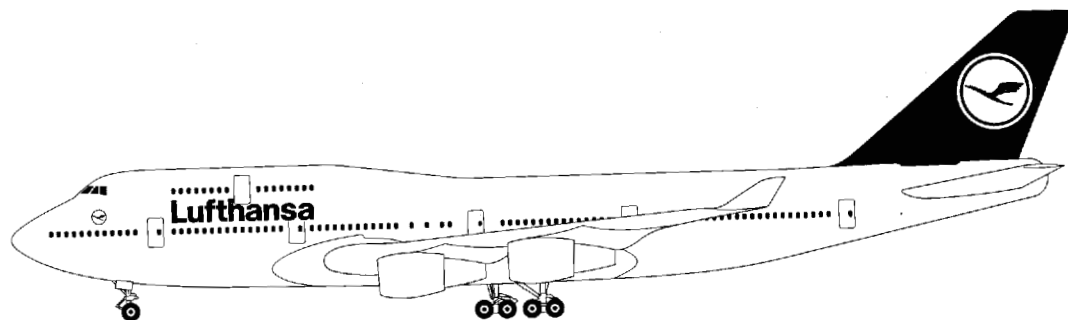


Training Manual

B747-430

ATA 36,30-80/-10
Practical Training
Handbook



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Lufthansa
TECHNISCHE SCHULUNG



Lufthansa Technical Training

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 SP - PRAXIS B - 12 - M QUALIFICATION 1

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ATA 36 PNEUMATIC

SP - PRAXIS B - 1 - M QUALIFICATION

SP - PRAXIS B - 12 - M QUALIFICATION

- High Pressure Shutoff Valve Controller
- High Pressure Shutoff Valve
- 8.Stage Check Valve
- Pressure Regulator Valve Controller
- Pressure Regulator Valve
- Fan Air Temperature Sensor
- Fan Air Valve
- Pressure Regulator and Shutoff Valve
- Left and Right Isolation Valve
- APU Isolation Valve
- APU Check Valve
- 3" Ground Connection
- Manifold Duct Pressure Transmitter
- Engine Bleed Air Temperature Sensor
- Engine Bleed Air Overpressure Switch
- Engine Bleed Air Temperature Sensor
- Engine Bleed Air Overtemperature Switch
- Engine Bleed Flow Signal Conditioner
- Engine Bleed Flow Sensoren



ATA 36 PNEUMATIC
36-10 DISTRIBUTION



DISTRIBUTION

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CIRCUIT BREAKERS -	1		FLT COMPT, P6	
AIR SUPPLY CONT APU VALVE, C10350		1	6H36	*
AIR SUPPLY CONT 1 PWR, C10065		1	6H32	*
AIR SUPPLY CONT 2 PWR, C10066		1	6H33	*
AIR SUPPLY CONT 3 PWR, C10067		1	6H34	*
AIR SUPPLY CONT 4 PWR, C10068		1	6H35	*
APU ISO VLV AIR SUPPLY PWR, C518		1	6H22	*
L ISO VLV AIR SUPPLY PWR, C513		1	6H20	*
R ISO VLV AIR SUPPLY PWR, C519		1	6H24	*
CONTROLLER - ENG 1 HIGH PRESSURE, M7191	3	1	415, L THRUST REVERSER HALF	36-11-06
CONTROLLER - ENG 2 HIGH PRESSURE, M7191	3	1	425, L THRUST REVERSER HALF	36-11-06
CONTROLLER - ENG 3 HIGH PRESSURE, M7191	3	1	435, L THRUST REVERSER HALF	36-11-06
CONTROLLER - ENG 4 HIGH PRESSURE, M7191	3	1	445, L THRUST REVERSER HALF	36-11-06
CONTROLLER - ENG 1 PRESSURE, M7200	3	1	415, L THRUST REVERSER HALF	36-11-20
CONTROLLER - ENG 2 PRESSURE, M7200	3	1	425, L THRUST REVERSER HALF	36-11-20
CONTROLLER - ENG 3 PRESSURE, M7200	3	1	435, L THRUST REVERSER HALF	36-11-20
CONTROLLER - ENG 4 PRESSURE, M7200	3	1	445, L THRUST REVERSER HALF	36-11-20
DIODE - (31-01-36/101) M3739				
DIODE - M3556	1	1	FLT COMPT, P6	*
DUCT - ENG 1 BLEED AIR PRESSURE COMPENSATOR	7	1	454A, TRAILING EDGE FAIRING DOORS	36-11-16
DUCT - ENG 2 BLEED AIR PRESSURE COMPENSATOR	7	1	464A, TRAILING EDGE FAIRING DOORS	36-11-16
DUCT - ENG 3 BLEED AIR PRESSURE COMPENSATOR	7	1	474A, TRAILING EDGE FAIRING DOORS	36-11-16
DUCT - ENG 4 BLEED AIR PRESSURE COMPENSATOR	7	1	484A, TRAILING EDGE FAIRING DOORS	36-11-16
MODULES - (45-45-00/101) L CMC, M7373 R CMC, M7375				
MODULE - AIR SUPPLY CONTROL AND TEST UNIT (ASCTU), M7957	1	1	117A MAIN EQUIP CTR, E2-4	36-11-30
MODULE - BLEED CONTROL, M7328	1	1	FLT COMPT, P5	*
PANEL - (31-01-15/101) APU CMPNT, P83				
PRECOOLER - ENG 1 BLEED AIR	4	1	415 AND 416 THRUST REVERSER HALVES	36-12-01
PRECOOLER - ENG 2 BLEED AIR	4	1	417 AND 418 CORE COWL PANELS, 452DL MID LOWER FORWARD STRUT 425 AND 426 THRUST REVERSER HALVES 427 AND 428 CORE COWL PANELS, 462DL MID LOWER FORWARD STRUT	36-12-01

* SEE WDM EQUIPMENT LIST

Distribution - Component Index
Figure 101 (Sheet 1)

Figure 1 36-10 DISTRIBUTION COMPONENT INDEX



COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
PRECOOLER - ENG 3 BLEED AIR	4	1	435 AND 436 THRUST REVERSER HALVES	36-12-01
PRECOOLER - ENG 4 BLEED AIR	4	1	437 AND 438 CORE COWL PANELS, 472DL MID LOWER FORWARD STRUT 445 AND 446 THRUST REVERSER HALVES 447 AND 448 CORE COWL PANELS, 482DL MID LOWER FORWARD STRUT	36-12-01
RELAY - (31-01-36/101) AIR SUPPLY APU VALVE CONTROL, R7745	1	1	FLT COMPT, P6	*
RELAY - APU START/ON, R7730	7	1	454A, TRAILING EDGE FAIRING DOORS	36-11-24
SCREEN - SYSTEM 1 AIR DRIVEN PUMP PNEUMATIC DUCT	7	1	464A, TRAILING EDGE FAIRING DOORS	36-11-24
SCREEN - SYSTEM 2 AIR DRIVEN PUMP PNEUMATIC DUCT	7	1	474A, TRAILING EDGE FAIRING DOORS	36-11-24
SCREEN - SYSTEM 3 AIR DRIVEN PUMP PNEUMATIC DUCT	7	1	484A, TRAILING EDGE FAIRING DOORS	36-11-24
SENSOR - SYSTEM 1 FAN AIR TEMPERATURE	5	1	452DL, MID LOWER FORWARD STRUT	36-12-02
SENSOR - SYSTEM 2 FAN AIR TEMPERATURE	5	1	462DL, MID LOWER FORWARD STRUT	36-12-02
SENSOR - SYSTEM 3 FAN AIR TEMPERATURE	5	1	472DL, MID LOWER FORWARD STRUT	36-12-02
SENSOR - SYSTEM 4 FAN AIR TEMPERATURE	5	1	482DL, MID LOWER FORWARD STRUT	36-12-02
SWITCHES - (26-21-00/101) ENG 1 FIRE, S211 ENG 2 FIRE, S212 ENG 3 FIRE, S213 ENG 4 FIRE, S214				
SWITCH - (26-22-00/101) APU FIRE, S246				
VALVE - APU BLEED AIR (SHUTOFF), V121	6	1	137, BODY LANDING GEAR WHEEL WELL	36-11-09
VALVE - APU CHECK	6	1	137, BODY LANDING GEAR WHEEL WELL	36-11-08
VALVE - ENG 1 FAN AIR MODULATING, V9	4	1	415, L THRUST REVERSER HALF	36-12-04
VALVE - ENG 2 FAN AIR MODULATING, V9	4	1	425, L THRUST REVERSER HALF	36-12-04
VALVE - ENG 3 FAN AIR MODULATING, V9	4	1	435, L THRUST REVERSER HALF	36-12-04
VALVE - ENG 4 FAN AIR MODULATING, V9	4	1	445, L THRUST REVERSER HALF	36-12-04

* SEE THE WDM EQUIPMENT LIST

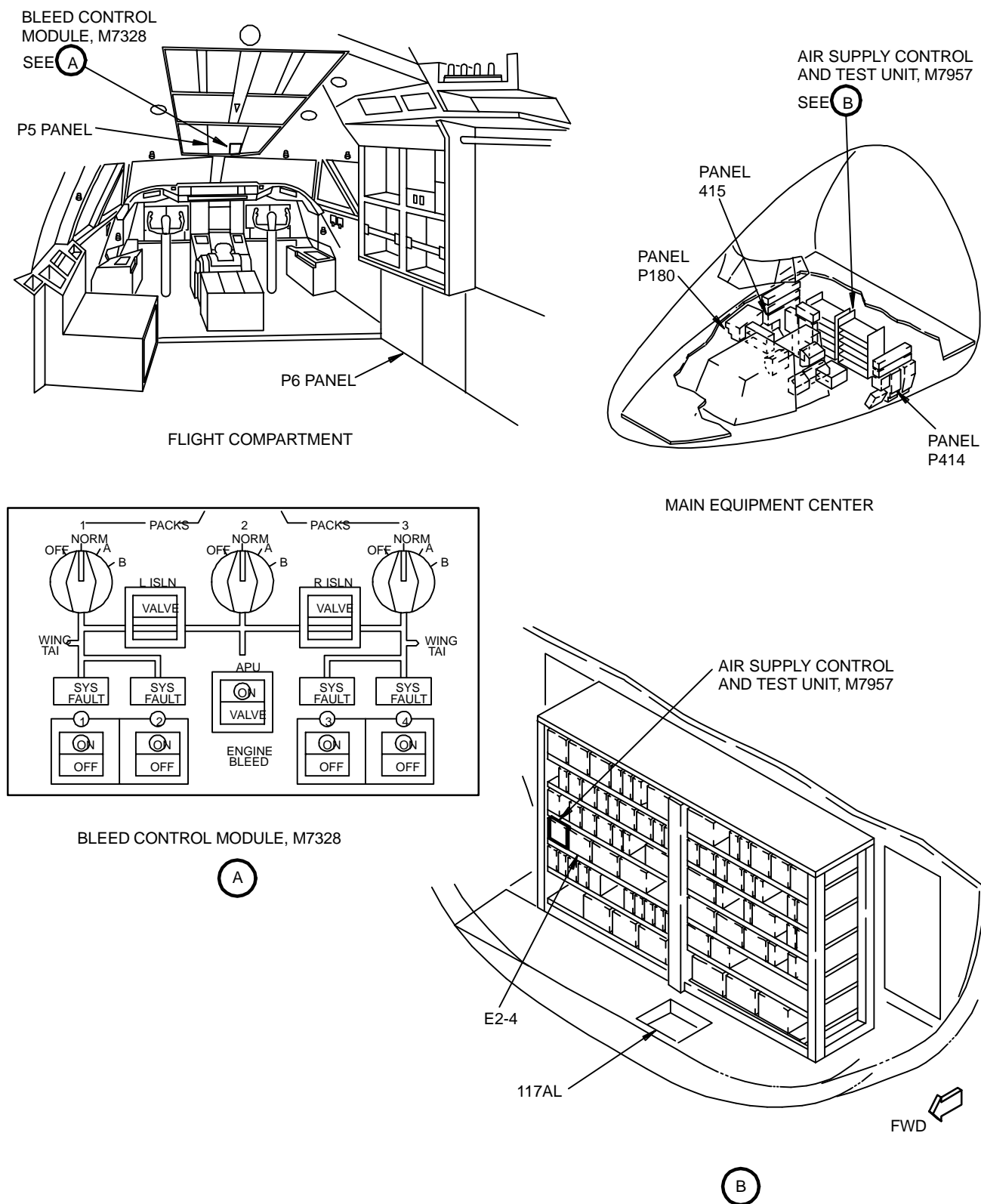
Distribution - Component Index
Figure 101 (Sheet 2)**Figure 2 36-10 DISTRIBUTION COMPONENT INDEX**

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
VALVE - ENG 1 HIGH PRESSURE SHUTOFF (HPSOV), V347	2	1	416, R THRUST REVERSER HALF	36-11-05
VALVE - ENG 2 HIGH PRESSURE SHUTOFF (HPSOV), V347	2	1	426, R THRUST REVERSER HALF	36-11-05
VALVE - ENG 3 HIGH PRESSURE SHUTOFF (HPSOV), V347	2	1	436, R THRUST REVERSER HALF	36-11-05
VALVE - ENG 4 HIGH PRESSURE SHUTOFF (HPSOV), V347	2	1	446, R THRUST REVERSER HALF	36-11-05
VALVE - ENG 1 INTERMEDIATE PRESSURE CHECK	2	1	416, R THRUST REVERSER HALF	36-11-02
VALVE - ENG 2 INTERMEDIATE PRESSURE CHECK	2	1	426, R THRUST REVERSER HALF	36-11-02
VALVE - ENG 3 INTERMEDIATE PRESSURE CHECK	2	1	436, R THRUST REVERSER HALF	36-11-02
VALVE - ENG 4 INTERMEDIATE PRESSURE CHECK	2	1	446, R THRUST REVERSER HALF	36-11-02
VALVE - PNEUMATIC GROUND CONNECTION CHECK	7	2	193AL, AIR-CONDITIONING DOOR	36-11-14
VALVE - ENG 1 PRESSURE REGULATING AND SHUTOFF (PRSOV), V83	5	1	452EL, MID LOWER STRUT AFT ACCESS DOOR 452DR, FORWARD LOWER MIDSPAR PRESSURE RELIEF ACCESS DOOR	36-11-04
VALVE - ENG 2 PRESSURE REGULATING AND SHUTOFF (PRSOV), V85	5	1	462EL, MID LOWER STRUT AFT ACCESS DOOR 462DR, MID LOWER STRUT AFT ACCESS DOOR	36-11-04
VALVE - ENG 3 PRESSURE REGULATING AND SHUTOFF (PRSOV), V86	5	1	472EL, MID LOWER STRUT AFT ACCESS DOOR 472DR, MID LOWER STRUT AFT ACCESS DOOR	36-11-04
VALVE - ENG 1 PRESSURE REGULATING AND SHUTOFF (PRSOV), V87	5	1	482EL, MID LOWER STRUT AFT ACCESS DOOR 482DR, FORWARD LOWER MIDSPAR PRESSURE RELIEF ACCESS DOOR	36-11-04
VALVE - ENG 1 PRESSURE REGULATING (PRV), V352	2	1	416, R THRUST REVERSER HALF	36-11-19
VALVE - ENG 2 PRESSURE REGULATING (PRV), V352	2	1	426, R THRUST REVERSER HALF	36-11-19
VALVE - ENG 3 PRESSURE REGULATING (PRV), V352	2	1	436, R THRUST REVERSER HALF	36-11-19
VALVE - ENG 4 PRESSURE REGULATING (PRV), V352	2	1	446, R THRUST REVERSER HALF	36-11-19
VALVE - L WING ISOLATION, V108	6	1	191NL, AIR-CONDITIONING DOOR	36-11-07
VALVE - R WING ISOLATION, V109	6	1	192NR, AIR-CONDITIONING DOOR	36-11-07

Distribution - Component Index
Figure 101 (Sheet 3)

Figure 3 36-10 DISTRIBUTION COMPONENT INDEX

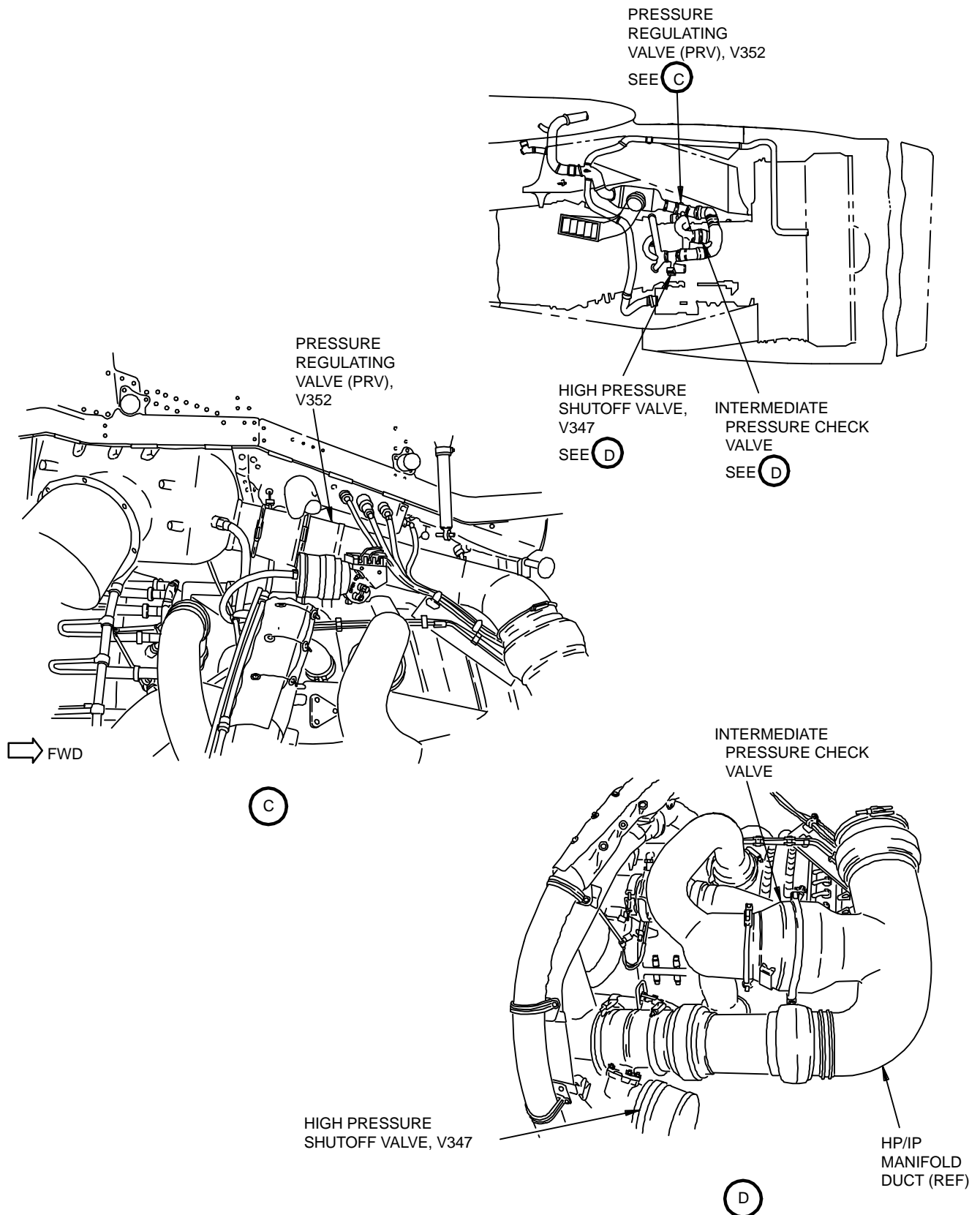




Distribution - Component Location
Figure 102 (Sheet 1)

Figure 4 36-10 DISTRIBUTION COMPONENT LOCATION

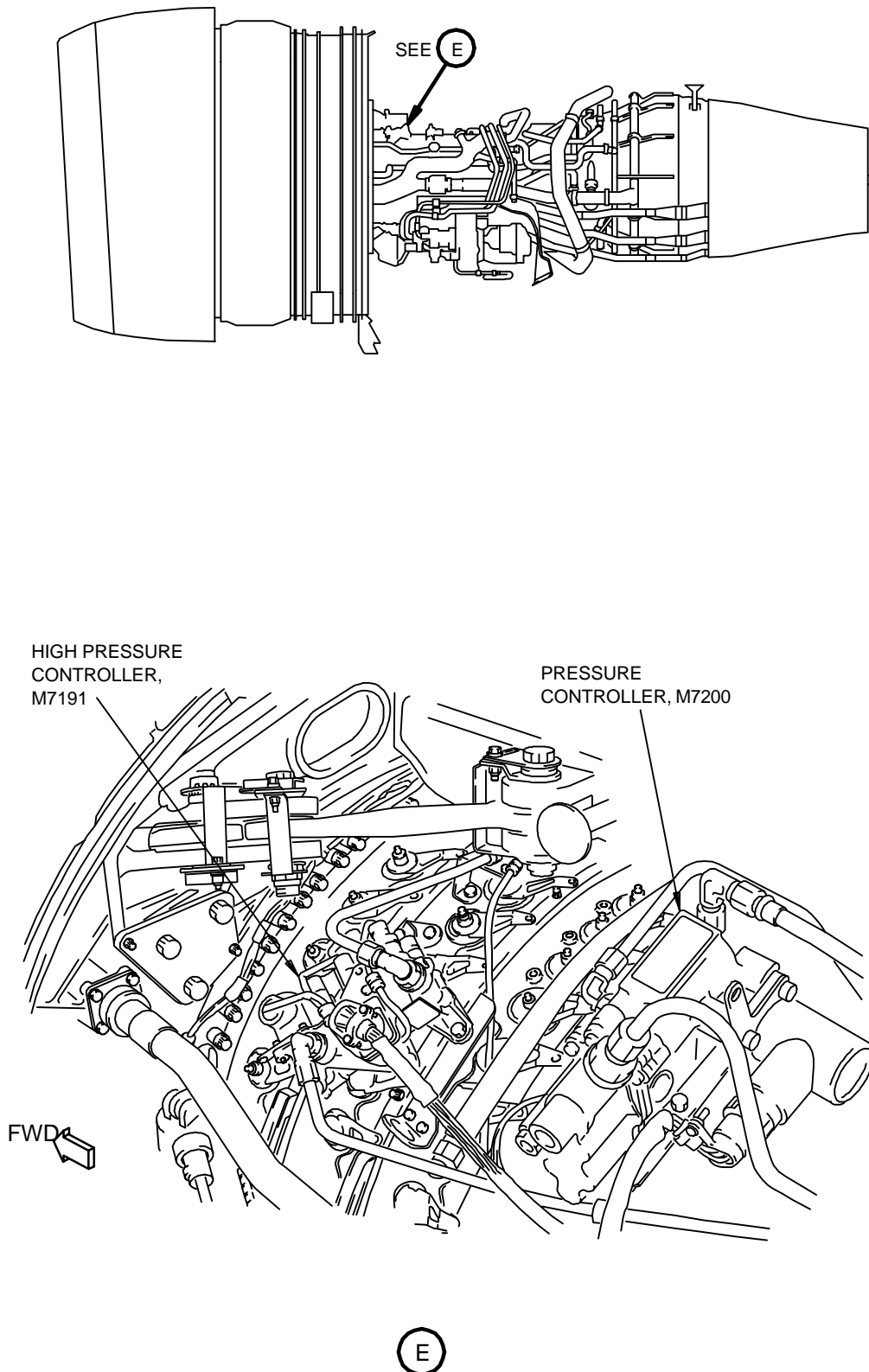




Distribution - Component Location
Figure 102 (Sheet 2)

Figure 5 36-10 DISTRIBUTION COMPONENT LOCATION



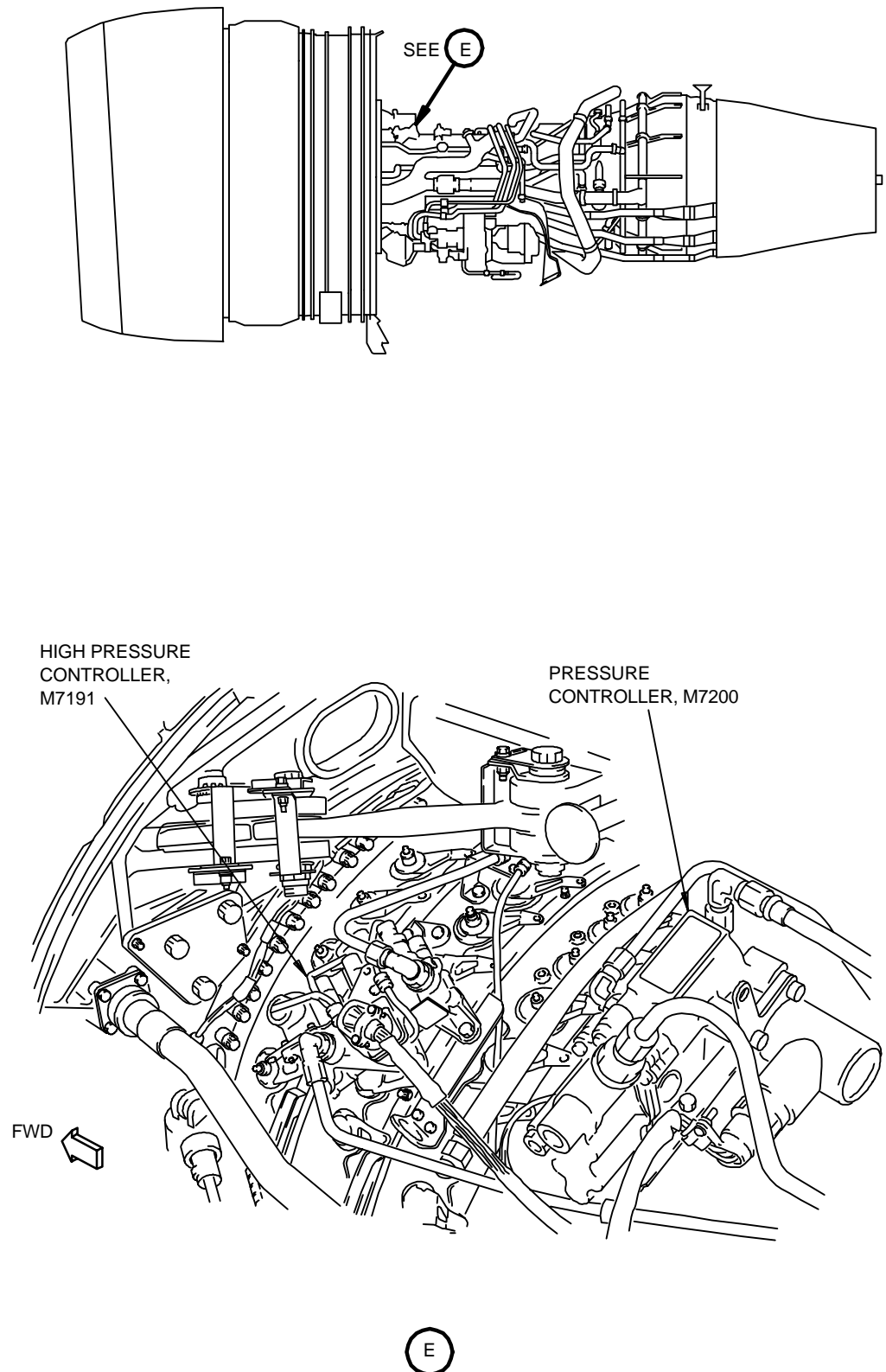


Distribution - Component Location

Figure 102 (Sheet 3)

Figure 6 36-10 DISTRIBUTION COMPONENT LOCATION



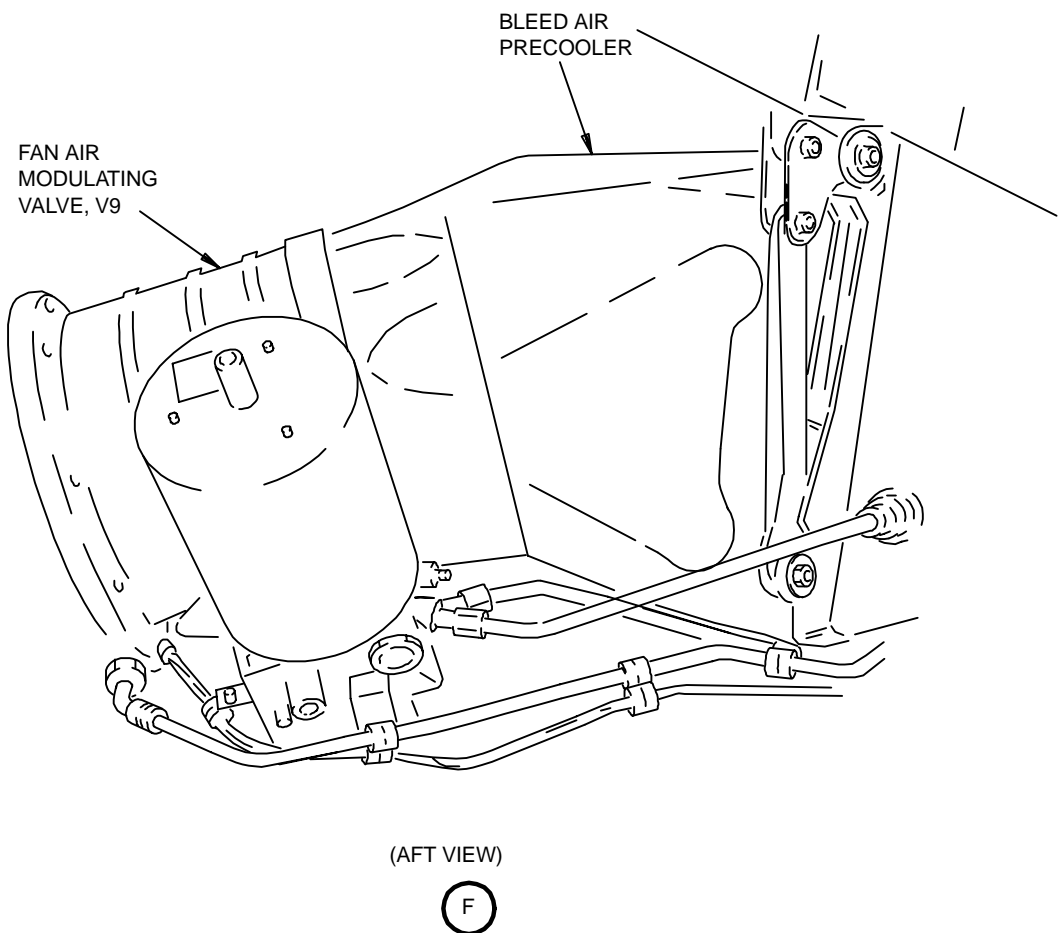
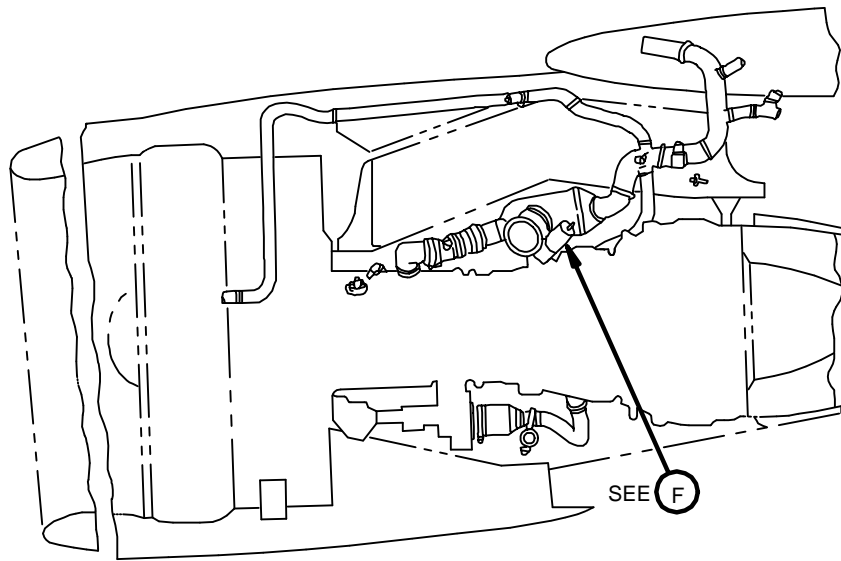


Distribution - Component Location

Figure 102 (Sheet 3)

Figure 7 36-10 DISTRIBUTION COMPONENT LOCATION

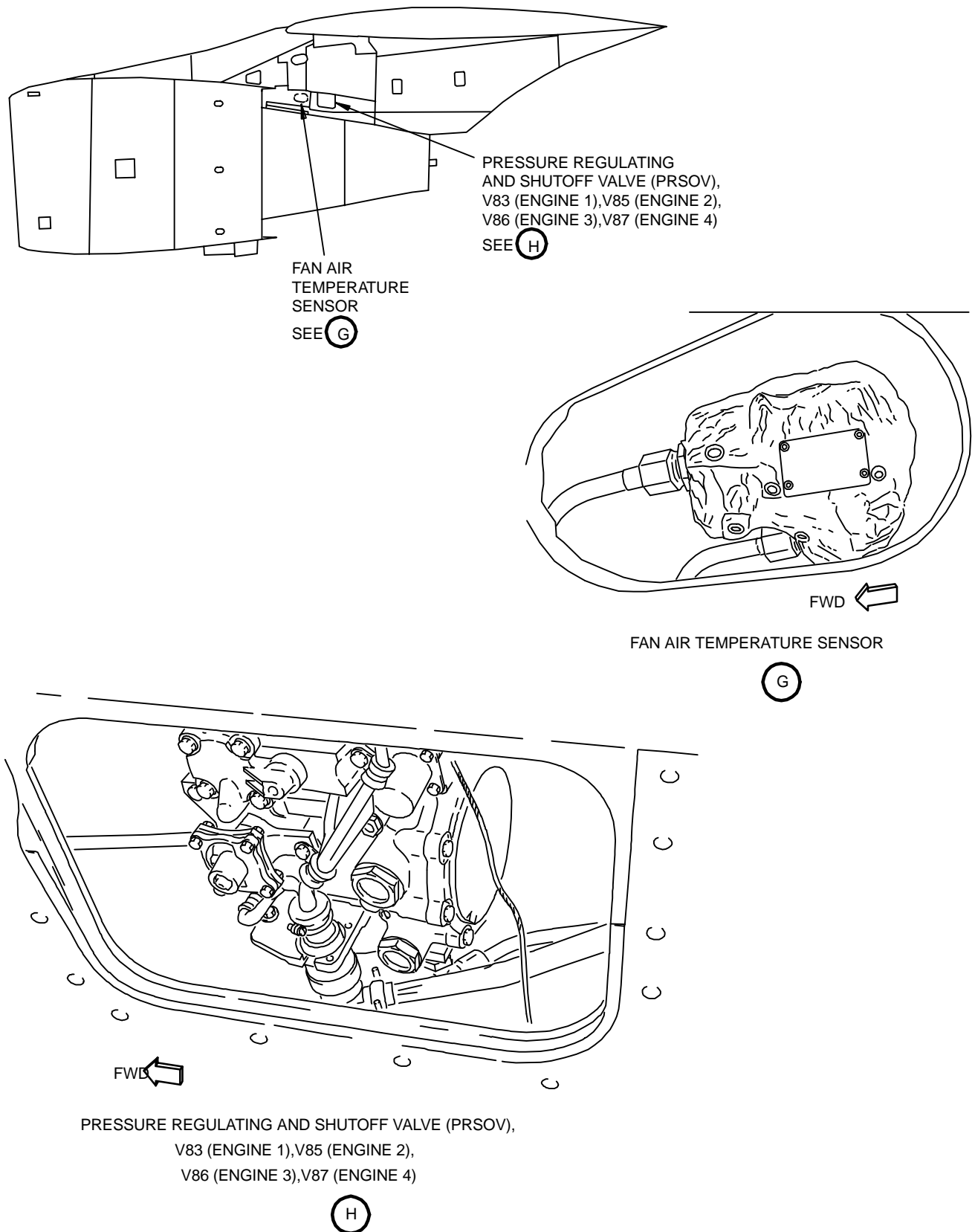




Distribution - Component Location
Figure 102 (Sheet 4)

Figure 8 36-10 DISTRIBUTION COMPONENT LOCATION

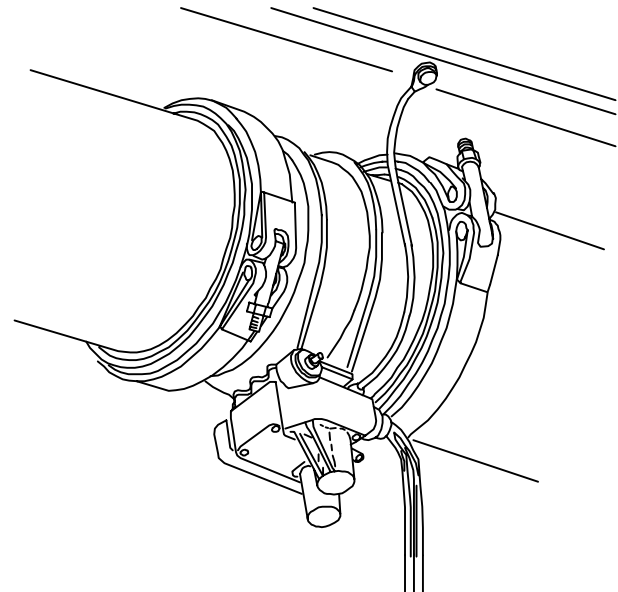
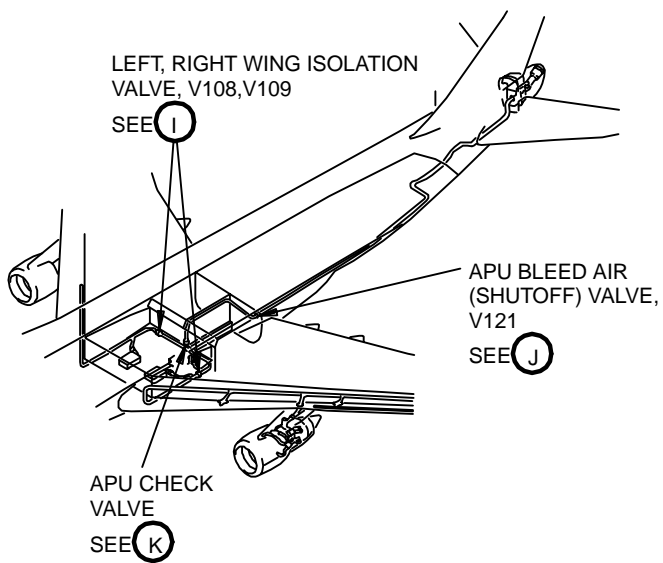




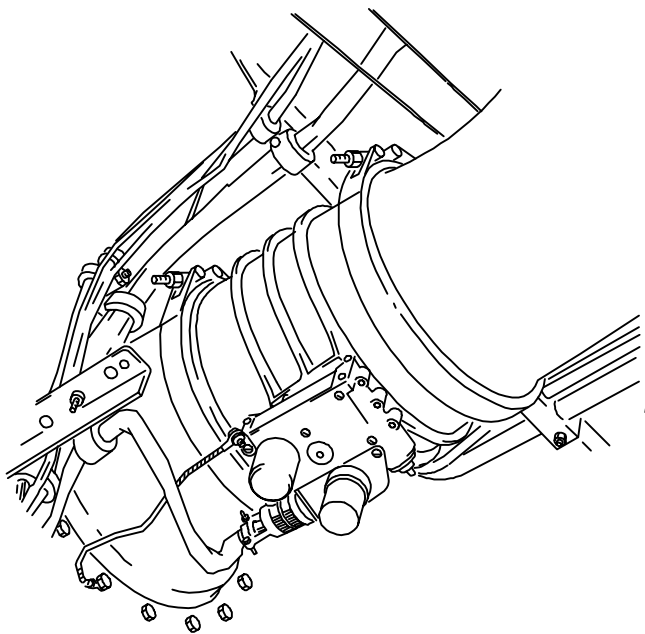
Distribution - Component Location
Figure 102 (Sheet 5)

Figure 9 36-10 DISTRIBUTION COMPONENT LOCATION



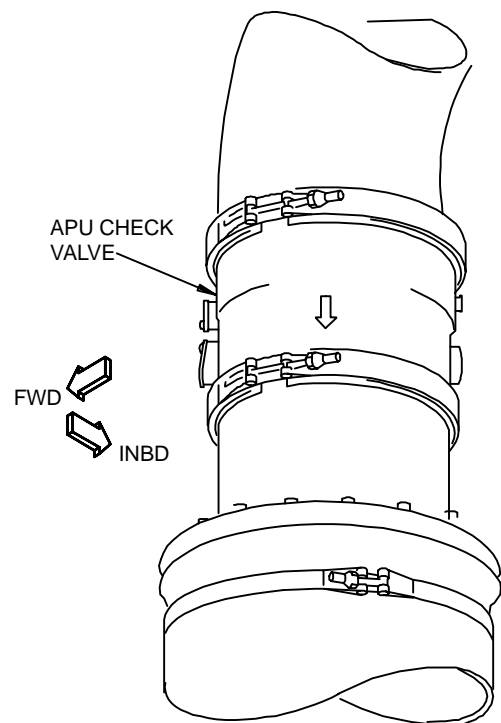
LEFT, RIGHT WING ISOLATION VALVE,
V108, V109

I



APU BLEED AIR (SHUTOFF) VALVE, V121

J



APU CHECK VALVE

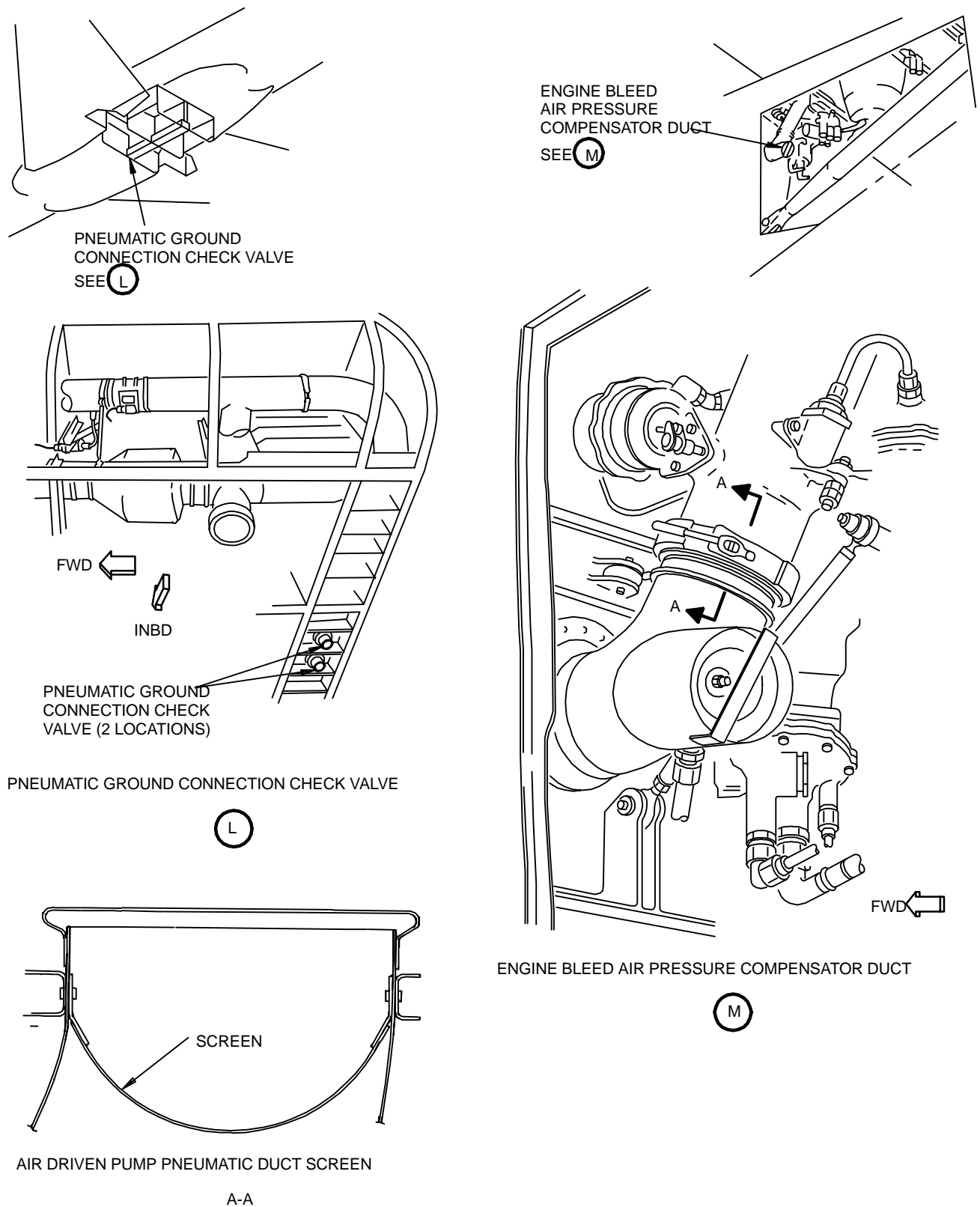
K

NOTE: LEFT WING ISOLATION VALVE SHOWN,
RIGHT WING ISOLATION VALVE EQUIVALENT.

Distribution - Component Location
Figure 102 (Sheet 6)

Figure 10 36-10 DISTRIBUTION COMPONENT LOCATION





Distribution - Component Location
Figure 102 (Sheet 7)



Figure 11 36-10 DISTRIBUTION COMPONENT LOCATION



36-20 INDICATION



INDICATION





COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CIRCUIT BREAKERS -	1		FLT COMPT, P6	
AIR SUPPLY CONT 1 PWR, C10065		1	6H32	*
AIR SUPPLY CONT 2 PWR, C10066		1	6H33	*
AIR SUPPLY CONT 3 PWR, C10067		1	6H34	*
AIR SUPPLY CONT 4 PWR, C10068		1	6H35	*
CIRCUIT BREAKERS -	1		117A, MAIN EQUIP CTR, P180	
AIR SUPPLY IND L, C10195		1	180H11	*
AIR SUPPLY IND R, C10196		1	180H28	*
CIRCUIT BREAKERS -	1		117A, MAIN EQUIP CTR, D415	
AIR SUPPLY FLOW IND, C10197 		1	415B30	*
DIODES - (31-01-36/101)				
ENG 1 START VALVE POS RELAY BLOCKING, M4410				
ENG 2 START VALVE POS RELAY BLOCKING, M4411				
DIODES - (31-01-39/101)				
ENG 3 START VALVE POS RELAY BLOCKING, M4412				
ENG 4 START VALVE POS RELAY BLOCKING, M4413				
MODULES - (31-61-00/101)				
C EIU, M7352				
L EIU, M7353				
R EIU, M7351				
MODULE - (36-10-00/101)				
AIR SUPPLY CONTROL AND TEST UNIT (ASCTU), M7957				
MODULE - BLEED AIR FLOW SIGNAL CONDITIONER, B7019 	4	1	117A, MAIN EQUIP CTR, E1-5	36-23-02
PANEL - (30-11-00/101)				
ANTI-ICE, M7321				
RELAYS - (31-01-06/101)				
ENGINE 1 START, R7538				
ENGINE 2 START, R7540				
ENGINE 3 START, R7542				
ENGINE 4 START, R7544				
ENG 1 START VALVE POSITION, R7476				
ENG 2 START VALVE POSITION, R7477				
ENG 3 START VALVE POSITION, R7478				
ENG 4 START VALVE POSITION, R7479				
RELAYS - (31-01-36/101)				
ENG 1 THRUST REVERSER, R7128				
ENG 2 THRUST REVERSER, R7129				
ENG 3 THRUST REVERSER, R7130				
ENG 4 THRUST REVERSER, R7131				
RELAY - (31-01-39/101)				
SYSTEM PRIMARY AIR/GROUND, R7330				

* SEE THE WDM EQUIPMENT LIST

 DLH AIRPLANES ONLY

Indication - Component Index
Figure 101 (Sheet 1)

Figure 12 36-20 INDICATION COMPONENT INDEX

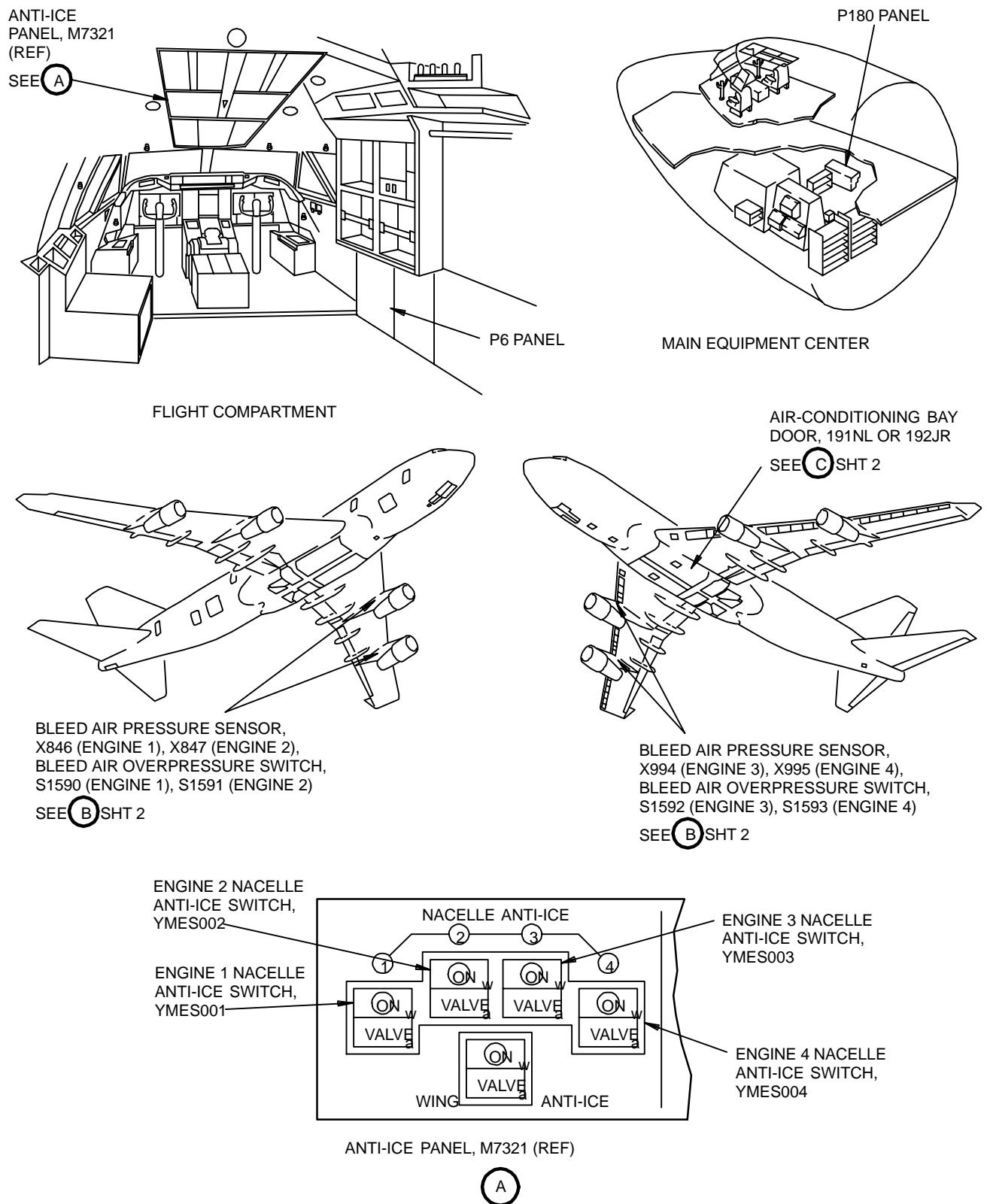
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
SENSOR - ENG 1 BLEED AIR PRESSURE, X846	2	1	452, NACELLE STRUT	36-21-02
SENSOR - ENG 2 BLEED AIR PRESSURE, X847	2	1	462, NACELLE STRUT	36-21-02
SENSOR - ENG 3 BLEED AIR PRESSURE, X994	2	1	472, NACELLE STRUT	36-21-02
SENSOR - ENG 4 BLEED AIR PRESSURE, X995	2	1	482, NACELLE STRUT	36-21-02
SENSOR - ENG 1 BLEED AIRFLOW, B7020 	4	1	LEADING EDGE FLAPS	36-23-01
SENSOR - ENG 2 BLEED AIRFLOW, B7021 	4	1	511FB, INBOARD LEFT WING L/E	36-23-01
SENSOR - ENG 3 BLEED AIRFLOW, B7022 	4	1	611FB, INBOARD RIGHT WING L/E	36-23-01
SENSOR - ENG 4 BLEED AIRFLOW, B7023 	4	1	LEADING EDGE FLAPS	36-23-01
SENSOR - ENG 1 BLEED AIR TEMPERATURE, X1050	2	1	452DL, MID LOWER FWD STRUT	36-22-02
SENSOR - ENG 2 BLEED AIR TEMPERATURE, X1050	2	1	462DL, MID LOWER FWD STRUT	36-22-02
SENSOR - ENG 3 BLEED AIR TEMPERATURE, X1050	2	1	472DL, MID LOWER FWD STRUT	36-22-02
SENSOR - ENG 4 BLEED AIR TEMPERATURE, X1050	2	1	482DL, MID LOWER FWD STRUT	36-22-02
SWITCH - ENG 1 BLEED AIR OVERPRESSURE, S1590	2	1	452, NACELLE STRUT	36-21-03
SWITCH - ENG 2 BLEED AIR OVERPRESSURE, S1591	2	1	462, NACELLE STRUT	36-21-03
SWITCH - ENG 3 BLEED AIR OVERPRESSURE, S1592	2	1	472, NACELLE STRUT	36-21-03
SWITCH - ENG 4 BLEED AIR OVERPRESSURE, S1593	2	1	482, NACELLE STRUT	36-21-03
SWITCH - ENG 1 BLEED AIR OVERTEMPERATURE, S1618	3	1	452DL, MID LOWER FWD STRUT	36-22-01
SWITCH - ENG 2 BLEED AIR OVERTEMPERATURE, S1618	3	1	462DL, MID LOWER FWD STRUT	36-22-01
SWITCH - ENG 3 BLEED AIR OVERTEMPERATURE, S1618	3	1	472DL, MID LOWER FWD STRUT	36-22-01
SWITCH - ENG 4 BLEED AIR OVERTEMPERATURE, S1618	3	1	482DL, MID LOWER FWD STRUT	36-22-01
SWITCH - ENG 1 NACELLE ANTI-ICE, YMES001	1	1	FLT COMPT, P5 ANTI-ICE PNL, M7321	*
SWITCH - ENG 2 NACELLE ANTI-ICE, YMES002	1	1	FLT COMPT, P5 ANTI-ICE PNL, M7321	*
SWITCH - ENG 3 NACELLE ANTI-ICE, YMES003	1	1	FLT COMPT, P5 ANTI-ICE PNL, M7321	*
SWITCH - ENG 4 NACELLE ANTI-ICE, YMES004	1	1	FLT COMPT, P5 ANTI-ICE PNL, M7321	*
TRANSMITTER - L DUCT PRESSURE, X1017	2	1	191NL, AIR-CONDITIONING DOOR	36-21-01
TRANSMITTER - R DUCT PRESSURE, X1016	2	1	192JR, AIR-CONDITIONING DOOR	36-21-01

* SEE THE WDM EQUIPMENT LIST

 DLH AIRPLANES ONLYIndication - Component Index
Figure 101 (Sheet 2)

Figure 13 36-20 INDICATION COMPONENT INDEX

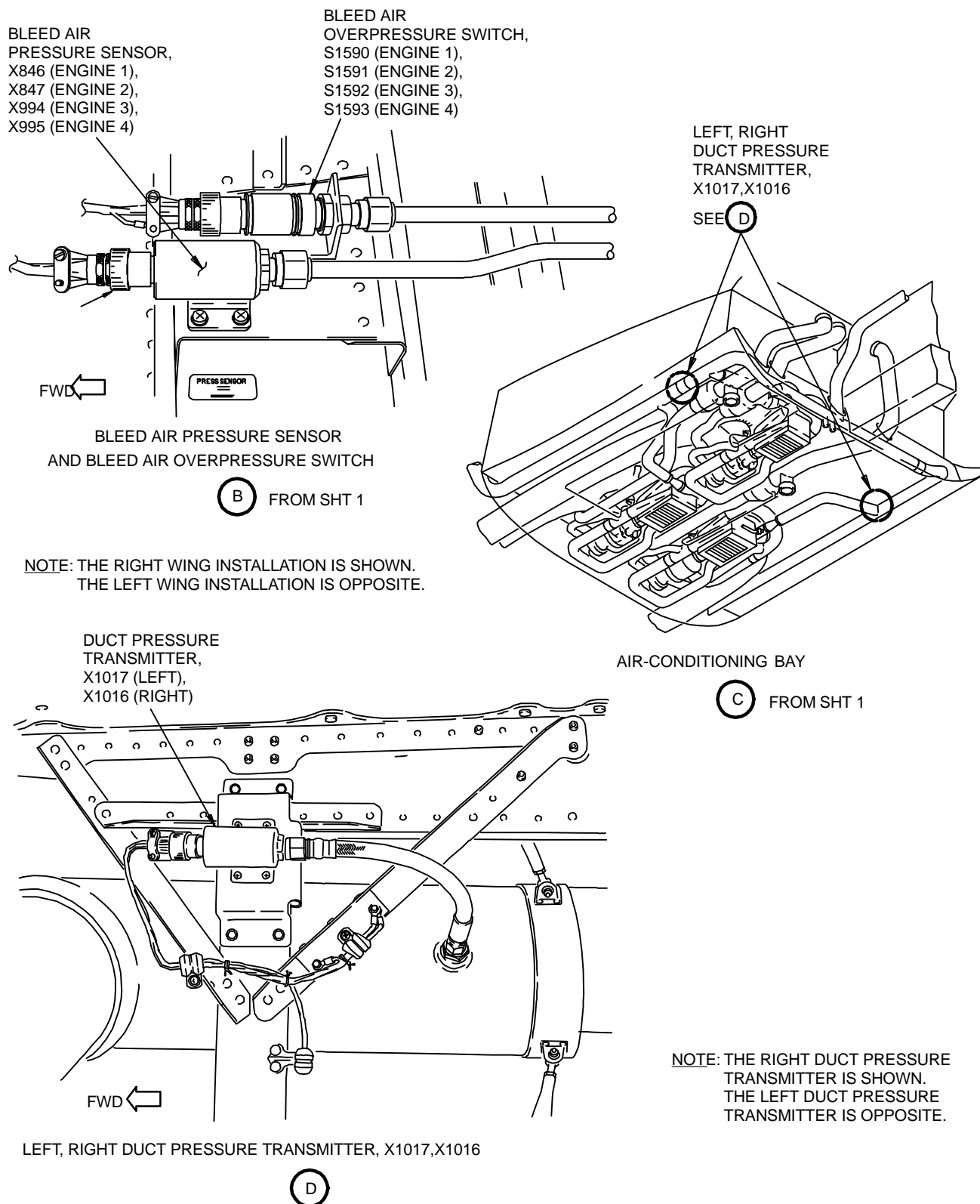




Indication - Component Location
Figure 102 (Sheet 1)

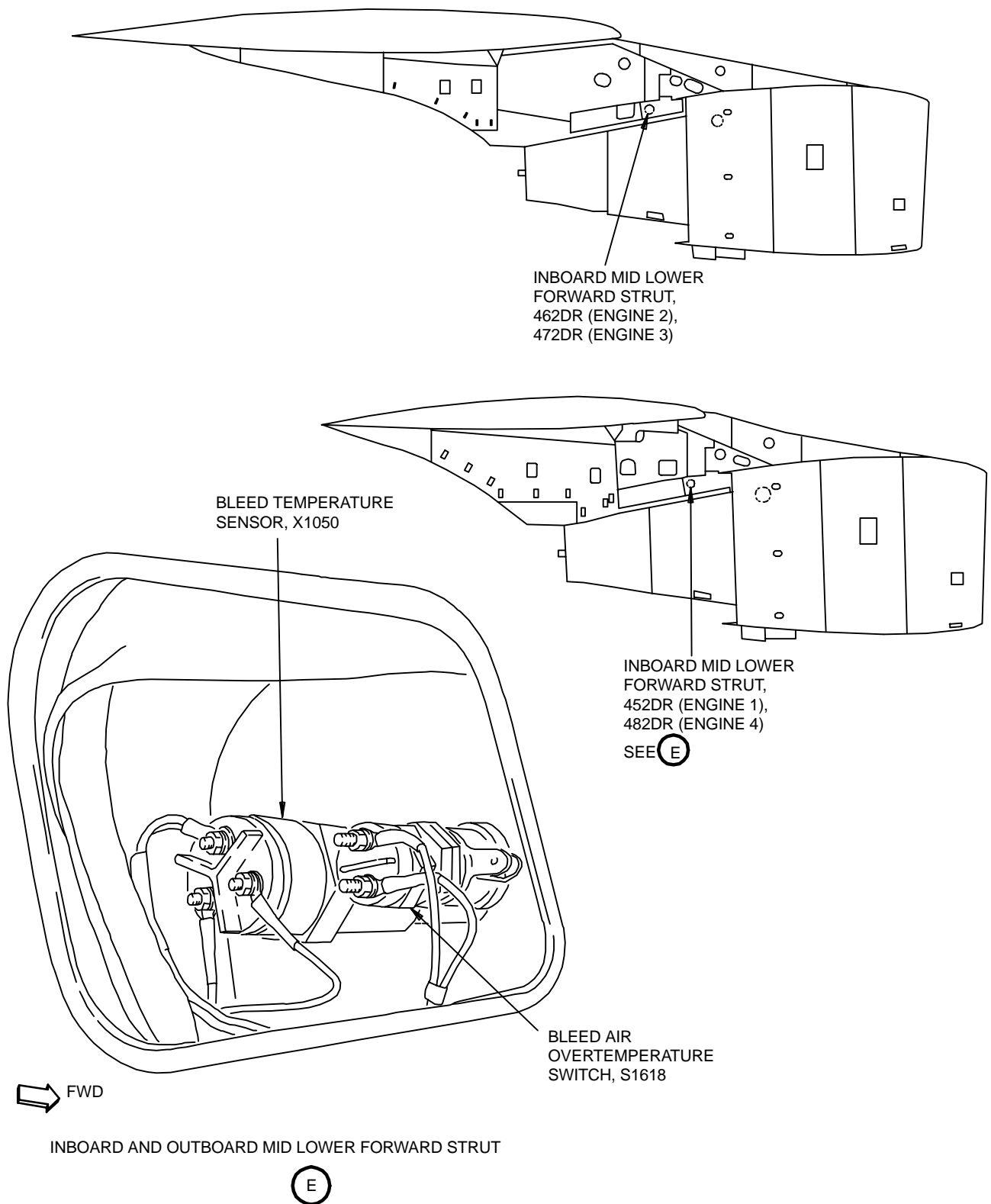
Figure 14 36-20 INDICATION COMPONENT LOCATION





Indication - Component Location
Figure 102 (Sheet 2)

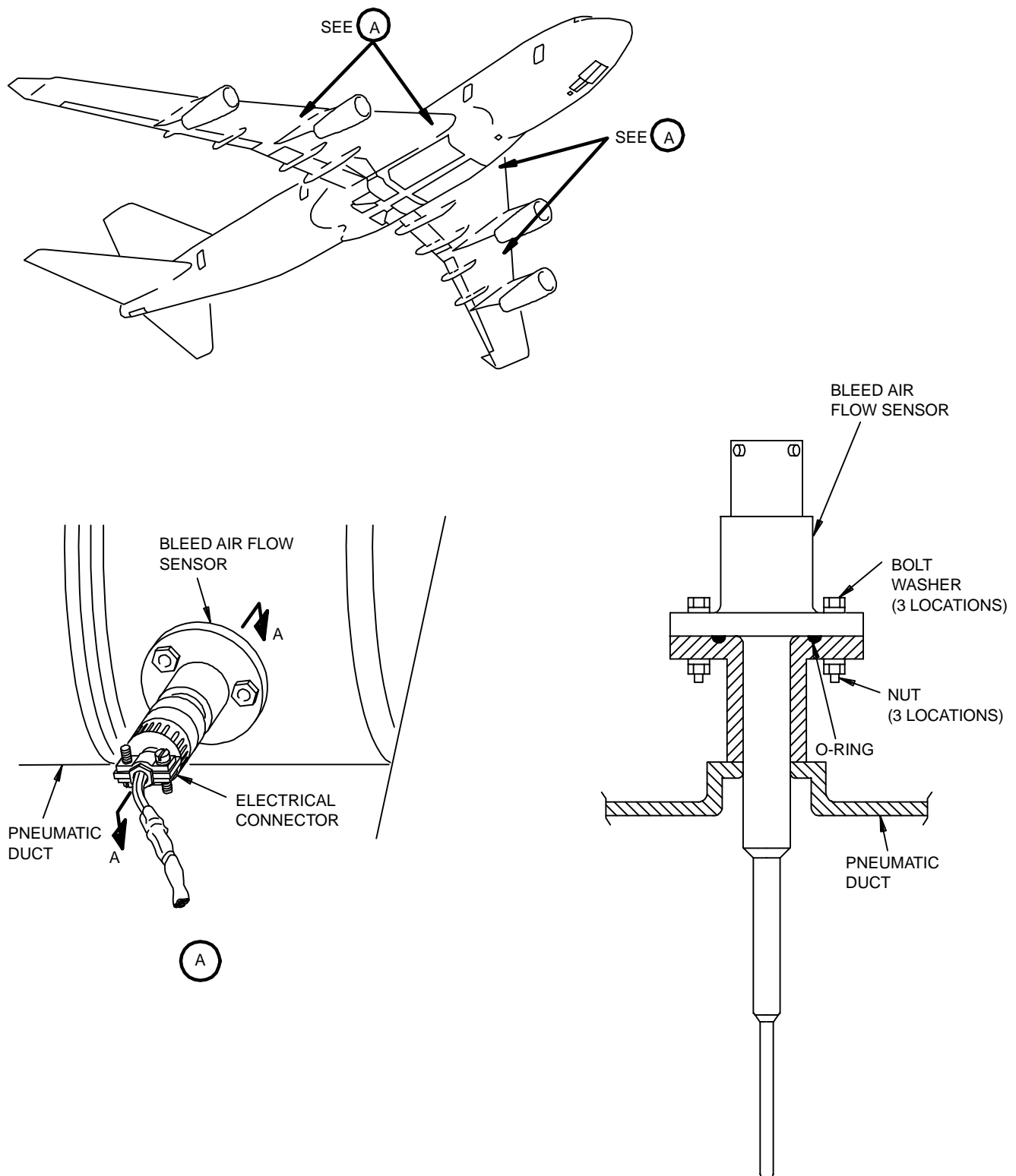
Figure 15 36-20 INDICATION COMPONENT LOCATION



Indication - Component Location
Figure 102 (Sheet 3)

Figure 16 36-20 INDICATION COMPONENT LOCATION

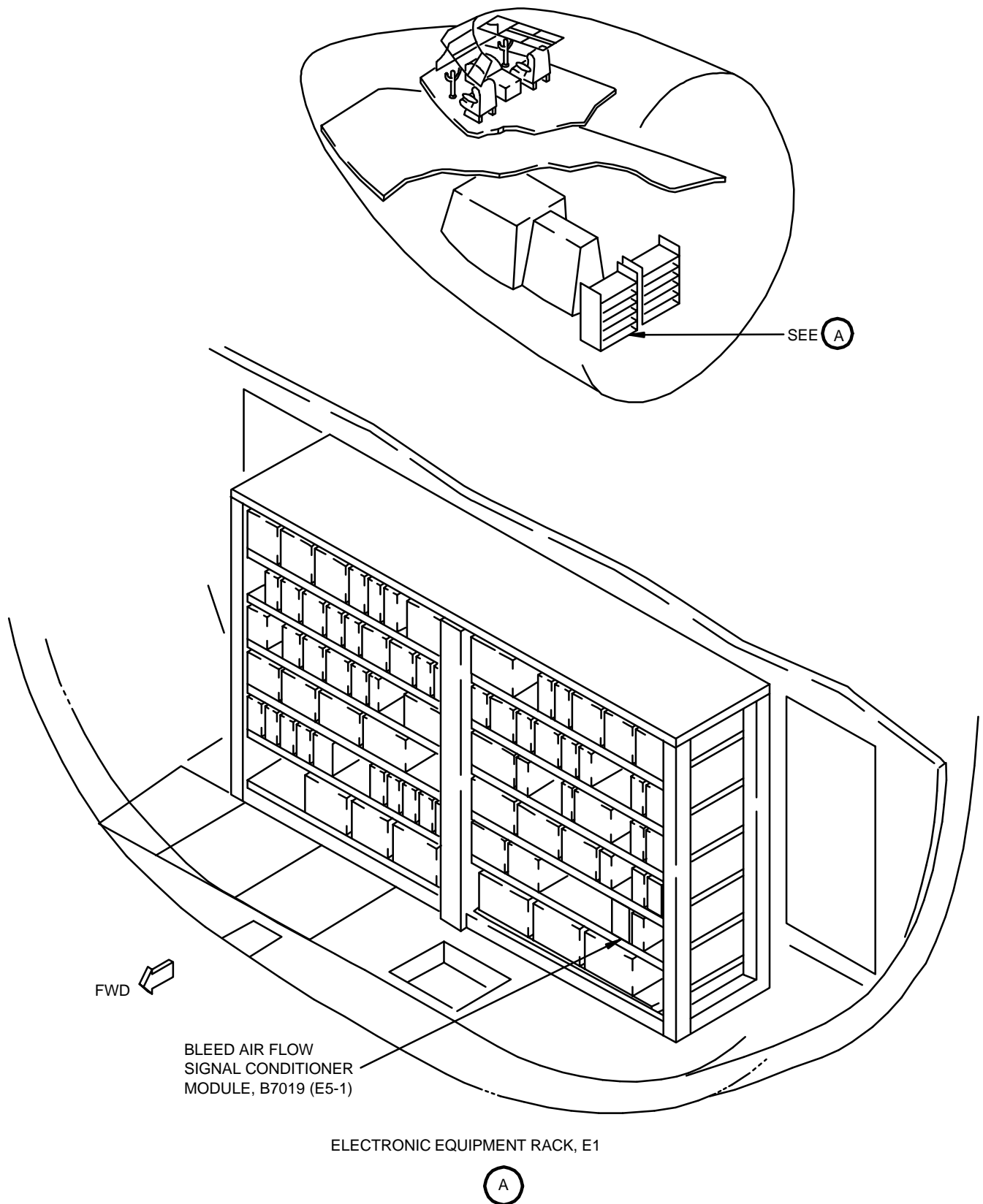




Bleed Air Flow Sensor Installation
Figure 401

Figure 17 36-20 INDICATION COMPONENT LOCATION





Bleed Air Flow Signal Conditioner Installation
Figure 401

Figure 18 36-20 INDICATION COMPONENT LOCATION



30-80 ICE DETECTION

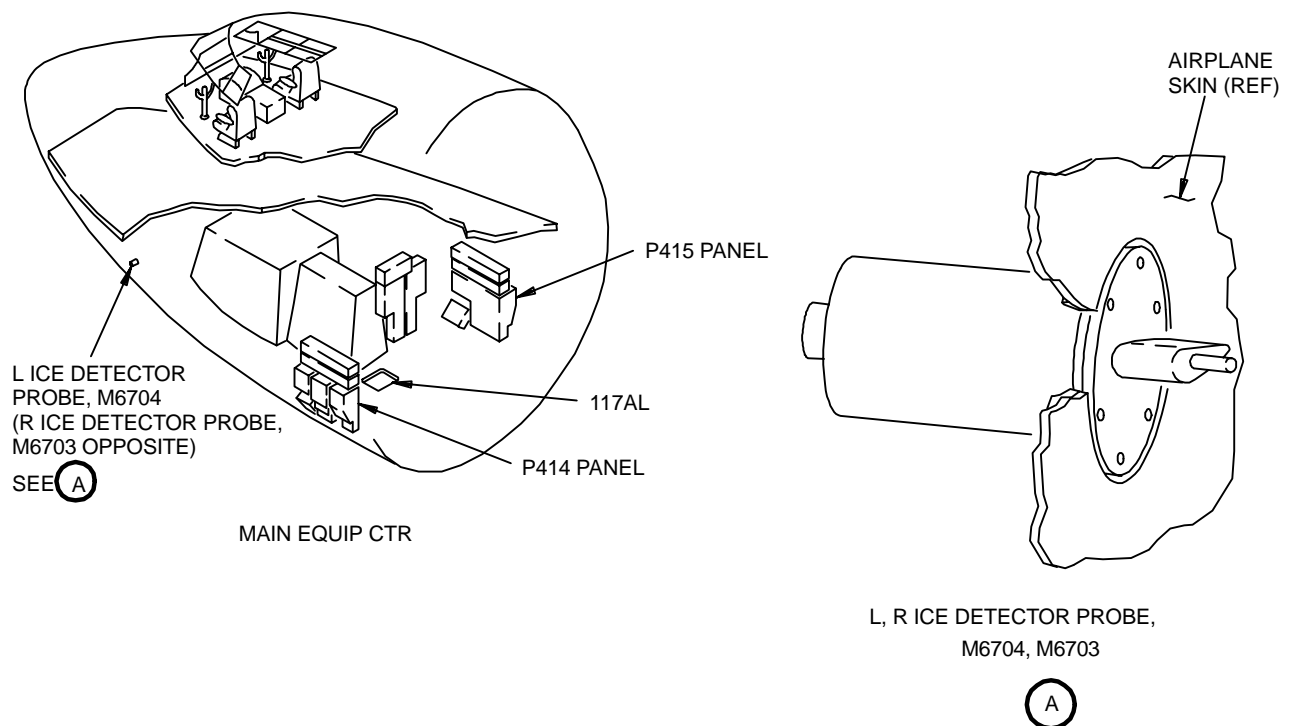
ICE DETECTION SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CIRCUIT BREAKER - L ICE DETECTOR, C10395	1	1	117AL, MAIN EQUIP CTR, P414 414L10	*
CIRCUIT BREAKER - R ICE DETECTOR, C10396		1	117AL, MAIN EQUIP CTR, P414 415L33	*
COMPUTER - (REF 45-45-00, FIG. 101) L CENTRAL MAINTENANCE, M7373 R CENTRAL MAINTENANCE, M7374				
PROBE - L ICE DETECTOR, M6704	1	1	L SIDE FWD FUSELAGE	30-81-01
PROBE - R ICE DETECTOR, M6703	1	1	R SIDE FWD FUSELAGE	30-81-01
RELAY - (REF 31-01-36, FIG. 101) AIR/GROUND, R325				
RELAY - (REF 31-01-39, FIG. 101) AIR/GROUND, R226				
UNIT - (REF 31-61-00, FIG. 101) C EFIS/EICAS INTERFACE, M7352 L EFIS/EICAS INTERFACE, M7353 R EFIS/EICAS INTERFACE, M7351				

* SEE WDM EQUIPMENT LIST

Ice Detection System - Component Index

Figure 101



Ice Detection System - Component Location

Figure 102

Figure 19 30-80 ICE DETECTION SYSTEM



ATA 30 ICE AND RAIN PROTECTION
30-10 WING THERMAL ANTI-ICE

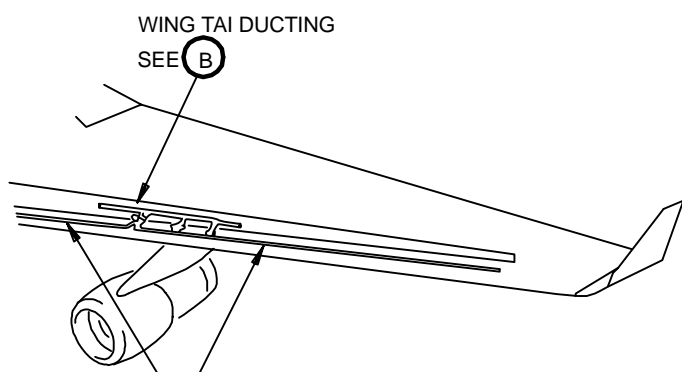
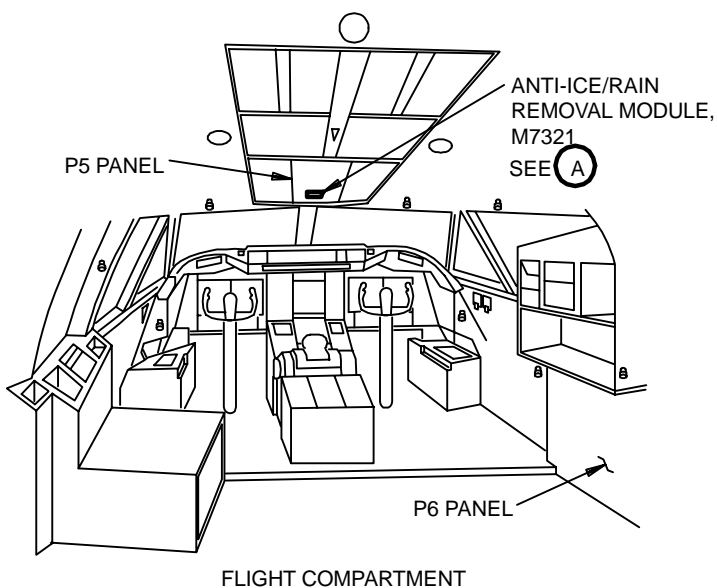
WING THERMAL ANTI-ICE SYSTEM

[illegible]

* SEE THE WDM EQUIPMENT LIST

Wing Thermal Anti-Ice System - Component Index
Figure 101 (Sheet 2)

Figure 20 30-10 WING THERMAL ANTI-ICE SYSTEM



SPRAY DUCTS
(REF)

PNEUMATIC
MANIFOLD
(REF)

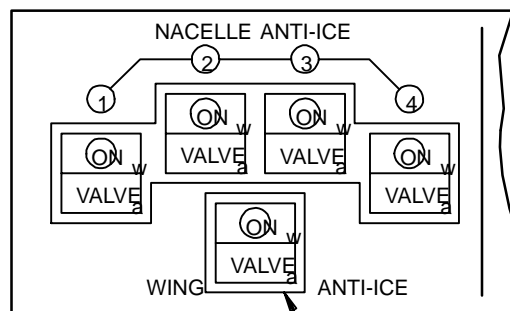
LEADING EDGE FLAP
NO. 6 (LEFT WING) (REF)
NO. 21 (RIGHT WING) (REF)

LEFT OR RIGHT
WING TAI VALVE,
V152 OR V153

SPRAY DUCTS
(REF)

WING TAI DUCTING

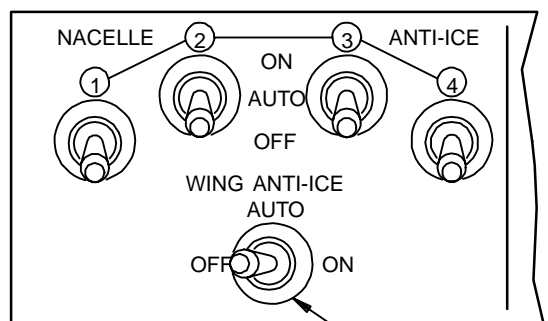
(B)



YMLAS5 SWITCH/LIGHT

ANTI-ICE/RAIN REMOVAL MODULE, M7321

(A) 1



YMLAS5 SWITCH

ANTI-ICE/RAIN REMOVAL MODULE, M7321

(A) 2

1 AFA ALL
2 DLH ALL;
UTA ALL

Wing Thermal Anti-Ice System - Component Location
Figure 102

Figure 21 30-10 WING THERMAL ANTI-ICE SYSTEM



