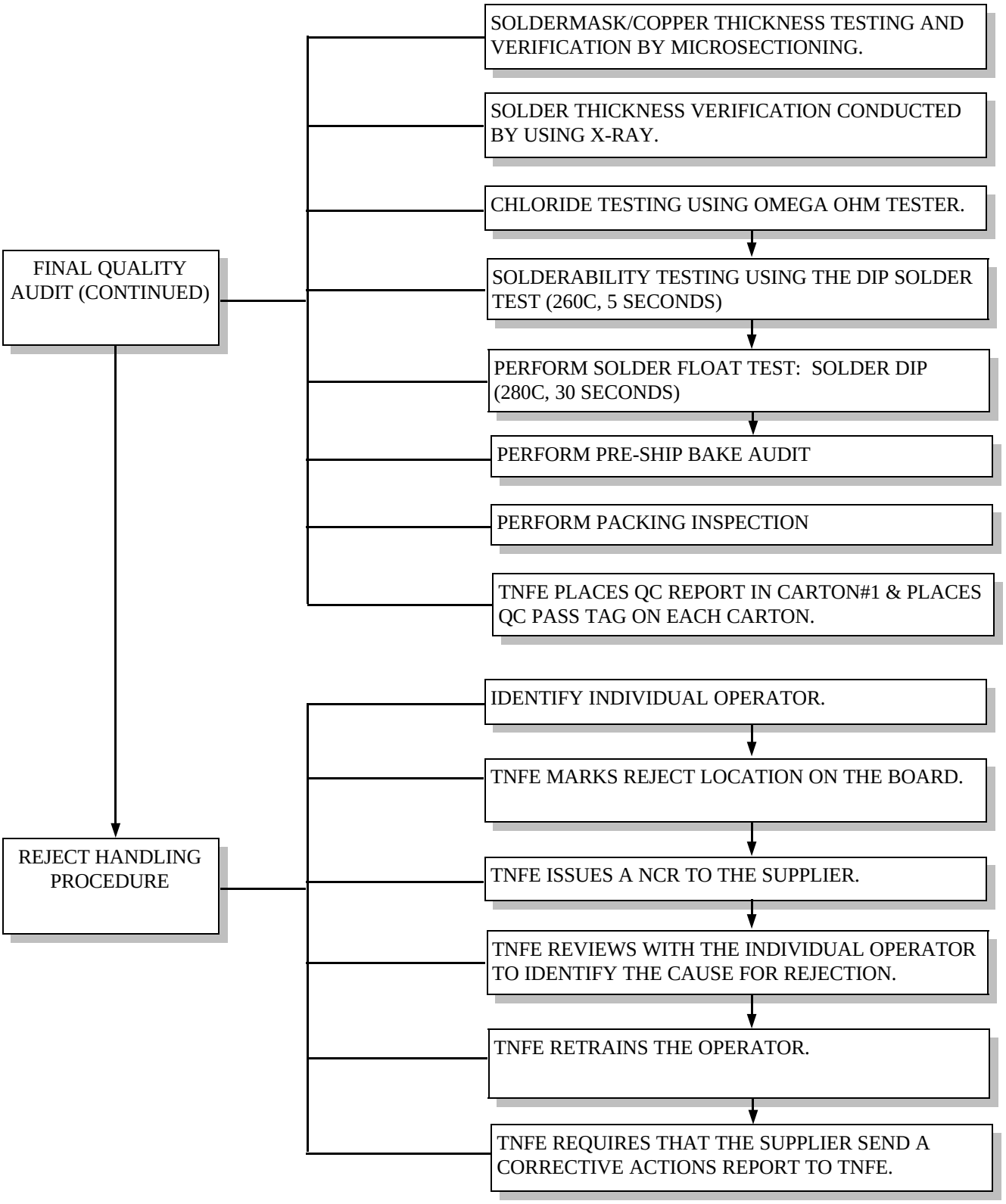
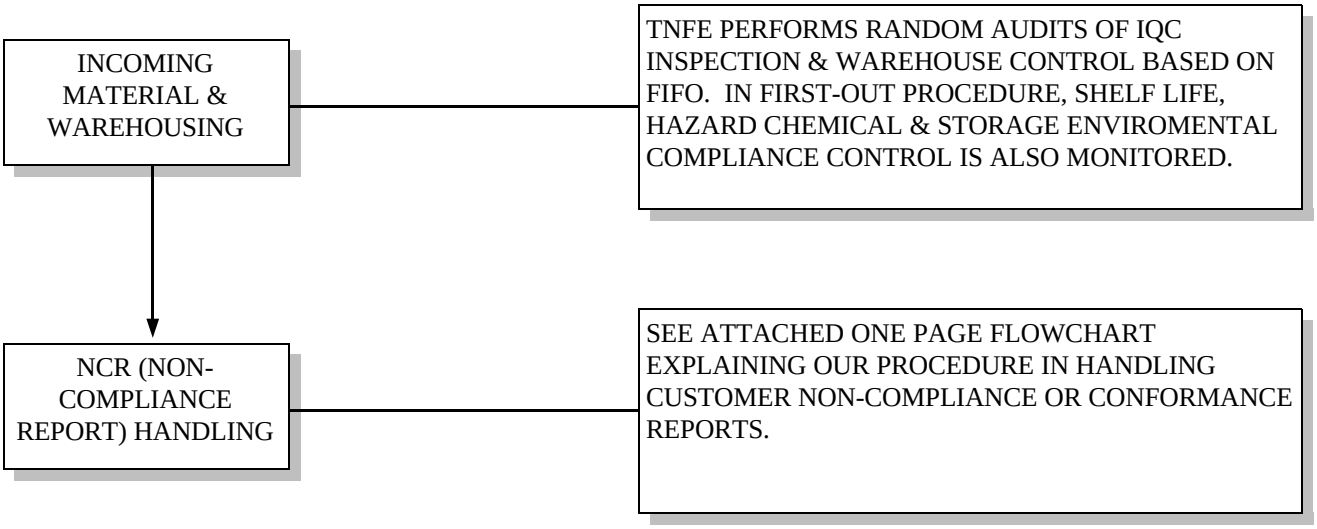
WORK FLOW PROCESS FOR MASS PRODUCTION


RELEASE ORDER TO THE SUPPLIER
PREVIEW WITH SUPPLIERS' ENGINEERING & QC ON KEY NOTES FOR BOARD FABRICATION.
REVIEW & APPROVE WORKING ARTWORK BEFORE RELEASING TO PRODUCTION.
REVIEW & APPROVE PROCESS SET UP FOR SUCH THINGS AS:
DRILLING
PLATING
ROUTING
TESTING
CONDUCT A PROCESS PATROL & IN-PROCESS QUALITY AUDIT.
ANY DEVIATION IN-PROCESS WILL BE IMMEDIATELY FED BACK TO THE SUPPLIER'S ENGINEERING OR QC DEPARTMENT FOR CORRECTIVE ACTIONS. ALL WORK-IN-PROCESS WITH DEVIATIONS WILL BE PUT ON HOLD FOR MRB. TNFE WILL MAKE THE FINAL DISPOSITION.
ECN OR ECR CHANGE
CLARIFY WITH THE SUPPLIER ON EXACTLY WHAT'S TO BE CHANGED OR ANY PROBLEMS FOR THE CHANGE.
TNFE REVIEWS CHANGES, FOR EXAMPLE:
ARTWORK
DRILLING
IMAGING
ROUTING
TESTING FIXTURE
ETC.
TNFE ALSO REVIEWS MODIFICATION OR PROCESS ADJUSTMENT TO BE DONE.
ACCOMPANIED WITH TNFE'S NOTICE ON PROCESS CHANGES AFFECTED. TNFE HOLDS MEETINGS WITH RELATED DEPARTMENTS TO DISCUSS THE IMPACT OF PROCESS, SCHEDULE, & ASSOCIATED ACTIONS & RESPONSIBILITIES.


ECN OR ECR CHANGE (CONTINUED)
TNFE REVIEWS THAT ALL PROCESS & TOOLINGS ARE MODIFIED PROPERLY TO INCORPORATE THE CHANGES.
TNFE FOLLOWS UP THAT IMPLEMENTATION OF ECN CHANGES ARE PROPERLY CARRIED OUT.
COMMUNICATE WITH THE CUSTOMER ON DELIVERY SCHEDULE IMPACT, IF ANY.
ESTABLISH ACTION TO MINIMIZE IMPACT ON DELIVERY SCHEDULE.
OPERATOR TRAINING
NEW PART NUMBER START UP
ECN IMPLEMENTATION
RELATED PROCESS OPERATORS WHENEVER
IN-PROCESS BACKLIGHT TESTING & INSPECTION
EMPHASIZE KEY PROCESS OR CRITICAL PROCESS SET UP
PRODUCTION SCHEDULE CONTROL
SET-UP GUARDBAND FOR DELIVERY SCHEDULE.
REVIEW & SET-UP PRODUCTION SCHEDULE FOR FOR EACH PROCESS.
PHYSICALLY PATROL PRODUCTION PROGRESS
REVIEW SCHEDULE WITH SUPPLIER'S PRODUCTION CONTROL DEPARTMENT
ESTABLISH RECOVERY PLAN IF PROCESS SHUT DOWN OCCURS
SET UP PRIORITY PLAN ACCORDING TO CUSTOMER'S REQUIREMENTS.


PULL-IN SCHEDULE
REVIEW WITH SUPPLIER'S TOP MANAGEMENT ON PULL-IN REQUIREMENT.
ARRANGE OVERTIME OR PRODUCTION SPECIAL-HANDLING PROCEDURE.
ASSIGN PRODUCTION & PRODUCTION CONTROL.
RESPONSIBILITY ON EXPEDITING PULL-IN PRIORITY PRODUCTION LOT.
TNFE KEEPS PATROL & EXPEDITING PULL-INS SCHEDULE LOT & KEEPS CLOSE CONTACT WITH THE SUPPLIER'S QC DEPARTMENT.
FINAL QUALITY AUDIT
TIGHTEN-RANDOM SAMPLING PER MIL-105D.
ELECTRICAL O/S TESTING: CHECK TESTING FIXTURE TO MAKE SURE NO POINTS ARE MISSING, ALL PROBES ARE IN GOOD CONTACT, AND ALL TESTING PARAMETERS MEET THE CUSTOMER'S SPECIFICATION REQUIREMENT.
PROGRAM WITH GOLDEN BOARD.
PERFORM MECHANICAL INSPECTION TO INCLUDE:
BOARD THICKNESS VERIFICATION
HOLE SIZE MEASUREMENT
OUTLINE DIMENSION MEASUREMENT
PERFORM VISUAL INSPECTION TO INCLUDE:
PCB FAB DRAWING COMPLIANCE
PER CUSTOMER'S GENERAL SPECIFICATIONS
PER IPC SPECIFICATION
GOLD/NICKEL THICKNESS TESTING (IF REQUIRED):
X-RAY VERIFICATION
GOLD PORISITY TESTING


FINAL QUALITY AUDIT (CONTINUED)
SOLDERMASK/COPPER THICKNESS TESTING AND VERIFICATION BY MICROSECTIONING.
SOLDER THICKNESS VERIFICATION CONDUCTED BY USING X-RAY.
CHLORIDE TESTING USING OMEGA OHM TESTER.
SOLDERABILITY TESTING USING THE DIP SOLDER TEST (260C, 5 SECONDS)
PERFORM SOLDER FLOAT TEST: SOLDER DIP (280C, 30 SECONDS)
PERFORM PRE-SHIP BAKE AUDIT
PERFORM PACKING INSPECTION
TNFE PLACES QC REPORT IN CARTON#1 & PLACES QC PASS TAG ON EACH CARTON.
REJECT HANDLING PROCEDURE
IDENTIFY INDIVIDUAL OPERATOR.
TNFE MARKS REJECT LOCATION ON THE BOARD.
TNFE ISSUES A NCR TO THE SUPPLIER.
TNFE REVIEWS WITH THE INDIVIDUAL OPERATOR TO IDENTIFY THE CAUSE FOR REJECTION.
TNFE RETRAINS THE OPERATOR.
TNFE REQUIRES THAT THE SUPPLIER SEND A CORRECTIVE ACTIONS REPORT TO TNFE.


INCOMING MATERIAL & WAREHOUSING
TNFE PERFORMS RANDOM AUDITS OF IQC INSPECTION & WAREHOUSE CONTROL BASED ON FIFO. IN FIRST-OUT PROCEDURE, SHELF LIFE, HAZARD CHEMICAL & STORAGE ENVIROMENTAL COMPLIANCE CONTROL IS ALSO MONITORED.
NCR (NON-COMPLIANCE REPORT) HANDLING
SEE ATTACHED ONE PAGE FLOWCHART EXPLAINING OUR PROCEDURE IN HANDLING CUSTOMER NON-COMPLIANCE OR CONFORMANCE REPORTS.