

DART SERVICE BULLETIN

REF. TCCA STC: SH07-28
REF. FAA STC: SR02831NY

Dart Service Bulletin Number: DSB-D212-725-3

Purpose: To allow Eagle Single owners and operators to convert their DC torque indicating system to an AC torque indicating system

Eligible Serial Numbers: 30544, 30866, 30826 and any subsequent Eagle Singles modified per D212-725-2-G2

Compliance: Optional

Description: This Service Bulletin describes the removal of the DC torque indicating system and the installation of the AC torque indicating system, thereby returning the torque indicating system to the G1 design.

Parts List: Table 1

ITEM	QTY -011	PART NUMBER	DESCRIPTION
	X	DSB-D212-725-3-011	AC TORQUE INSTALLATION
1	2	130-020-9	TORQUE PRESSURE TRANSMITTER
2	2	205-075-170-001	TORQUE PRESSURE INDICATOR
3	2	205-070-043-001	TORQUE PRESSURE INDICATOR GLASS
4	4	MS3456W10SL-3S	CONNECTOR
5	2	01-0770119-12	POSTLIGHT

Procedure:

1. Modify Pilot's Torque Indicating System as follows:

- 1.1 Remove pilot torque indicator circuit breaker from LH CB panel. Install circuit breaker in location shown on Figure 1.
- 1.2 Splice wire labeled E124B22-CB to existing wire labeled E124A22-CB. Route forward to centerpost area and then aft in LH CB panel bundle to 26 VAC Buss area of LH CB panel. Terminate wire to pilot's torque circuit breaker.
- 1.3 Remove pilot DC torque indicator. Remove wire L51B20 from Pin 'L' of connector P28. This wire will be spliced to post light.
- 1.4 Cap and stow connector P28.
- 1.5 Access connector P34A. Remove and cap and stow, wires E51C22 WHT, E51C22 BLU, E53C22 WHT and E54C22 BLU from connector P34A.
- 1.6 Install wiring as indicated in Figure 2 from P34A to new connector G1P28.

NOTE: AC GROUND WIRE MUST BE GROUNDED SEPERATELY FROM DC GROUNDS.

- 1.7 Install postlight per Figure 3. Splice wire labeled G1L51B20 to wire L51B20.

NOTE: HOLES WILL NEED TO BE DRILLED FOR POSTLIGHTS AND TORQUE INDICATOR GLASS

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 12.03.02
CERT. NO.: SH07-28
ISSUE NO.: 2

A	NEW ISSUE		12.03.02
REV.	DESCRIPTION	BY	DATE
DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN			
CHECKED		DRAWING NO.	REV. A
MFG. APPR.	N/A	DSB-D212-725-3	SHEET 1 OF 6
APPROVED		TITLE	SCALE
DE APPR.		AC TQ INSTALLATION	NTS
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- 1.8 Install pilot AC torque indicator p/n 205-075-170-001 and glass p/n 205-070-043-001 in instrument panel. Install torque pressure transmitter on engine.
- 1.9 Physical installation of the torque indicator, glass and transmitter should be completed per BHT-205A1-IPB Section 71-4/95-2 (attached).
- 1.10 Remove connector P64 from torque pressure transmitter. Remove wires from connector. Cap and stow wire E52A22 BLU and E54A22 BLU. Install wires as indicated in Figure 2 into new connector G1P64

NOTE: AC GROUND WIRE MUST BE GROUNDED SEPERATELY FROM DC GROUNDS.

2. Modify Copilot's Torque Indicating System as follows:

- 2.1 Remove pilot torque indicator circuit breaker from RH CB panel. Install circuit breaker in location shown on Figure 1.
- 2.2 Splice wire labeled E125B22-CB to existing wire labeled E125A22-CB. Route aft in LH panel bundle to 26 VAC buss area of LH CB panel. Terminate wire to copilot's torque circuit breaker.
- 2.3 Locate capped and stowed wire X6A22-CB in area of aft LH CB panel wiring. Connect wire X6A22-CB to copilot's torque circuit breaker. Add wire X6B22-CB from copilot's torque circuit breaker to pilot's torque circuit breaker.
- 2.4 Remove copilot's DC torque indicator. Remove wire L58C20 from Pin 'L' of connector P28. This wire will be spliced to post light wire and to L58F20 for VRD postlight.
- 2.5 Cap and stow connector P29.
- 2.6 Access connector P33A. Remove and cap and stow wires E61C22 WHT, E62C22 BLU, E63C22 WHT and E64C22 BLU from connector P33A.
- 2.7 Install wiring as indicated in Figure 2 from P33A to new connector G1P29.

NOTE: AC GROUND WIRE MUST BE GROUNDED SEPERATELY FROM DC GROUNDS.

- 2.8 Install postlight per Figure 4. Splice wire labeled G1L58C20 to wire L58C20.

NOTE: HOLES WILL NEED TO BE DRILLED FOR POSTLIGHTS AND TORQUE INDICATOR GLASS

- 2.9 Install copilot AC torque indicator p/n 205-075-170-001 and glass p/n 205-070-043-001 in instrument panel. Install torque pressure transmitter on engine.
- 2.10 Physical installation of the torque indicator, glass and transmitter should be completed per Bell Service Instruction SI 205-43 (attached).
- 2.11 Remove connector P109 from torque pressure transmitter. Remove wires from connector. Cap and stow wire E62A22 BLU and E64A22 BLU. Install wires as indicated in Figure 2 into new connector G1P109.

NOTE: AC GROUND WIRE MUST BE GROUNDED SEPERATELY FROM DC GROUNDS.

3. Verify Torque Indicating System operation as follows:

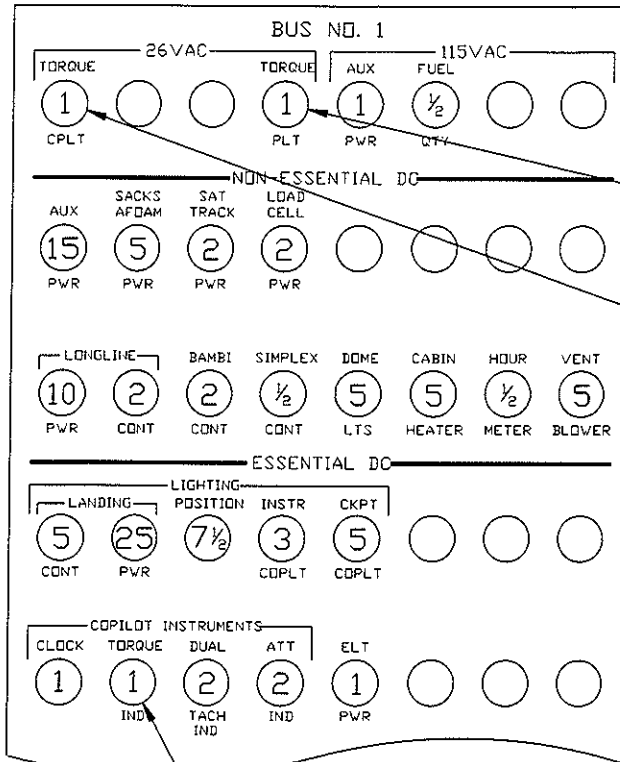
- 3.1 Apply power to aircraft
- 3.2 Calibrate torque indicating system in accordance with Eagle Single ICA-D212-725 paragraph 96.5.3

Weight and Balance: This Service Bulletin has a negligible effect on weight and balance

CANADA DEPARTMENT OF TRANSPORT AIRCRAFT CERTIFICATION BRANCH DAO # 01-O-01	
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BY:	<i>[Signature]</i>
	D. SHEPHERD (DE # 02)
DATE:	12.03.02
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MFG. APPR.	N/A	DSB-D212-725-3	SHEET 2 OF 6
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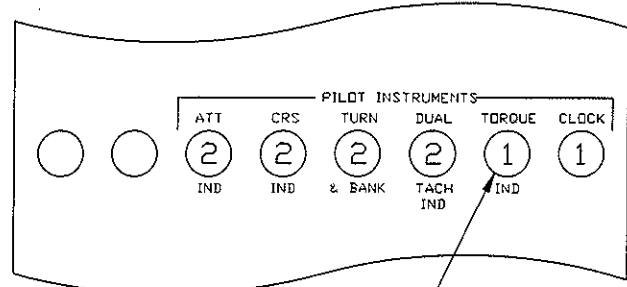
LH UPPER CB PANEL



INSTALL PILOT TORQUE INDICATOR
CIRCUIT BREAKER IN THIS LOCATION
LABEL AS INDICATED

INSTALL COPILOT TORQUE INDICATOR
CIRCUIT BREAKER IN THIS LOCATION
LABEL AS INDICATED

RH UPPER CB PANEL



REMOVE COPILOT TORQUE INDICATOR
CIRCUIT BREAKER FROM THIS LOCATION

REMOVE PILOT TORQUE INDICATOR
CIRCUIT BREAKER FROM THIS LOCATION

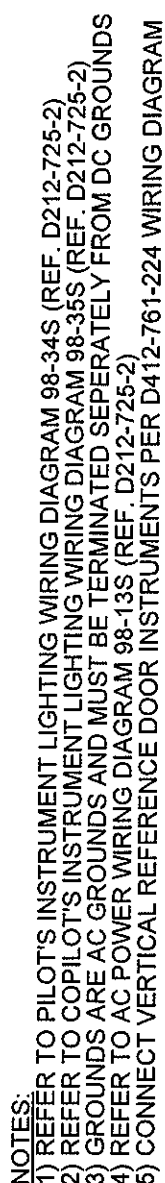
FIGURE 1: CIRCUIT BREAKER PANELS

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DAO # 01-Q-01

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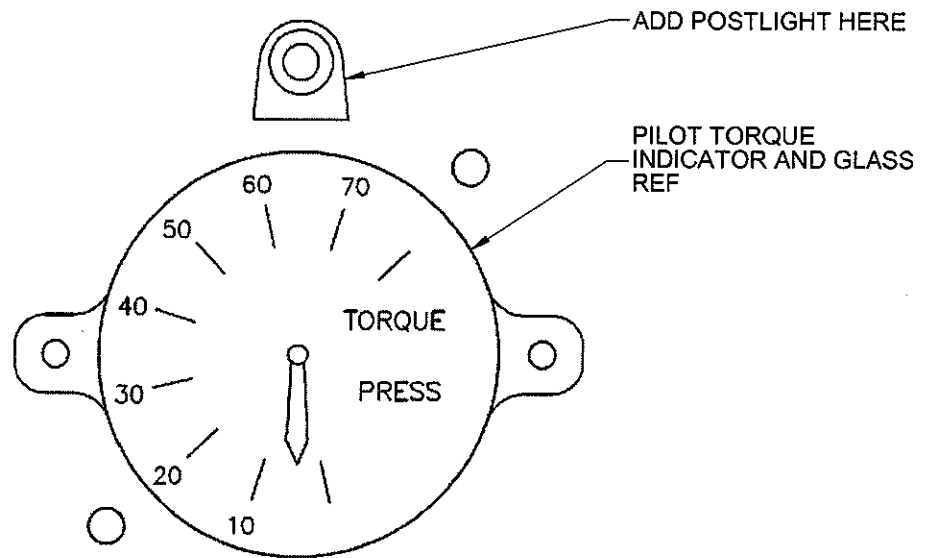


FIGURE 3: PILOT TORQUE POSTLIGHT POSITIONING

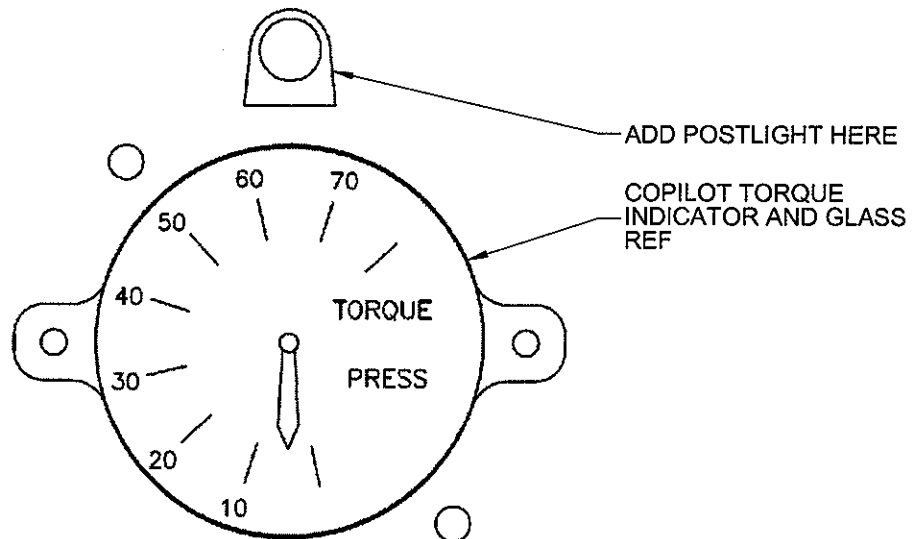


FIGURE 4: COPILOT TORQUE POSTLIGHT POSITIONING

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AIRCRAFT SERIAL NUMBER: _____

AIRCRAFT OWNER: _____

DATE DSB-D212-725-3 WAS INCORPORATED ON THE ABOVE AIRCRAFT:

SIGNATURE OF PERSON RESPONSIBLE FOR ENTRY INTO AIRCRAFT TECHNICAL RECORD:

PRINT NAME OF PERSON RESPONSIBLE FOR ENTRY INTO AIRCRAFT TECHNICAL RECORD:

Send this page via fax to: 403-717-1288

or

Email this page to: dshepherd@dartaero.com

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DRAWN	<i>AS</i>		
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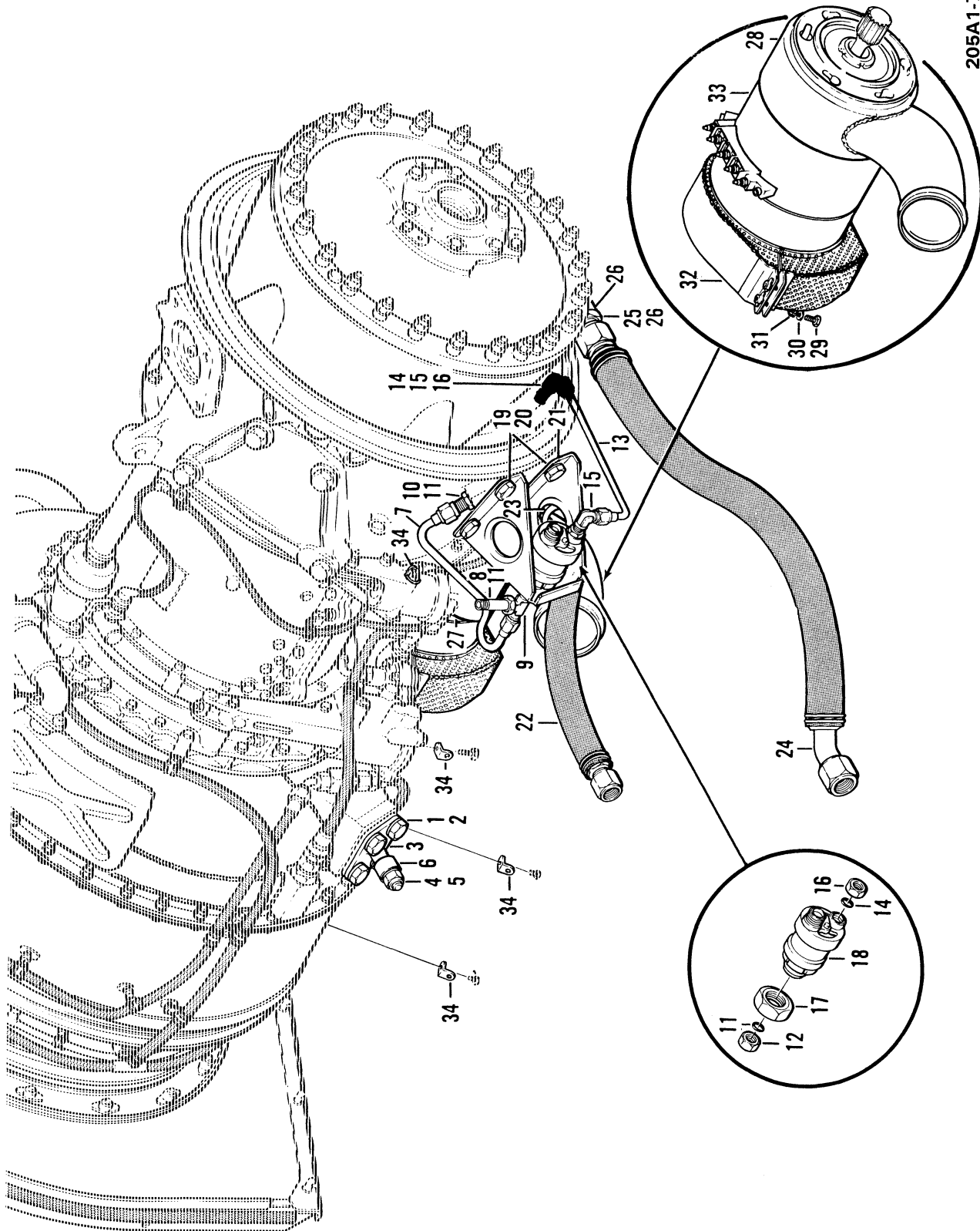


Figure 71-4. Engine assembly

(1) INDEX NUMBER	(2) PART NUMBER	(3) ITEM NAME	(4) UNIT PER ASSY	(5) A V A I L	(6) U O C
		FIGURE: 71-4. Engine assembly			
	205-061-002-001	ENGINE ASSY (S/N 30003 THRU 30177) (SEE FIG. 1 FOR . . .	REF		
	205-061-002-005	NHA) (SEE FIG. 2, 3 FOR BALANCE OF BREAKDOWN) ENGINE ASSY (S/N 30178 THRU SUB) (SEE FIG. 1 FOR . . .	REF		
		NHA) (SEE FIG. 2, 3 FOR BALANCE OF BREAKDOWN)			
1	AN6CH6A	.BOLT	4	1	
2	AN960C616L	.WASHER (REPLACED BY NAS1149C0632R)	4	1	
2	NAS1149C0632R	.WASHER (REPLACES AN960C616L)	4		
3	204-060-152-001	.FITTING	1	1	
4	NAS679C6	.NUT (REPLACED BY MS21043-6)	1		
4	MS21043-6	.NUT (REPLACES NAS679C6)	1	1	
5	AN960C616	.WASHER (REPLACED BY NAS1149C0663R)	1		
5	NAS1149C0663R	.WASHER (REPLACES AN960C616)	1		
6	204-061-100-001	.BEARING	1	1	
7	205-061-045-001	.TUBE ASSY	1	1	
8	8G325	.SWITCH, ENGINE TORQUE PRESSURE (REFERENCE	1	1	
		DESIGNATOR S199)			
9	AN783-4	.TEE (REPLACED BY AN783J4)	1	1	
9	AN783J4	.TEE (REPLACES AN783-4)	1	1	
10	204-060-068-001	.RESTRICTOR	1	1	
11	NAS617-4	.PACKING, PREFORMED (REPLACED BY M83248/1-904) . . .	3		
11	M83248/1-904	.PACKING, PREFORMED (REPLACES NAS617-4)	3	1	
12	AN924-4	.NUT	1	1	
13	205-061-044-001	.TUBE ASSY	1	1	
14	NAS617-4	.PACKING, PREFORMED (REPLACED BY M83248/1-904) . . .	2		
14	M83248/1-904	.PACKING, PREFORMED (REPLACES NAS617-4)	2	1	
15	AN833-4	.ELBOW	2	1	
16	AN924-4	.NUT	2	1	
17	204-060-084-001	.NUT	1	1	
18	418-00061	.TRANSMITTER, TORQUE PRESSURE (REPLACED BY	1		
		418-00064 AND 130-020-9) (REFERENCE DESIGNATOR			
		B1)			
18	418-00064	.TRANSMITTER, TORQUE PRESSURE (REPLACES	1		
		418-00061) (REPLACED BY 130-020-9) (REFERENCE			
		DESIGNATOR B1)			
18	130-020-9	.TRANSMITTER (REPLACES 418-00061 AND 418-00064) . . .	1		
		(REFERENCE DESIGNATOR B1)			
19	AN8CH6A	.BOLT	4	1	
20	AN960-816L	.WASHER (REPLACED BY NAS1149F0832P)	4		
20	NAS1149F0832P	.WASHER (REPLACES AN960-816L)	4		
21	205-061-041-001	.BRACKET	1	1	
22	624139-12D146	.HOSE ASSY	1		
		(ALTERNATE PART)			
22	156F0003-12D0146	.HOSE ASSY	1		
23	AN815-12	.UNION	1	1	
24	624139-16D224	.HOSE ASSY	1		
		(ALTERNATE PART)			
24	156F0003-16D0224	.HOSE ASSY	1		
25	204-060-045-001	.FITTING	1	1	
26	NAS617-12	.PACKING, PREFORMED (REPLACED BY M83248/1-912) . . .	2		
26	M83248/1-912	.PACKING, PREFORMED (REPLACES NAS617-12)	2	1	

(1) INDEX NUMBER	(2) PART NUMBER	(3) ITEM NAME	(4) UNIT PER ASSY	(5) A V A I L	(6) U O C
		FIGURE: 71-4. Engine assembly (Cont'd)			
27	GEU-7/A	.TACH GENERATOR (GAS PROD) (REFERENCE DESIGNATOR . . G3)	1		
		(ALTERNATE PARTS)			
27	22A524	.TACH GENERATOR (GAS PROD) (REFERENCE DESIGNATOR . . G3) (REPLACED BY 22A554)	1		
27	22A554	.TACH GENERATOR (GAS PROD) (REFERENCE DESIGNATOR . . G3) (REPLACES 22A524)	1		
27	32005-007	.TACH GENERATOR (GAS PROD) (REFERENCE DESIGNATOR . . G3)	1	0	
27	AG34	.TACH GENERATOR (GAS PROD) (REFERENCE DESIGNATOR . . G3)	1	0	
27	32005-002	.TACH GENERATOR (GAS PROD) (REFERENCE DESIGNATOR . . G3) (REPLACED BY 32005-005)	1		
27	32005-005	.TACH GENERATOR (GAS PROD) (REFERENCE DESIGNATOR . . G3) (REPLACES 32005-002)	1		
27	2CM12AAA	.INDICATOR (GAS PROD) (REFERENCE DESIGNATOR G3) . . .	1		
28	205-060-430-003	.GENERATOR ASSY, STARTER (REPLACED BY 205-060-430-005)	1	0	
28	205-060-430-005	.GENERATOR ASSY, STARTER (REPLACES 205-060-430-003)	1	0	
29	AN3-6A	..BOLT	2	1	
30	AN960PD10L	..WASHER (REPLACED BY AN960JD10L)	2		
30	AN960JD10L	..WASHER (REPLACES AN960PD10L) (REPLACED BY NAS1149D0332J)	2		
30	NAS1149D0332J	..WASHER (REPLACES AN960JD10L)	2		
31	AN960PD10L	..WASHER (USBL ON 205-060-430-005) (REPLACED BY . . . AN960JD10L)	2		
31	AN960JD10L	..WASHER (USBL ON 205-060-430-005) (REPLACES AN960PD10L) (REPLACED BY NAS1149D0332J)	2		
31	NAS1149D0332J	..WASHER (USBL ON 205-060-430-005) (REPLACES AN960JD10L)	2		
32	205-060-425-001	..SHROUD ASSY	1	1	
33	204-060-200-001	..STARTER GENERATOR (REFERENCE DESIGNATOR G6)	1	6	
34	20-032-1	.BRACKET	4	1	

205A1-95-1002
C0000

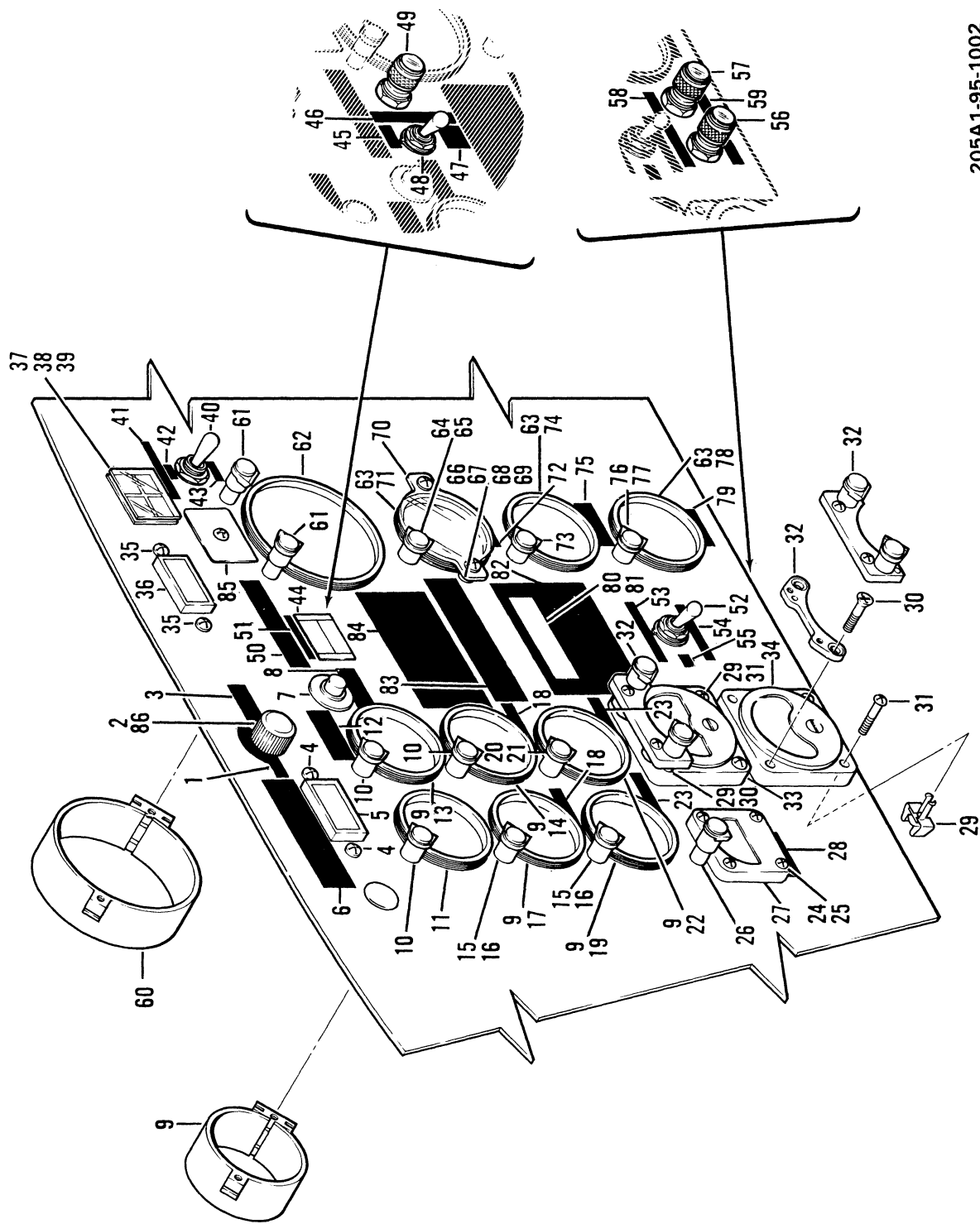


Figure 95-2. Panel assembly, instrument

(1) INDEX NUMBER	(2) PART NUMBER	(3) ITEM NAME	(4) UNIT PER ASSY	(5) A V A I L	(6) U O C
		FIGURE: 95-2. Panel assembly, instrument			
	205-070-035-001	PANEL ASSY, INSTRUMENT (S/N 30003 THRU 30052) (SEE . FIG. 1, 3 FOR BALANCE OF BREAKDOWN)	REF		
	205-070-035-005	PANEL ASSY, INSTRUMENT (S/N 30053 THRU 30077) (SEE . FIG. 1, 3 FOR BALANCE OF BREAKDOWN)	REF		
	205-070-035-007	PANEL ASSY, INSTRUMENT (S/N 30078 THRU 30152) (SEE . FIG. 1, 3 FOR BALANCE OF BREAKDOWN)	REF		
	205-070-035-009	PANEL ASSY, INSTRUMENT (S/N 30153 THRU 30166) (SEE . FIG. 1, 3 FOR BALANCE OF BREAKDOWN)	REF		
	205-070-035-011	PANEL ASSY, INSTRUMENT (S/N 30167 THRU 30177) (SEE . FIG. 1, 3 FOR BALANCE OF BREAKDOWN)	REF		
	205-070-035-013	PANEL ASSY, INSTRUMENT (S/N 30178 THRU SUB) (SEE . . . FIG. 1, 3 FOR BALANCE OF BREAKDOWN)	REF		
1	205-070-878-001	.DECAL (NORM, 1, 2, 3, 4)	1	1	
2	S1645-21L	.KNOB	1	1	
3	205-070-877-001	.DECAL (FIRE DET TEST)	1	1	
4	AN515B6R6	.SCREW (REPLACED BY MS35214-25)	2		
4	MS35214-25	.SCREW (REPLACES AN515B6R6)	2	1	
5	204-075-705-017	.INDICATOR, FIRE WARNING (REFERENCE DESIGNATOR . . . I13)	1	1	
6	205-070-161-001	.DECAL (GEN LOADMETER)	1	1	
7	MS25089-4C	.SWITCH (REFERENCE DESIGNATOR S5)	1	1	
8	204-070-145-001	.DECAL (FUEL GAUGE TEST SWITCH)	1	1	
9	MS28042-1	.CLAMP	6		
10	A6745-24	.LIGHT FIXTURE (REFERENCE DESIGNATOR I15) (REPLACED BY 90-032-327R1)	3		
10	90-032-327R1	.LIGHT (REFERENCE DESIGNATOR I15) (REPLACES A6745-24)	3	1	
11	217-02111	.INDICATOR, FUEL PRESSURE (REPLACED BY 205-075-807-001) (REFERENCE DESIGNATOR I6) (REPLACED BY 217-00161)	1		
11	205-075-807-001	.INDICATOR, FUEL PRESSURE (REPLACES 217-02111) . . . (REFERENCE DESIGNATOR I6)	1	1	
12	205-070-895-001	.DECAL (FUEL SYSTEM CAP)	1	1	
13	393004-051	.INDICATOR, FUEL QUANTITY (REFERENCE DESIGNATOR . . . I2)	1	1	
14	147B31A	.INDICATOR, ENGINE OIL TEMP (REFERENCE DESIGNATOR . I22)	1	1	
		(ALTERNATE PART)			
14	147B31A2	.INDICATOR, ENGINE OIL TEMP (REFERENCE DESIGNATOR . I22)	1	0	
15	A6750-1-24	.LIGHT (REFERENCE DESIGNATOR I15) (REPLACED BY 90-034-327R1)	2		
15	90-034-327R1	.LIGHT FIXTURE (REFERENCE DESIGNATOR I15) (REPLACES A6750-1-24)	2		
16	NAS43DD4-12A	.SPACER	2	1	
17	217-00141	.INDICATOR, OIL PRESSURE (REPLACED BY 205-075-158-001) (REFERENCE DESIGNATOR I4) (REPLACED BY 217A100)	1	0	

(1) INDEX NUMBER	(2) PART NUMBER	(3) ITEM NAME	(4) UNIT PER ASSY	(5) A V A I L	(6) U O C
		FIGURE: 95-2. Panel assembly, instrument (Cont'd)			
17	217A100	.INDICATOR, OIL PRESSURE (REPLACED BY 205-075-158-001) (REFERENCE DESIGNATOR I4) (REPLACES 217-00141)	1		
17	205-075-158-001	.INDICATOR, OIL PRESSURE (REPLACES 217-00141) (REFERENCE DESIGNATOR I4)	1	1	
18	204-070-150-001	.DECAL (ENGINE OIL)	2		
19	217-00141	.INDICATOR, OIL PRESSURE (REPLACED BY 205-075-158-001) (REFERENCE DESIGNATOR I5) (REPLACED BY 217A100)	1	0	
19	217A100	.INDICATOR, OIL PRESSURE (REPLACED BY 205-075-158-001) (REFERENCE DESIGNATOR I5) (REPLACES 217-00141)	1		
19	205-075-158-001	.INDICATOR, OIL PRESSURE (REPLACES 217-00141) (REFERENCE DESIGNATOR I5)	1	1	
20	A6750-1-24	.LIGHT (REFERENCE DESIGNATOR I15) (REPLACED BY 90-034-327R1)	1		
20	90-034-327R1	.LIGHT FIXTURE (REFERENCE DESIGNATOR I15) (REPLACES A6750-1-24)	1		
21	NAS43DD4-6	.SPACER	1	1	
22	162B3	.INDICATOR, TRANS OIL TEMP (REPLACED BY 162B203) . . . (REFERENCE DESIGNATOR I21)	1		
22	162B203	.INDICATOR, TRANS OIL TEMP (REPLACES 162B3) (REFERENCE DESIGNATOR I21)	1	1	
23	204-070-152-001	.DECAL (TRANS OIL)	2	1	
24	NAS487-15	.NUT (REPLACED BY MS33737-11)	4	0	
24	MS33737-11	.NUT (REPLACES NAS487-15)	4		
25	AN515B6R12	.SCREW (REPLACED BY MS35214-29)	4		
25	MS35214-29	.SCREW (REPLACES AN515B6R12)	4	1	
26	A6815-24	.LIGHT (REFERENCE DESIGNATOR I15) (REPLACED BY 90-034-327R1)	1		
26	90-034-327R1	.LIGHT FIXTURE (REFERENCE DESIGNATOR I15) (REPLACES A6815-24)	1		
27	MS25025-1	.LOADMETER (REPLACED BY 205-070-282-003) (REFERENCE DESIGNATOR M1)	1	1	
27	205-070-282-003	.LOADMETER (REPLACES MS25025-1) (REFERENCE DESIGNATOR M1)	1	1	
28	205-070-870-001	.DECAL (GENERATOR)	1	1	
29	NAS487-15	.NUT (REPLACED BY MS33737-11)	8	0	
29	MS33737-11	.NUT (REPLACES NAS487-15)	8		
30	AN507B632R14	.SCREW (REPLACED BY MS24693-BB31)	4		
30	MS24693-BB31	.SCREW (REPLACES AN507B632R14)	4		
31	AN515B6R12	.SCREW (REPLACED BY MS35214-29)	4		
31	MS35214-29	.SCREW (REPLACES AN515B6R12)	4	1	
32	B6622	.LIGHT SHIELD (REFERENCE DESIGNATOR I15)	2		
33	AN3203V30	.VOLTMETER (REFERENCE DESIGNATOR M2)	1	1	
34	MS24332-1	.INDICATOR (REFERENCE DESIGNATOR M3)	1	1	
35	MS51959-28B	.SCREW (S/N 30178 THRU SUB)	2	1	
36	204-075-705-003	.INDICATOR, MASTER CAUTION (REFERENCE DESIGNATOR . . I13)	1	1	
37	209-075-227-001	.SCREEN ASSY	1	1	

(1) INDEX NUMBER	(2) PART NUMBER	(3) ITEM NAME	(4) UNIT PER ASSY	(5) A V A I L	(6) U O C
		FIGURE: 95-2. Panel assembly, instrument (Cont'd)			
38	2C212	.INDICATOR, CHIP DETECTOR (REFERENCE DESIGNATOR . . . DS2)	1	1	
39	2D9	.SWITCH, CHIP DETECTOR TEST (REFERENCE DESIGNATOR . S147)	1	1	
40	MS24523-22	.SWITCH, MOTOR, BLOWER (REFERENCE DESIGNATOR S125)	1	1	
41	205-070-171-001	.DECAL (VENT BLOWER)	1	1	
42	205-070-171-003	.DECAL (ON)	1	1	
43	205-070-171-005	.DECAL (OFF)	1	1	
44	205-075-368-001	.LIGHT ASSY (S/N 30003 THRU 30052) (REFERENCE DESIGNATOR DS3)	1	6	
45	205-070-331-001	.DECAL (AIR PRESS) (S/N 30053 THRU SUB)	1	1	
46	205-070-331-003	.DECAL (HEATER TEST) (S/N 30053 THRU SUB)	1	1	
47	205-070-331-005	.DECAL (COLL) (S/N 30053 THRU SUB)	1	1	
48	MS24524-27	.SWITCH, TEST, HEATER SYSTEM (S/N 30053 THRU SUB) . . (REFERENCE DESIGNATOR S155)	1	1	
49	MS25041-4-327	.INDICATOR LIGHT, HEAT EMERGENCY OFF (S/N 30053 . . . THRU SUB) (REFERENCE DESIGNATOR I90)	1	1	
50	212-070-664-001	.DECAL (DO NOT OPERATE HEATER ABOVE 21 DEG C OAT) . . .	1	1	
51	205-070-165-001	.DECAL (PRESS TO TEST) (S/N 30003 THRU 30052)	1	1	
52	MS35058-23	.SWITCH, PASSENGER STEP (S/N 30003 THRU 30166) (REFERENCE DESIGNATOR S151) (REPLACED BY MS24523-23)	1		
52	MS24523-23	.SWITCH, PASSENGER STEP (S/N 30003 THRU 30166) (REFERENCE DESIGNATOR S151) (REPLACES MS35058-23)	1	1	
52	MS24524-21	.SWITCH (S/N 30167 THRU SUB) (REFERENCE DESIGNATOR S151)	1	1	
53	205-070-056-001	.DECAL (RETRACT STEP) (S/N 30003 THRU 30166)	1	1	
53	31-026-76E12	.DECAL (RAISE STEP) (S/N 30167 THRU SUB)	1		
54	205-070-057-001	.DECAL (EXTEND STEP) (S/N 30003 THRU 30166)	1	1	
54	31-026-77E12	.DECAL (STOW STEP) (S/N 30167 THRU SUB)	1		
55	31-026-75E12	.DECAL (OFF) (S/N 30003 THRU 30166)	1	1	
56	MS25041-8-327	.INDICATOR LIGHT, BATTERY TEMP (S/N 30153 THRU . . . SUB) (REFERENCE DESIGNATOR DS10)	1	1	
57	MS25041-6-327	.INDICATOR LIGHT, BATTERY HOT (S/N 30153 THRU SUB) . (REFERENCE DESIGNATOR DS11)	1	1	
58	31-026-71E12	.DECAL (CAUTION) (S/N 30153 THRU SUB)	1	1	
59	31-026-70E12	.DECAL (BATTERY TEMP) (S/N 30153 THRU SUB)	1	1	
60	MS28042-2	.CLAMP	1		
61	A6815-24	.LIGHT (REFERENCE DESIGNATOR I15) (REPLACED BY 90-034-327R1)	2		
61	90-034-327R1	.LIGHT FIXTURE (REFERENCE DESIGNATOR I15) (REPLACES A6815-24)	2		
62	204-072-129-005	.INDICATOR, DUAL TACHOMETER, PILOT (REFERENCE DESIGNATOR I8)	1	6	
63	MS28042-1	.CLAMP	3		
64	A6750-1-24	.LIGHT (REFERENCE DESIGNATOR I15) (REPLACED BY 90-034-327R1)	1		

(1) INDEX NUMBER	(2) PART NUMBER	(3) ITEM NAME	(4) UNIT PER ASSY	(5) A V A I L	(6) U O C
		FIGURE: 95-2. Panel assembly, instrument (Cont'd)			
64	90-034-327R1	.LIGHT FIXTURE (REFERENCE DESIGNATOR I15) (REPLACES A6750-1-24)	1		
65	NAS43DD4-12A	.SPACER	1	1	
66	NAS487-15	.NUT (REPLACED BY MS33737-11)	2	0	
66	MS33737-11	.NUT (REPLACES NAS487-15)	2		
67	AN960PD6	.WASHER (REPLACED BY AN960JD6)	2		
67	AN960JD6	.WASHER (REPLACES AN960PD6) (REPLACED BY NAS1149DN632J)	2	1	
67	NAS1149DN632J	.WASHER (REPLACES AN960JD6)	2	1	
68	AN515B6R12	.SCREW (REPLACED BY MS35214-29)	2		
68	MS35214-29	.SCREW (REPLACES AN515B6R12)	2	1	
69	NAS43DD1-15	.SPACER	2	1	
70	205-070-043-001	.GLASS	1	1	
71	217-01161	.INDICATOR, TORQUE PRESSURE, COPILOT (REPLACED BY . 205-075-170-001) (REFERENCE DESIGNATOR I93)	1	0	
71	205-075-170-001	.INDICATOR, TORQUE PRESSURE, COPILOT (REPLACES . . . 217-01161) (REFERENCE DESIGNATOR I93)	1	1	
72	204-070-148-001	.DECAL (TORQUE)	1	1	
73	A6745-24	.LIGHT FIXTURE (REFERENCE DESIGNATOR I15) (REPLACED BY 90-032-327R1)	1		
73	90-032-327R1	.LIGHT (REFERENCE DESIGNATOR I15) (REPLACES A6745-24)	1	1	
74	8DJ81CAA2	.TACHOMETER, GAS PRODUCER TYPE MU-1 (S/N 30053 THRU SUB) (REPLACED BY 205-070-283-003) (REFERENCE DESIGNATOR I7)	1	0	
74	205-070-283-003	.INDICATOR, GAS PRODUCER TYPE MU-1 (S/N 30053 THRU . SUB) (REPLACES 8DJ81CAA2) (REFERENCE DESIGNATOR I7)	1	1	
75	204-070-147-001	.DECAL (GAS PRODUCER)	1	1	
76	A6750-1-24	.LIGHT (REFERENCE DESIGNATOR I15) (REPLACED BY 90-034-327R1)	1		
76	90-034-327R1	.LIGHT FIXTURE (REFERENCE DESIGNATOR I15) (REPLACES A6750-1-24)	1		
77	NAS43DD4-6	.SPACER	1	1	
78	157800	.INDICATOR, TAIL PIPE TEMP (S/N 30053 THRU SUB) (REPLACED BY 205-070-284-003) (REFERENCE DESIGNATOR I31)	1	0	
78	205-070-284-003	.INDICATOR, TAIL PIPE TEMP (S/N 30053 THRU SUB) (REPLACES 157800) (REFERENCE DESIGNATOR I31)	1	1	
79	204-070-149-001	.DECAL (EXHAUST)	1	1	
80	205-070-162-001	.DECAL (GAS PRODUCER) (S/N 30053 THRU SUB)	1	1	
81	204-072-672-001	.DECAL (GAS PRODUCER) (S/N 30053 THRU SUB)	1	1	
82	205-070-281-001	.DECAL (GAS PRODUCER) (S/N 30053 THRU SUB)	1	1	
83	205-070-159-001	.DECAL (TORQUE METER)	1	1	
84	205-070-159-003	.DECAL (TORQUE METER) (S/N 30053 THRU SUB)	1	1	
85	205-070-067-001	.COVER ASSY	1	6	
	205-075-907-009	.CABLE ASSY, INSTRUMENT PANEL INTERNAL (S/N 30003 . . THRU 30052) (SEE FIG. 1, 3 FOR BALANCE OF BREAKDOWN)	REF		

(1) INDEX NUMBER	(2) PART NUMBER	(3) ITEM NAME	(4) UNIT PER ASSY	(5) A V A I L	(6) U O C
		FIGURE: 95-2. Panel assembly, instrument (Cont'd)			
	205-075-907-013	.CABLE ASSY, INSTRUMENT PANEL INTERNAL (S/N 30053 . . THRU 30166) (SEE FIG. 1, 3 FOR BALANCE OF BREAKDOWN)	REF		
	205-075-907-019	.CABLE ASSY, INSTRUMENT PANEL INTERNAL (S/N 30167 . . THRU 30177) (SEE FIG. 1, 3 FOR BALANCE OF BREAKDOWN)	REF		
	205-075-907-021	.CABLE ASSY, INSTRUMENT PANEL INTERNAL (S/N 30178 . . THRU SUB) (SEE FIG. 1, 3 FOR BALANCE OF BREAKDOWN)	REF		
86	9S30-03-2-6N	..SWITCH (S/N 30003 THRU 30166) (REFERENCE DESIGNATOR S148)	1		
86	9S30-02-2-5N	..SWITCH (S/N 30167 THRU SUB) (REPLACED BY A530-02-2-5N) (REFERENCE DESIGNATOR S148)	1	0	
86	A530-02-2-5N	..SWITCH (S/N 30167 THRU SUB) (REPLACES 9S30-02-2-5N) (REPLACED BY 71AS30-02-2-05N) (REFERENCE DESIGNATOR S148)	1	0	
86	71AS30-02-2-05N	..SWITCH (S/N 30167 THRU SUB) (REPLACES A530-02-2-5N) (REFERENCE DESIGNATOR S148)	1	1	

Bell Helicopter **TEXTRON**

Division of Textron Inc.

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SERVICE
INSTRUCTION NO. 205-43

SUBJECT: Auxiliary Equipment Kit - Instrument, Copilot

KIT NUMBER(s)
205-706-090-1

EFFECTIVITY
Model 205A-1
30178 and Subsequent

PURPOSE: To provide instruments for copilot

AUTHORITY: SECTION I, INSTALLATION INSTRUCTIONS, IS FAA/DER APPROVED
AS SHOWN ON LOG OF REVISIONS/CHANGES

FLIGHT MANUAL REQUIREMENTS: No Flight Manual Supplemental
Instructions Are Required.

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LOG OF REVISIONS/CHANGES

REV/ CHG.	DATE	SECTION I		SECTION II Page Nos.	SECTION III Page Nos.	SECTION IV Page Nos.
		Page Nos.	FAA/DER Approval			
Basic	1-15-75	1-1 thru 1-26	<i>RB Norman</i> ^{SW 336}	2-1/2-2	3-1/3-2	4-1 thru 4-7/4-8
Chg. 1	4-18-75	1-1, 1-10A/ 1-10B, 1-11, 1-12, 1-14, 1-15, 1-18, 1-19, 1-25, & 1-25A Added	<i>RB Norman</i> ^{SW 336}			4-2, 4-3
REV A	4-9-76	1-1 thru 1-28	<i>RB Norman</i> ^{SW 336}	2-1/2-2	3-1/3-2	4-1 thru 4-7/4-8
CHG A-1	10-31-77	1-7, 1-15, 1-17, 1-19 1-21 and 1-22	<i>RB Norman</i> ^{SW 336}			
CHG A-2	2-2-79	1-2, 1-15, 1-17, 1-19	<i>RB Norman</i> ^{SW 336}			
CHG A-3	5-4-79		Not required			4-1 thru 4-11/4-12

EXPLANATORY NOTES:

1. Changes to other than Section I do not require FAA/DER Approval.
2. REVISIONS, identified by alpha characters, supersede the previous issue in its entirety.
3. CHANGES, identified by numerical characters, supersede only a portion of the previous issue. Insert latest changed pages. Destroy superseded pages.
4. The portion of the S.I. content affected by the current change or revision is indicated by a vertical line in the outer margin of the page for textual material, a "pointing hand" in the body of an illustration, and a shaded border around changed portion of a wiring diagram. An added illustration, or one having extensive changes, is identified by a vertical line in the outer margin.

REV/ CHG.	REASON	Prepared By:
Orig.	New	R. W. LeVine
Chg.1	To provide installation instructions for phase adapter.	R. W. LeVine
RevA	Addition of Technical Information	R. W. LeVine
CHG A-1	Engineering Update	R. W. LeVine
CHG A-2	Add alternate part numbers.	C. P. Horsley
CHG A-3	Update of Section IV	C. P. Horsley

SECTION I

INSTALLATION INSTRUCTIONS

1. PREPARATION AND GENERAL NOTES. The Copilots Instrument Kit includes the following principal items: Static Vents (204-070-127-1), pitot tube (PH-500), airspeed indicator (AC-131A), attitude indicator (14608-1AP-B1) altimeter indicator (A-35-MA), rate of climb indicator (RC-30-V), course indicator (212-070-180-3), turn and slip indicator (A-1600), dual tachometer (204-072-129-5), compass card holder (AN5800-1), pitot cover assembly (204-070-470-1), and phase adapter (212-075-237-1). (See figure 1-1.)

NOTE

Tag all parts (including attaching hardware) removed to gain access to work areas.

Protect parts from damage.

- a. Open nose radio compartment.
 - b. Disconnect battery.
 - c. Remove access door (204-030-651-27), from the forward lower center area of nose section below nose radio compartment.
 - d. Remove eight cover plates from copilots instrument panel.
- (See figure 1-2.)

NOTE

Wiring and cable assemblies necessary for installations have been previously installed in helicopter; all cable receptacles, plugs, and connections are stowed near points where units are to be installed.

2. INSTALLATION OF STATIC VENTS, (204-070-127-1). (See figure 1-3.)

NOTE

Following any drilling or cutting operation, remove burrs and metal particles. Solvent clean with MEK, then apply a coat of epoxy polyamide (MIL-P-23377) primer to bare metal.

a. Locate and cut a 1.125 inch diameter hole in skin on left side of cabin, forward of copilot's door. (See detail A, figure 1-3.) Drill six No. 40 holes in skin to match with mounting holes in static vent, (204-070-127-1). Countersink holes on outboard side with a 100 degree countersink.

NOTE

Adhere to dimensions given to ensure proper fit of static vent tubing.

b. Locate and drill two No. 40 (0.098 inch diameter) holes in cabin skin, for mounting static port baffle, (204-072-097-1). (See detail A, figure 1-3.)

c. Position static vent, (204-070-127-1), against inside surface of cabin skin with boss positioned in 1.125 inch diameter hole. Apply sealant (299-947-107, Type III, Class 7) on contact surfaces of cabin skin and vent. Install with six rivets, (MS20426AD3-4).

d. Position static port baffle (204-072-097-1) on outboard left side of cabin skin. (See detail A, figure 1-3.) Use holes in baffle as a guide and drill two No. 40 holes through cabin skin. Secure baffle with two rivets (MS20470AD3-5), with rivet heads outboard.

e. Locate the existing 0.750 inch diameter holes in cabin vertical frame (204-030-662). (See detail B, figure 1-3.)

f. Locate the existing 0.468 inch diameter holes through cabin horizontal frame (204-030-653). (See detail C, figure 1-3.)

g. Attach union (50-012-08N400), and preformed packing (MS28778-4), to previously installed static vent (204-070-127-1), on left side of helicopter. (See detail A, figure 1-3.)

h. Locate existing 0.190 - 0.196 hole in frame (204-030-662). (See figure 1-1 for frame location.) Secure bracket (AN743-12) at hole with screw (MS25207-261), washer (AN960PD10L), and nut (MS21042L3). Loosely install a clamp (MS21919DG4) to bracket with screw (MS35207-261), washer (AN960PD10L), and nut (MS21042L3). (See detail D, figure 1-3.)

i. Repeat steps a. through h. on right (pilot) side of helicopter to locate and install static vent and baffle.

3. INSTALLATION OF STATIC VENT TUBING. (See figures 1-1 and 1-3.)

NOTE

Torque all nylon fittings

15 $\pm$ 5 inch-pounds.

a. Remove cap (50-012-02N400) from end of existing plastic vent tubing routed down along left side of cabin compartment just forward and above static vent. Connect tube assembly (212-070-141-1) between plastic tubing and union on static vent. Tighten clamp previously installed.

b. Install tube (212-070-142-1) on right side of cabin compartment same as that for left side outlined in preceding step a.

c. Remove cap (50-012-02N400) from existing outboard tee of vent plastic tubing. Connect tubing (130-011-4N72) to tee using insert (50-012-01N404), add tapes (31-032-32) and (31-033-5).

d. Install tee (50-012-15N400) to inboard end of tubing (130-011-4N72) using insert (50-012-01N404).

e. Connect tubing (130-011-4N56) to center fitting of tee installed in previous step using insert (50-012-01N404), add tapes (31-032-32) and (31-033-5).

f. Connect tubing (130-011-4N36) to tee installed in step d. using insert (50-012-01N404), add tapes (31-032-32) and (31-033-5).

g. Install tee (50-012-15N400) to inboard end of tubing (130-011-4N36) using insert (50-012-01N404).

h. Connect tubing (130-011-4N33) to center fitting of tee installed in previous step using insert (50-012-01N404). Add tapes (31-032-32) and (31-033-5).

i. Connect tube assembly (212-070-223-1) to remaining fitting of tee.

4. INSTALLATION OF PITOT TUBE PH-500. (See figure 1-3.)

a. Remove and discard cover, (204-072-128-17), and attaching hardware. Clean away all adhesive from mounting area around hole pattern.

b. Apply adhesive, (299-947-107, Type III, Class 7) to mounting area on outside of skin. Position pitot tube support, (204-070-107-13) over opening in skin (refer to installed pitot tube support on right side of helicopter). Use existing holes in skin and install pitot tube support with four screws, (MS27039-1-06), and four nuts, (MS21042L3). Wipe clean any excess sealant around support.

c. Release stowed electrical plug (P1) on heater cable assembly and pull plug through opening in pitot tube support two or three inches.

d. Insert tube assembly, (205-075-698-1) from inside helicopter nose compartment through pitot tube support until the tube protrudes out two or three inches. (See figure 1-3, sheet 1.)

e. Position pitot tube (PH-500), with side stenciled "TOP" up, in front of pitot tube support (204-070-107-13). Connect tube assembly (205-075-698-1) to pitot tube.

f. Connect electrical plug (Pl), attached to end of cable assembly, to bayonet type plug on pitot tube.

g. Insert pitot tube with "TOP" up into pitot tube support. Secure with four screws (MS35207-226), and four washers (MS35338-41).

h. Install pitot tube cover assembly (204-070-470-1) over pitot tube and tie in place. (See figure 1-1.)

i. Route and fasten tube assembly (205-075-698-1) to lower edge of upper cabin nose frame (B.L. 10.50 REF) as follows: (See figure 1-3, sheet 1.)

j. Use existing hole in upper cabin nose frame and fasten tube assembly (205-075-698-1) with bracket (AN743-12), clamp (MS21919DG4) two screws (MS35207-265), two nuts (MS21042L3), and two washers (AN960PD10L).

k. Connect tubing (130-011-4N128) to tube assembly (205-075-698-1) with insert (50-012-01N404), union (50-012-08N400), add tapes (31-032-48) and (31-033-5).

l. Route tubing (130-011-4N128) upward towards airspeed indicator (AC-131A), and clamp to existing static vent lines with two clamps (MS21919DG4), screw (MS35207-261), washer (AN960PD10L), and nut (MS21042L3). (See figure 1-3, sheet 2.)

5. INSTALLATION OF COPILOT INDICATORS.

a. Install the copilot flight instruments to instrument panel as follows: (See figures 1-1 through 1-3.)

NOTE

Identification of the un-marked stowed electrical connectors can be determined by attached wire numbers of each plug. Refer to figure 1-4 for these wire numbers.

6. AIRSPEED INDICATOR (AC-131A).

a. Position airspeed indicator in instrument panel. Place instrument light shield (90-027-327R1), on upper edge of airspeed indicator and attach to instrument panel with four screws, two (MS35214-31), two (MS24693BB33), and four nuts (MS33737-11).

b. Connect tubing (130-011-4N128) to outboard fitting of airspeed indicator using nut and sleeve assembly (50-012-06N400), adapter (212-070-173-3) and packing (MS28778-4).

c. Connect tubing (130-011-4N56) to inboard fitting of airspeed indicator using insert (50-012-01N404), packing (MS28778-4), and union (50-012-08N400).

d. Cut instrument light wire, L18E20 to length, crimp on terminal (MS25036-102) and connect to terminal 9, of existing terminal block TB13. (See figure 1-4.)

7. ATTITUDE INDICATOR (14608-1AP-B1).

NOTE

If attitude indicator (102-0047-01) causes interference with instrument panel bracket, refer to NOTE, figure 1-2.

a. Position attitude indicator in instrument panel with light shield (90-025-1-327R1), on upper edge of indicator. Secure with four screws, two (MS35214-30), two (MS24693BE32) and four nuts (MS33737-9).

b. Identify stowed electrical plug (P6), remove protective cover, and connect plug to attitude indicator.

c. Cut instrument light wire, L18D20 to length, crimp on terminal (MS25036-102), and connect to terminal block, TB 13, terminal 9.

8. ALTIMETER INDICATOR (A-35-MA).

a. Position altimeter indicator in instrument panel. Place instrument light shield (90-027-327R1), on upper edge of altimeter indicator and attach to instrument panel with three screws, one (MS35214-109), two (MS24693BB34), and three nuts (MS33737-11).

b. Connect tubing (130-011-4N33) to altimeter indicator fitting, using insert (50-012-01N404), and elbow (50-012-13N402).

c. Cut instrument light wire, L18F20 to length, crimp on terminal (MS25036-102) and connect to terminal block, TB 13, terminal 10.

9. TORQUE PRESSURE INDICATOR (205-075-170-1).

a. Install clamp (MS28042-1), on panel.

b. Position torque pressure indicator in instrument panel from front side of panel. Tighten clamping screw.

c. Position dial glass (205-070-043-1) over the front of torque pressure indicator. Place two spacers (NAS43DD-1-15A) between dial glass and instrument panel. Attach dial glass to instrument panel with two screws (MS35214-29), two washers (AN960PD6), and two nuts (MS33737-11).

d. Install instrument light fixture (90-034-327R1) and spacer (NAS43DD4-12A) on instrument panel. (Replace original spacer from light fixture with the NAS43DD4-12A spacer.)

e. Cut instrument light wire L18H20 to required length, crimp on terminal (MS25036-102) and connect to terminal block, TB 13, terminal 9.

f. Identify stowed electrical plug (P18), remove protective cover, and connect plug to torque pressure indicator.

g. Install "TORQUE" decal (204-070-148-1) to instrument panel directly beneath torque pressure indicator. (See figure 1-2.)

10. TURN AND SLIP INDICATOR (A 1600).

a. Position turn and slip indicator with instrument light bracket (part of 90-007-1) over the indicator. Attach assembly to instrument panel with two screws (MS24693BB33), and two nuts, (MS33737-11. Position lightshield (90-007-1), over indicator and install two screws (MS35214-31), and two nuts, (MS33737-11).

b. Identify stowed electrical plug (P19), remove protective cover, and connect plug to turn and slip indicator.

c. Cut instrument light wire L18K20 to length, crimp on terminal (MS25036-102) and connect to terminal block, TB 13, terminal 11.

11. COURSE INDICATOR (212-070-180-3).

a. Position course indicator on instrument panel with instrument light shield (90-027-327R1) on upper edge of indicator. Secure with four screws, two (MS35214-31), two (MS24693BB34), and four nuts (MS33737-11).

b. Identify stowed cable (3407DS2P1), remove protective cover, connect plug to course indicator.

c. Cut instrument light wire L18A20 to length, crimp on terminal (MS25036-102), and connect to terminal block, TB 13, terminal 11.

NOTE

Modular terminal boards listed below are located on shelf aft of battery. Shelf is approximately five inches above floor (W.L. 22.00). (See figure 1-3, sheet 1.)

d. Release stowed wire, ADF-44A22, and connect to terminal board (module) No. 3400TB2-H7.

e. Release stowed wire NAV-43D22WHT, and connect to terminal board (module) No. 3405TB1-H9.

f. Release stowed wire GYRO-23B22WHT, and connect to terminal board (module) No. 3405TB1-K1.

12. RATE OF CLIMB INDICATOR (RC-30-V).

a. Position rate of climb indicator on instrument panel. Position light shield (90-027-327R1) on upper edge of indicator and secure with screw (MS35214-31), two screws (MS24693BB34), and three nuts (MS33737-11).

b. Connect tube assembly (212-070-223-1) to rate of climb indicator fitting, using packing (MS28778-6), and reducer (AN919-6D).

c. Cut instrument light wire L18G20 to length, crimp on terminal (MS25036-102), and connect to terminal block, TB 13, terminal 10.

13. DUAL TACHOMETER (204-072-129-5).

a. Install clamp (MS28042-2) on panel.

b. Position dual tachometer in instrument panel from front side of panel. Tighten clamping screw.

c. Install two light fixtures (90-031-327R1) on instrument panel above dual tachometer.

d. Cut instrument light wire L18J20 to length, crimp on terminal (MS25036-102) and connect to terminal block TB13, terminal 10.

e. Identify stowed electrical plugs (P13) and (P14), remove protective covers, and connect plugs to dual tachometer.

14. PHASE ADAPTER (212-075-237-1).

a. Place phase adapter (212-075-237-1) on pedestal and attach with four screws (MS27039-1-08), four washers (AN960PD10L), four washers (AN960PD10), four nuts (MS21042L3) and decal (31-001-13). (See figure 1-5.)

NOTE

Place decal on adjacent structure so identification of phase adapter can be made after installation.

b. Locate cable bundle just forward and to the left (copilot) side of pedestal.

c. Locate and identify wires, X10A20N, X108A20B and X7A20C.

d. Connect wire X10A20N to terminal A on phase adapter. (See figure 1-4.)

e. Connect wire X108A20B to terminal B on phase adapter.

f. Connect wire X7A20C to terminal C on phase adapter.

NOTE

Ensure that movable link in phase adapter is connected to 1 instrument position.

15. ELECTRICAL WIRING TO COPILOT'S RESISTOR (204-075-365-5) AND CIRCUIT BREAKER CONNECTIONS. (See figure 1-4.)

- a. Open right-hand overhead console.
- b. Verify that wires, L18A20, and L17C20 are connected to terminals on variable resistor, R10. (See figure 1-4.)
- c. Verify that wire X8A20B is connected to bus side of the outboard circuit breaker marked "ATTITUDE PILOT".
- d. Close right-hand overhead console.
- e. Open left-hand overhead console.
- f. Remove existing plug button, (BS51338K2215) and install circuit breaker (MS25244-5). (See figure 1-5.)
- g. Locate stowed wires, X7A20C, F37A20, X8A20B, and connect to breaker (MS25244-5) as shown in figure 1-4.
- h. Remove existing plug button, (BS51338K2215) and install circuit breaker (MS22073-1). (See figure 1-5.)
- i. Locate stowed wires, F38A20, X108A20B, and connect to circuit breaker (MS22073-1) as shown in figure 1-4.
- j. Verify that wire, F42B20, is connected to circuit breaker marked "HEATER PITOT TUBE COPILOT", located on DC circuit breaker panel.
- k. Verify that wire, F35B20, is connected to circuit breaker marked "TURN & SLIP IND COPILOT" on DC circuit breaker panel.
- l. Verify that wire, E6D20, is connected to circuit breaker marked "PRESSURE TORQUE".
- m. Close left-hand overhead console.

16. INSTALLATION OF COMPASS CARD HOLDER (AN5800-1). (See figure 1-2.)

a. Install card holder assembly (AN5800-1) on the instrument panel with two rivets, (MS20426B3-5).

b. Insert compass correction card (AN5823-1), in card holder.

17. INSTALLATION OF TORQUE PRESSURE TRANSMITTER (130-020-9).

(Figure 1-6.)

a. Remove two upper existing bolts (AN8CH6A), holding pilots torque meter bracket to engine pad.

b. Insert flange of bracket (205-061-056-1), between engine pad and flange of bracket (205-061-041-1).

c. Install previously removed bolts (AN8CH6A), through flanges of brackets (205-061-041-1), and (205-061-056-1), and safety wire.

d. Using holes in bracket (205-061-056-1), as a guide, drill two 0.190-0.196 holes through flange of bracket (205-061-041-1).

e. Install two screws (AN525-10R6), two washers (AN960C10L), and two nuts (MS21042L3).

f. Position torque pressure transmitter in bracket (205-061-056-1), install nut (204-060-084-1), and safety wire.

g. Remove elbow, (AN833-4), nut (AN924-4), and packing (NAS617-4), from forward end pilots torque pressure transmitter and replace with tee, (AN804-4), nut, (AN924-4), and packing (NAS617-4).

h. Install union (AN815-4), and packing (NAS617-4), in forward end of copilots torque pressure transmitter.

- i. Install tube assembly (205-061-058-1), between pilots and copilots torque pressure transmitters.
- j. Install union (AN815-4), and packing (NAS617-4), in aft end of copilots torque pressure transmitter (130-020-9).
- k. Install tee (AN784-4), nut (AN924-4), and packing (NAS617-4), between switch (8G325), and tee (AN783-4).
- l. Install tube assembly (205-061-057-1), between copilot torque pressure transmitter and tee (AN784-4).
- m. Release stowed plug P34, and connect to copilots torque pressure transmitter.

18. INSTRUMENT MARKINGS INSTALLATION. Apply decals of required color to the copilots instruments in accordance with the Model 205A-1 Flight Manual.

NOTE

All instrument markings must
comply with Model 205A-1 Flight
Manual.

19. INSTALLATION OF PITOT COVER ASSEMBLY (204-070-470-1). Place pitot cover assembly (204-070-470-1), over pitot tube and tie in place.

20. AFTER INSTALLATION.

- a. Perform ground check of pitot static system.
- b. Connect battery.
- c. Reinstall any existing equipment and/or components removed to facilitate kit installation.

d. Close and reinstall all access doors, panels, and covers opened or removed to gain access to work areas.

21. RETURN HELICOPTER TO NORMAL FLIGHT CONFIGURATION.

22. WEIGHT AND BALANCE.

a. Compliance with this Service Instruction has the following effect on Weight and Balance.

b. Longitudinal Change.

<u>HELICOPTER</u>	<u>KIT NUMBER</u>	<u>WEIGHT CHANGE</u>	<u>MOMENT ARM</u>	<u>MOMENT CHANGE</u>
205A-1	205-706-090-1	+19.5 Lbs.	32.1 in.	+627 in.Lbs.

c. Lateral Change.

<u>HELICOPTER</u>	<u>KIT NUMBER</u>	<u>MOMENT ARM</u>	<u>MOMENT CHANGE</u>
205A-1	205-706-090-1	- 7.8 in.	-153 in.Lbs.

d. Ballast should be readjusted as necessary to return helicopter weight empty c.g. to within allowable limits.

23. PARTS REQUIRED PER HELICOPTER:

<u>QUANTITY</u>	<u>PART NUMBER</u>	<u>NOMENCLATURE</u>
1	205-706-090-1 (PC-19A)	Auxiliary Equipment Kit - Instrument, Copilot
1	204-072-129-5	Dual Tachometer
1	204-070-148-1	Decal
1	204-070-107-13	Support
1	212-070-141-1	Tube Assembly
1	(Alt. 212-075-028-1)	
1	212-070-142-1	Tube Assembly
1	(Alt. 212-075-029-1)	
1	212-070-173-3	Adapter
1	212-070-223-1	Tube Assembly

<u>QUANTITY</u>	<u>PART NUMBER</u>	<u>NOMENCLATURE</u>
2	204-070-127-1	Static Vent
1	204-070-470-1	Cover Assembly
2	204-072-097-1	Baffle
1	205-070-043-1	Dial Glass
1	212-070-180-3	Course Indicator
2	MS24693BB32	Screw
6	MS24693BB34	Screw
4	MS24693BB33	Screw
4	MS35207-226	Screw
2	MS35214-29	Screw
2	MS35214-30	Screw
7	MS35214-31	Screw
17	MS21042L3	Nut
4	MS27039-1-06	Screw
5	MS35207-261	Screw
4	MS35338-41	Lockwasher
2	AN525-10R6	Screw
3	AN743-12	Bracket
2	AN815-4	Union
1 (12")	31-032-32	I.D. Tape
1 (12")	31-032-48	I.D. Tape
1 (12")	31-033-5	I.D. Tape
2	AN960PD6	Washer
11	AN960PD10L	Washer
1	AN5800-1	Card Holder Assembly

<u>QUANTITY</u>	<u>PART NUMBER</u>	<u>NOMENCLATURE</u>
1	AN5823-1	Compass Correction Card
12	MS20426AD3-4	Rivet
2	MS20426B3-5	Rivet
4	MS20470AD3-4	Rivet
5	MS21919DG4	Clamp
9	MS25036-102	Terminal
1	A1600	Turn and Slip Indicator
	(Alt. 2800-7970)	
1	MS28042-1	Clamp
1	MS28042-2	Clamp
1	MS28778-6	Packing
2	MS35207-265	Screw
4	MS33737-9	Nut
20	MS33737-11	Nut
1	MS35214-109	Screw
1	AC-131A	Airspeed Indicator
	(Alt. S-15-TSO)	
	(Alt. S-15-KA)	
	(Alt. S-15-KAW)	
1	RC-30-V	Rate of Climb Indicator
6	MS28778-4	Packing
1	NAS43DD4-12A	Spacer
1	205-075-698-1	Tube Assembly
1	14608-1AP-B1	Attitude Indicator
	(Alt. 14608-1APB1-M)	
	(Alt. 102-0047-01)	
	(Alt. 4300-7975)	
1	A-35-MA	Altimeter Indicator
	(Alt. G-371-01-1B)	
	(Alt. 371P-1-01)	
1	PH-500	Pitot Tube
	(Alt. 781-02)	

<u>QUANTITY</u>	<u>PART NUMBER</u>	<u>NOMENCLATURE</u>
1	90-007-1	Light Shield
1	90-025-1-327R1	Light Shield
4	90-027-327R1	Light Shield
1	90-034-327R1	Light Fixture
2	90-031-327R1	Light Fixture
1	205-075-170-1	Torque Pressure Indicator
1	31-014-6A	Red Strip (Linear)
1	31-014-3B	1" Yellow Circle
1	31-014-5D	1-3/8" Green Circle
1 (3 oz. Crtg)	299-947-107, Type III, Class 7	Adhesive Kit
1	31-014-2D	3/4" Green Circle
25 Gm	A6	Activator A
2	NAS43DD1-15A	Spacer
1 oz.	White Paint	Type A Cover Plate Color No. 17875
1	204-060-084-1	Nut
1	205-061-056-1	Bracket
1	205-061-057-1	Tube Assembly
1	205-061-058-1	Tube Assembly
1	AN784-4	Tee
1	AN804-4	Tee
2	AN924-4	Nut
2	AN960C10L	Washer
4 Ft.	MS20995C32-48	Lockwire

<u>QUANTITY</u>	<u>PART NUMBER</u>	<u>NOMENCLATURE</u>
5	NAS617-4	Packing
1	AN919-6D	Reducer
1	205-43 S.I.	Service Instruction
1	130-020-9 (Alt. 418-00161)	Torque Pressure Transmitter
9	50-012-01N404	Insert
1	130-011-4N33	Tubing
1	130-011-4N36	Tubing
1	130-011-4N56	Tubing
1	130-011-4N72	Tubing
1	130-011-4N128	Tubing
4	50-012-08N400	Union
1	50-012-13N402	Elbow
2	50-012-15N400	Tee
1	212-075-237-1	Phase Adapter
4	AN960PD10	Washer
2	MS22073-1	Circuit Breaker
1	50-012-06N400	Nut and Sleeve Assembly
4	MS27039-1-08	Screw
1	31-001-13	Decal

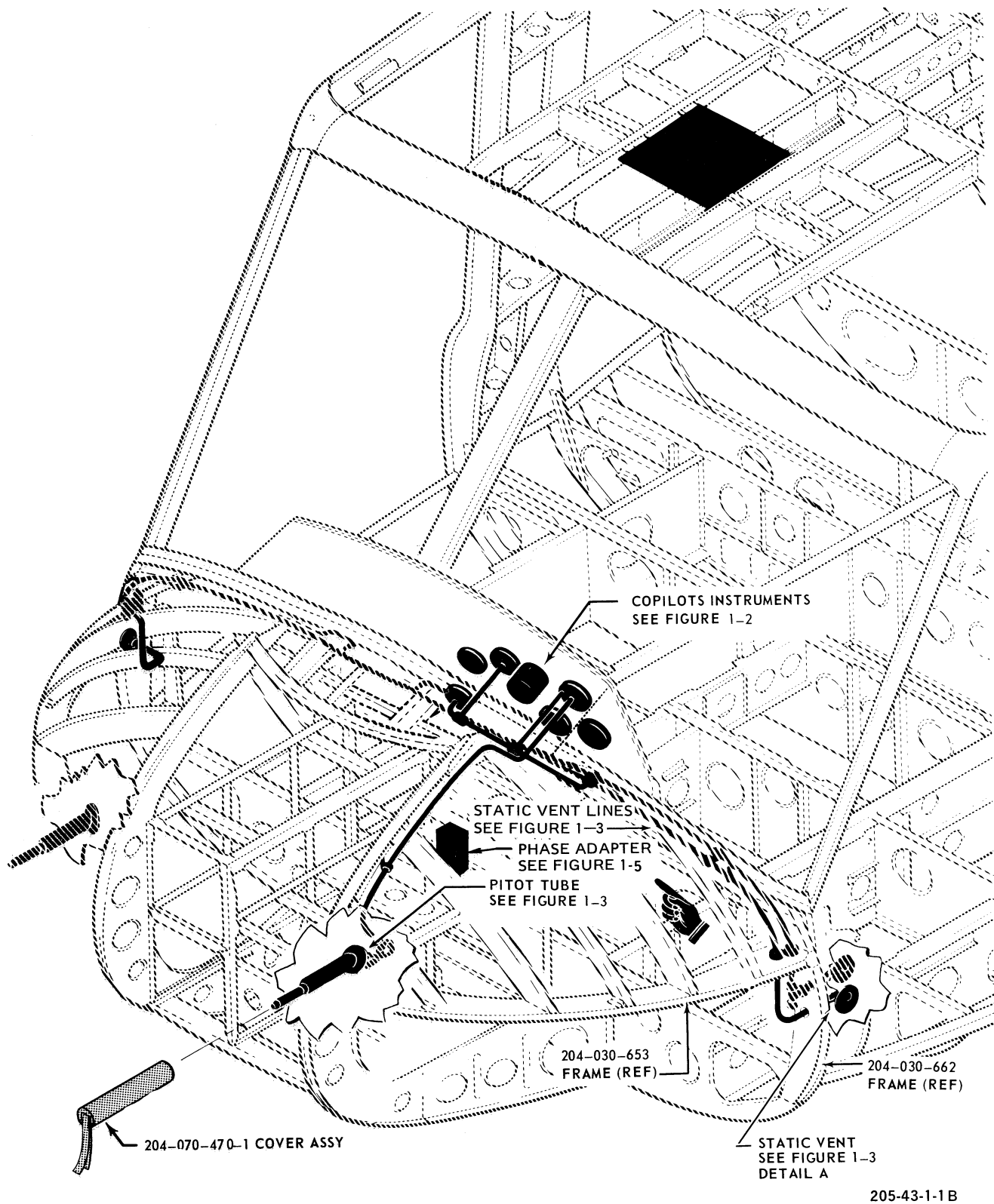
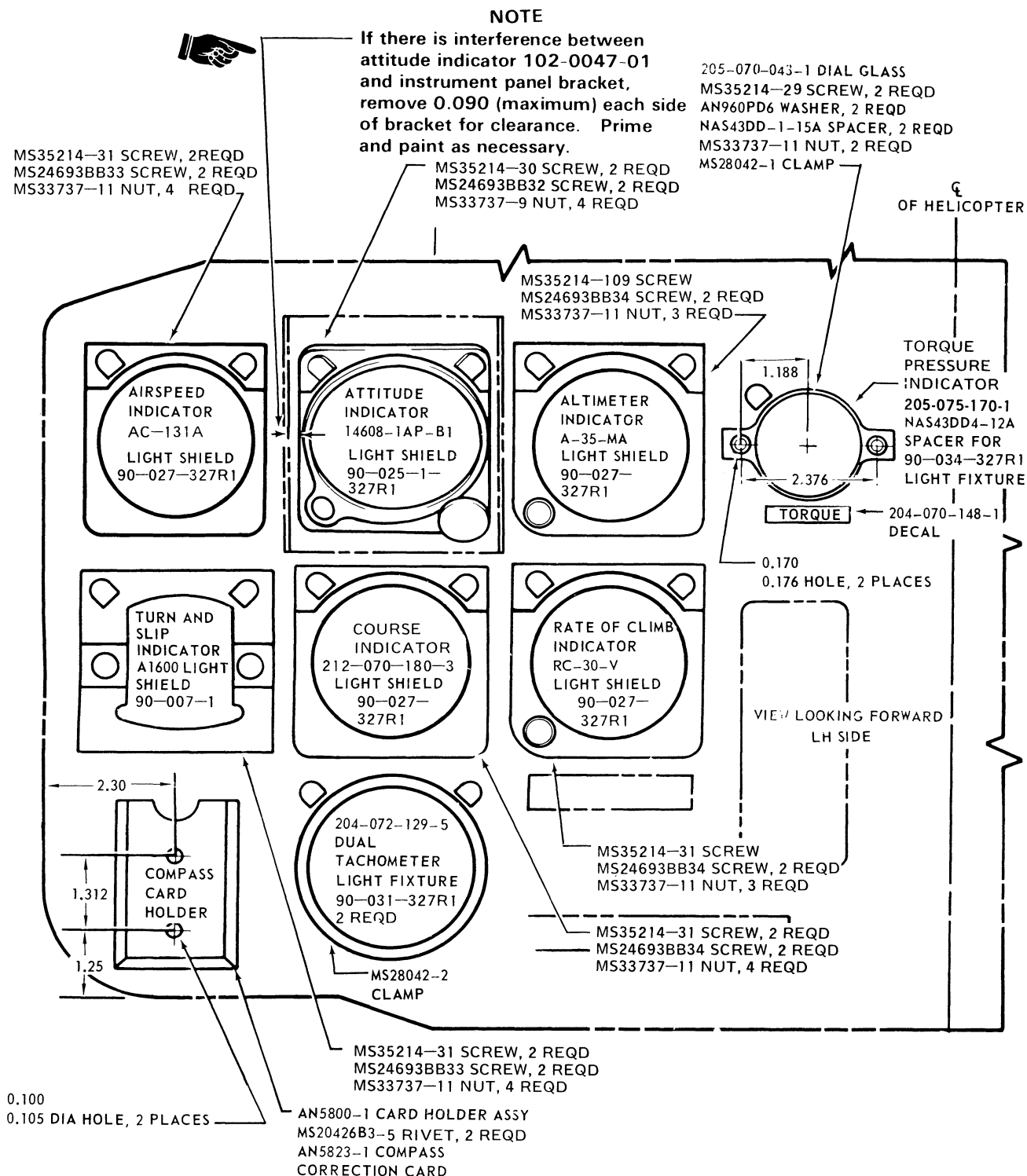


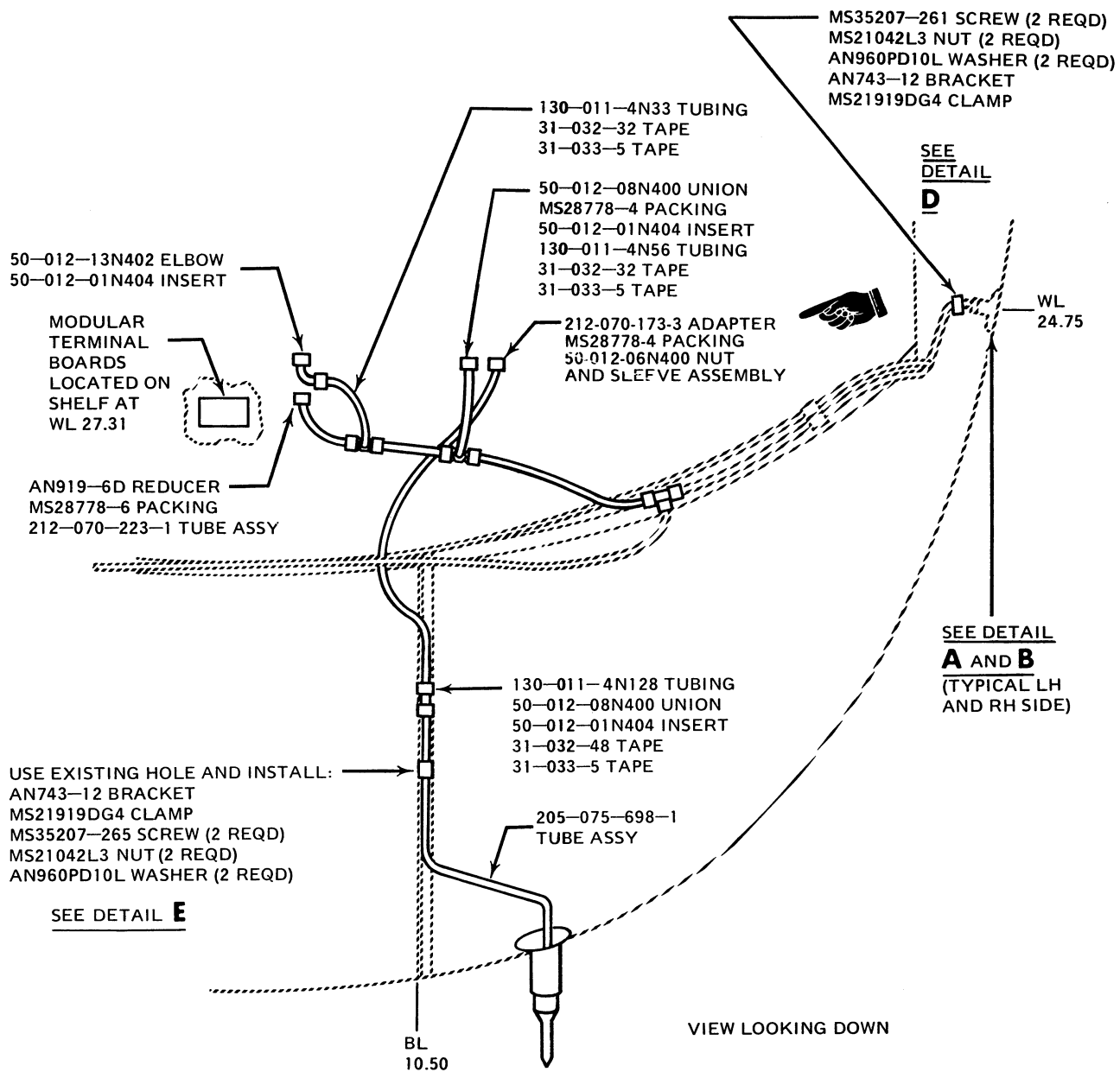
Figure 1-1. Copilots Instruments



205-43-1-2 B

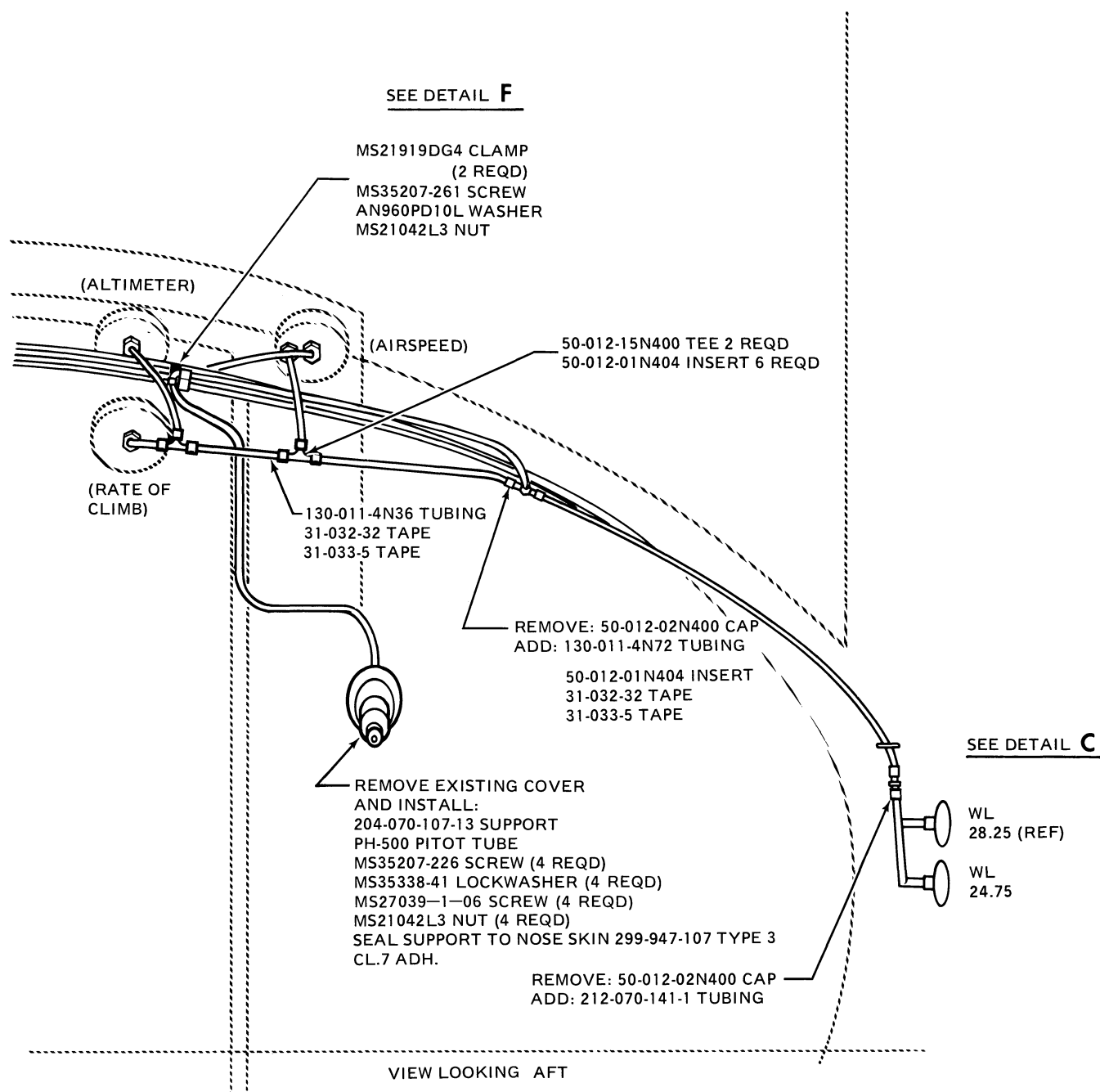
Figure 1-2. Copilots Instrument Panel

Changed 10-31-77



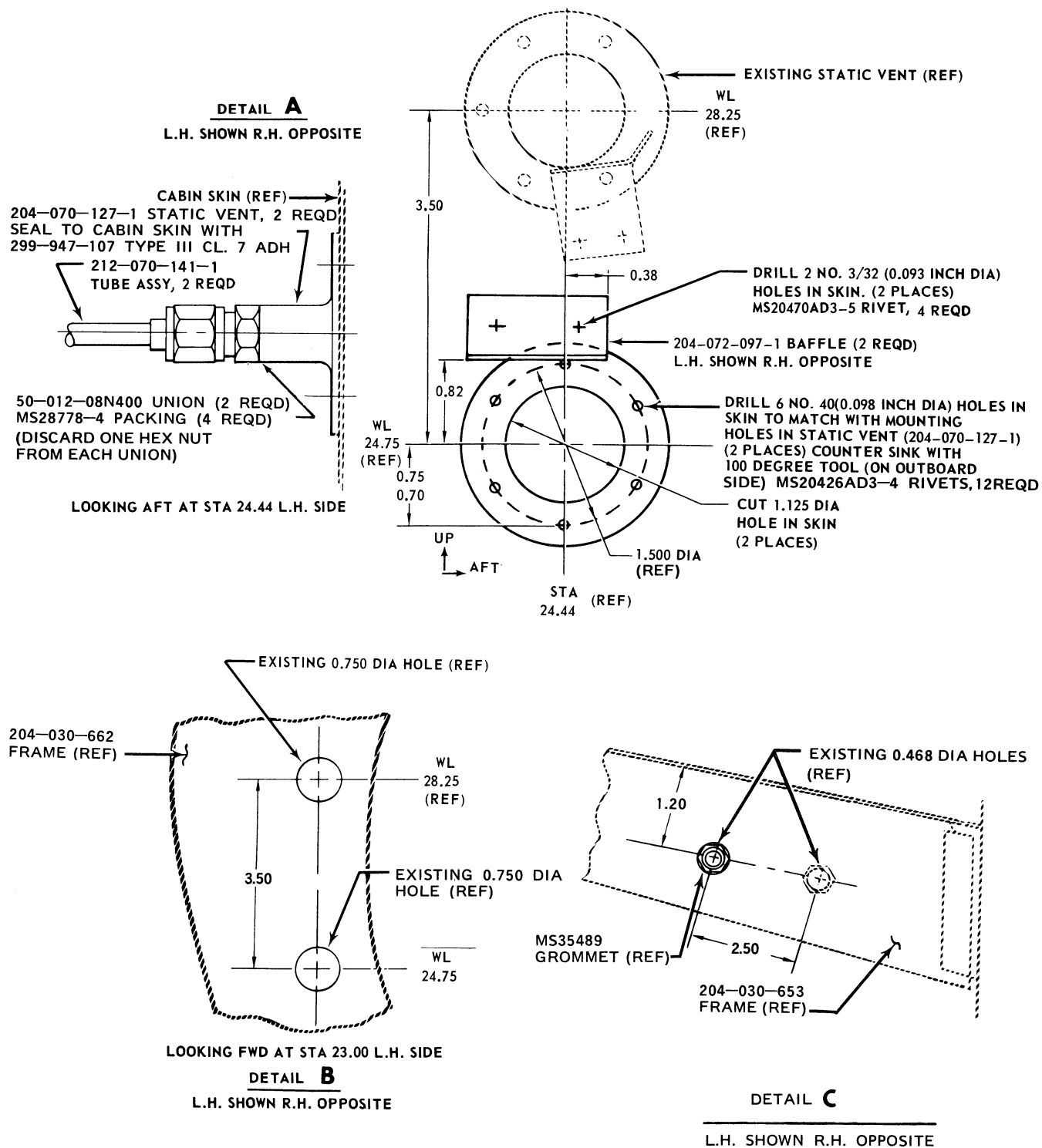
205-43-1-3-1 A

Figure 1-3. Installation of Static Vent Lines (Sheet 1 of 4)



205-43-1-3-2

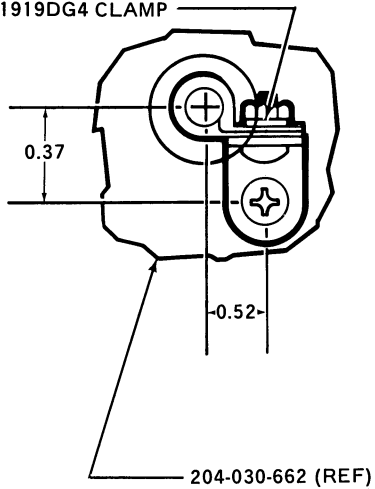
Figure 1-3. Installation of Static Vent Lines (Sheet 2 of 4)



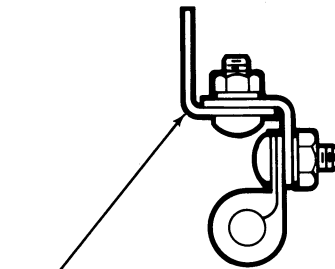
205-43-1-3-3

Figure 1-3. Installation of Static Vent Lines (Sheet 3 of 4)

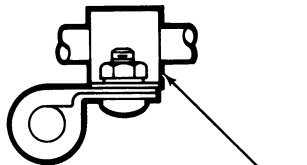
SECURE TO EXISTING HOLE WITH
 AN743-12 BRACKET
 MS35207-261 SCREW (2 REQD)
 AN960PD10L WASHER (2 REQD)
 MS21042L3 NUT (2 REQD)
 MS21919DG4 CLAMP

DETAIL D

L.H. SHOWN R.H. OPPOSITE



AN 743-12 BRACKET
 MS21919DG4 CLAMP
 MS35207-265 SCREW (2 REQD)
 MS 21042L3 NUT (2 REQD)
 AN960PD10L WASHER (2 REQD)

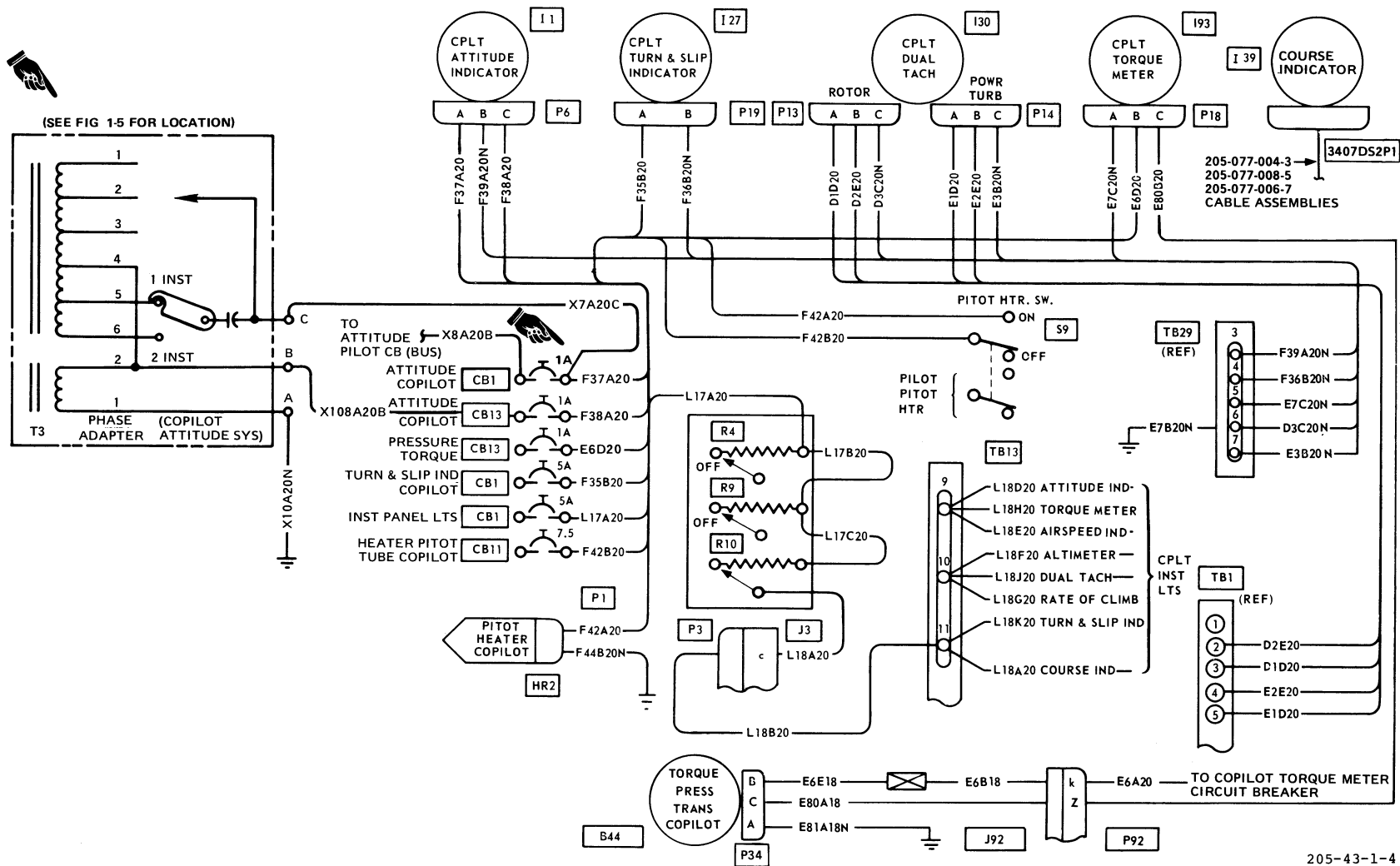
DETAIL E

MS21919DG4 CLAMP (2 REQD)
 MS35207-261 SCREW
 AN960PD10L WASHER
 MS21042L3 NUT

DETAIL F

205-43-1-3-4

Figure 1-3. Installation of Static Vent Lines (Sheet 4 of 4)



205-43-1-4 B

Figure 1-4. Wiring Diagram

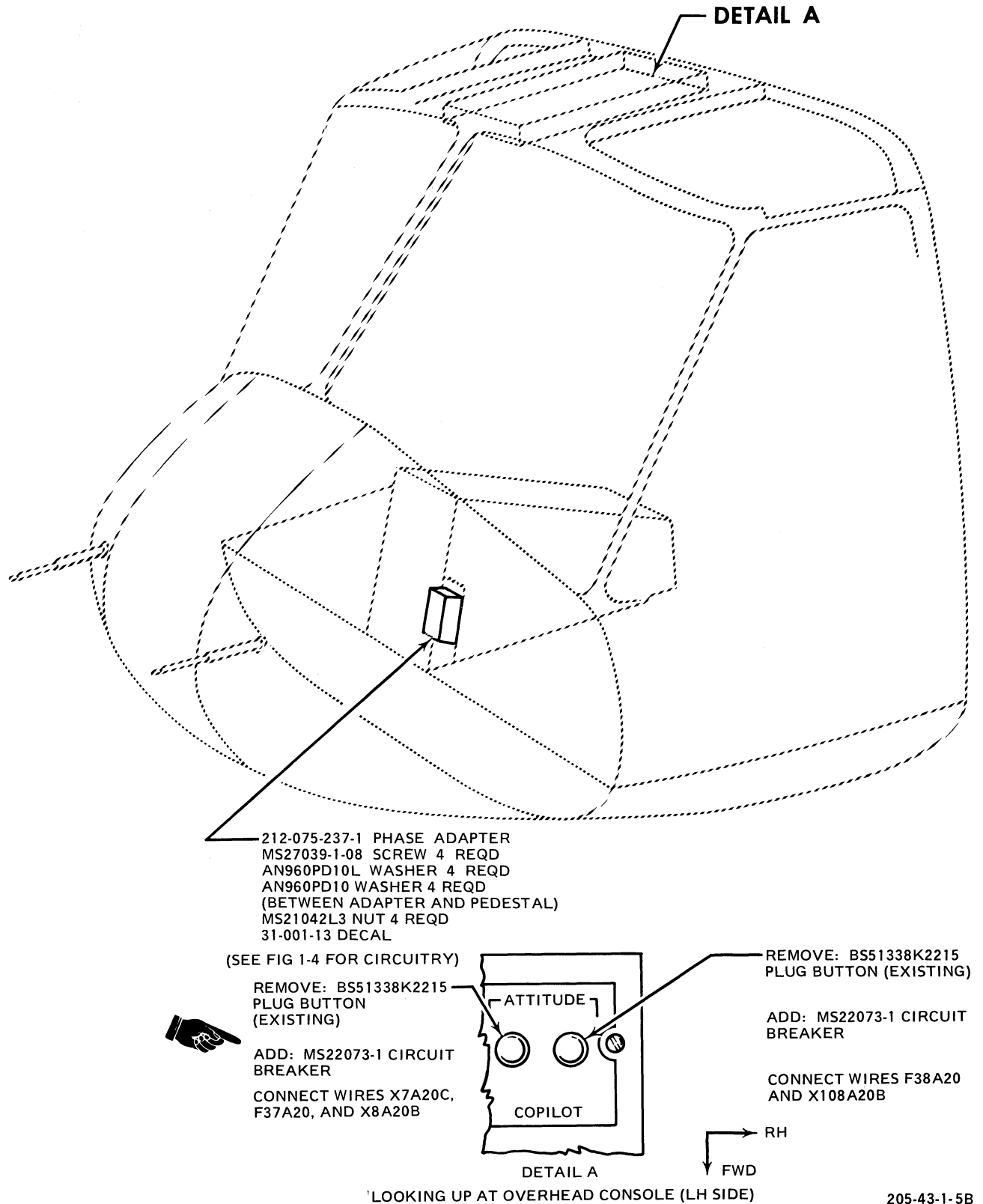
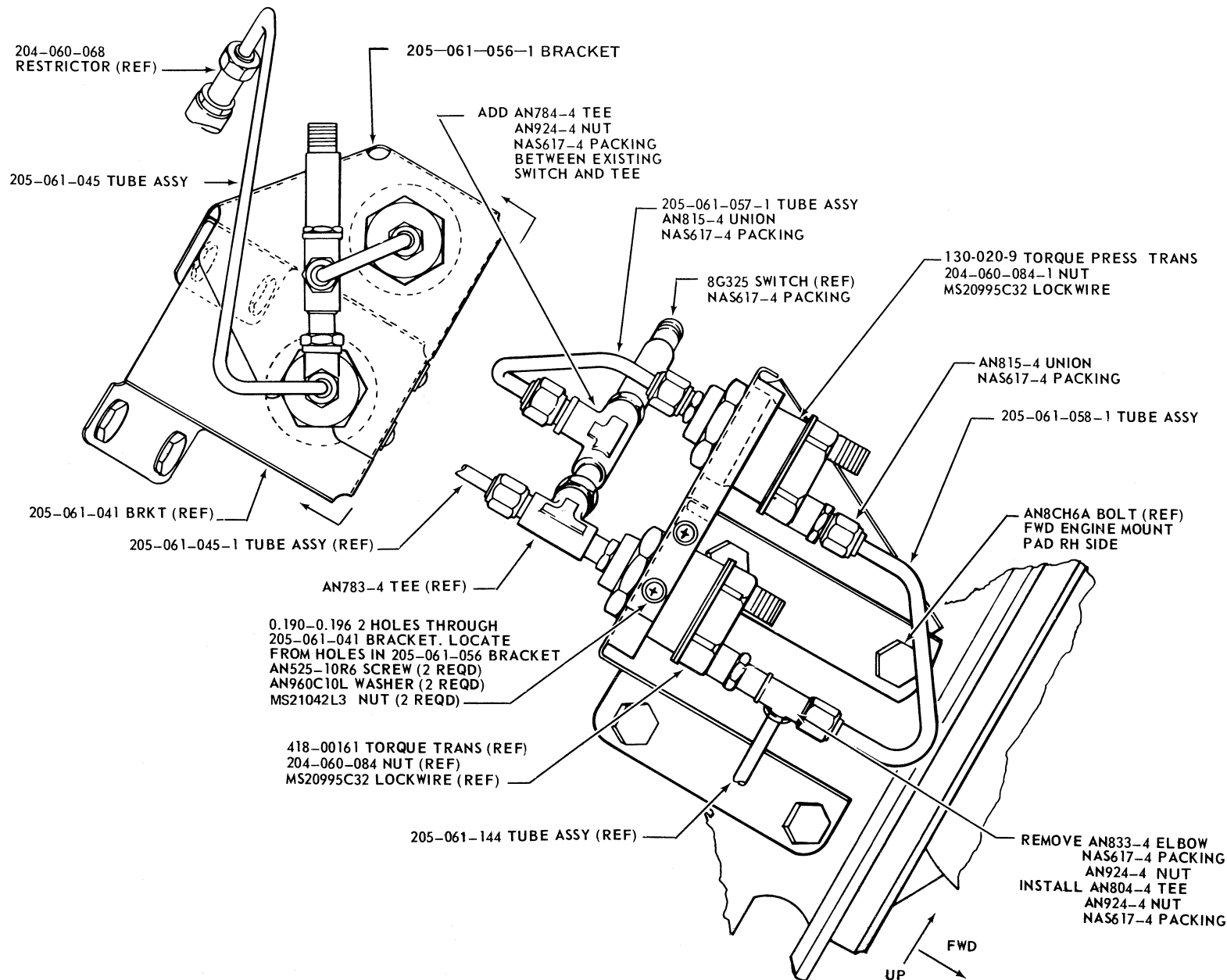


Figure 1-5. Phase Adapter Installation



VIEW LOOKING INBOARD-RIGHT HAND SIDE

205-43-1-6

Figure 1-6. Torque Pressure Transmitter Installation

SERVICE INSTRUCTION NO. 205-43

SECTION II

OPERATING INSTRUCTIONS

The operation of the copilots instrument installation is identical to the pilots instrument installation when the kit is installed to the basic aircraft. Refer to Model 205A-1 Flight Manual for operating procedures.

SERVICE INSTRUCTION NO. 205-43

SECTION III

MAINTENANCE

Maintenance of the copilots instruments is identical to the maintenance procedures for pilots instruments. Refer to Model 205A and 205A-1 Maintenance and Overhaul Instructions Manual.

SECTION IV
PARTS CATALOG

1. GENERAL.

This section lists and illustrates assemblies, subassemblies and detail parts of subject kit.

Refer to General Information Section of the basic helicopter "Illustrated Parts Breakdown" for detailed explanation of usage of this parts catalog section.

A cross reference listing of vendor code, name and address is provided for customer information.

2. VENDOR CODE:

<u>CODE NO.</u>	<u>NAME AND ADDRESS</u>
06275	R. C. Allen Business Machines, Inc. Aircraft Instrument Division Grand Rapids, Michigan
06987	General Design, Inc. 11676 Tuxford Sun Valley, California 91352
07580	Karnish Instrument, Inc. Lock Haven, Pennsylvania
08124	Carruth Laboratories Wichita, Kansas
19500	T. A. Edison West Orange, New Jersey
70134	Aero Instrument Company, Inc. 14901 Emery Avenue Cleveland, Ohio 44135
89944	Kollsman Instrument Company Div. of Sun Chemical Corporation 575 Underhill Boulevard Syosset, New York 11791
98810	Aerosonic Corporation P. O. Box 4627 1212 North Hercules Clear Water, Florida 33518

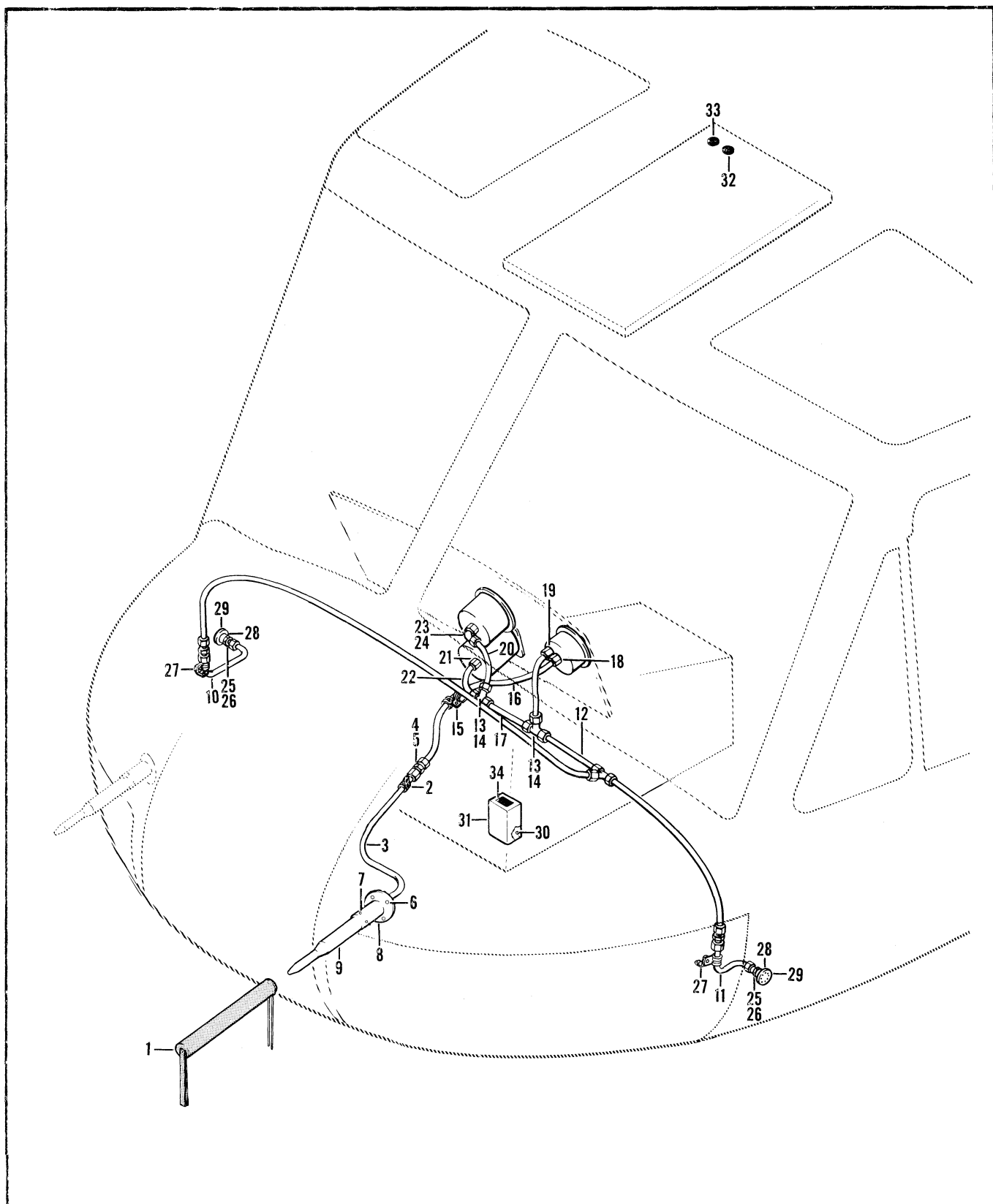


Figure 4-1. Instrument Installation (Copilots)
Auxiliary Equipment Kit

FIGURE & INDEX NUMBER	PART NUMBER	DESCRIPTION	UNITS PER ASSY.	MODELS USABLE ON				NON PROCURABLE
		1234567						
4-1-	205-706-090-1	INSTRUMENT INSTL (COPILOT).....	REF					
		AUXILIARY EQUIPMENT KIT						
- 1	204-070-470-1	.COVER.....	1					
- 2	MS21042L3	.NUT.....	2					
	AN960PD10L	.WASHER.....	2					
	MS21919DG4	.CLAMP.....	1					
	AN743-12	.BRACKET.....	1					
- 3	205-075-698-1	.TUBE ASSY.....	1					
- 4	50-012-08N400	.UNION.....	1					
- 5	50-012-01N404	.INSERT.....	1					
- 6	MS21042L3	.NUT.....	1					
	MS35338-41	.LOCKWASHER.....	4					
	MS27039-1-06	.SCREW.....	4					
- 7	MS35207-226	.SCREW.....	4					
- 8	204-070-107-13	.SUPPORT.....	1					
- 9	PH500	.PITOT TUBE (70134).....	1					
		(ALTERNATE)						
	781-02	.PITOT TUBE (89944).....	1					
- 10	212-070-142-1	.TUBING.....	1					
		(REPLACED BY 212-075-029-1)						
	212-075-029-1	.TUBING (REPLACES 212-070-142-1)..	1					
- 11	212-070-141-1	.TUBING.....	1					
		(REPLACED BY 212-075-028-1)						
	212-075-028-1	.TUBING (REPLACES 212-070-141-1)..	1					
- 12	130-011-4N72	.TUBING.....	1					
- 13	50-012-15N400	.TEE.....	2					
- 14	50-012-01N404	.INSERT.....	6					
- 15	MS21042L3	.NUT.....	1					
	AN960PD10L	.WASHER.....	1					
	MS35207-261	.SCREW.....	1					
	MS21919DG4	.CLAMP.....	2					
- 16	130-011-4N128	.TUBING.....	1					
- 17	130-011-4N36	.TUBING.....	1					
- 18	50-012-08N400	.UNION (SEE NOTE 1).....	1					
	MS28778-4	.PACKING (SEE NOTE 1).....	2					
	50-012-01N404	.INSERT (SEE NOTE 1).....	1					
	204-072-299-1	.RESTRICTOR (SEE NOTE 1).....	1					
	50-012-06N400	.NUT AND SLEEVE ASSY (NOTE 1)....	1					
	212-070-173-3	.ADAPTER (SEE NOTE 1).....	1					
- 19	50-012-08N400	.UNION.....	1					
	MS28778-4	.PACKING.....	1					
	50-012-01N404	.INSERT.....	1					
	130-011-4N56	.TUBING.....	1					
- 20	130-011-4N33	.TUBING.....	1					
- 21	AN919-6D	.REDUCER.....	1					
	MS28778-6	.PACKING.....	1					
- 22	212-070-223-1	.TUBE ASSY.....	1					
- 23	50-012-13N402	.ELBOW.....	1					
- 24	50-012-01N404	.INSERT.....	1					
- 25	50-012-08N400	.UNION.....	2					
- 26	MS28778-4	.PACKING.....	4					
- 27	MS21042L3	.NUT.....	2					
	AN960PD10L	.WASHER.....	2					
	MS35207-261	.SCREW.....	2					
	MS21919DG4	.CLAMP.....	1					
	AN743-12	.BRACKET.....	1					
- 28	204-070-127-1	.STATIC VENT.....	2					
- 29	204-072-097-1	.BAFFLE.....	2					
	205-961-304-1	.ELECTRICAL ALTITUDE COPILOT.....	1					
		SYSTEM INSTL						
- 30	MS21042L3	.NUT.....	4					
	AN960PD10	.WASHER.....	4					
	AN960PD10L	.WASHER.....	4					

FIGURE & INDEX NUMBER	PART NUMBER	DESCRIPTION	UNITS PER ASSY.	MODELS USABLE ON				NON PROCURABLE
		1234567						
4-1-	MS27039-1-08	..SCREW.....	4					
- 31	212-075-237-1	..PHASE ADAPTER.....	1					
- 32	MS22073-1	..CIRCUIT BREAKER.....	1					
- 33	MS22073-1	..CIRCUIT BREAKER.....	1					
- 34	31-001-13	..DECAL.....	1					
		(SEE FIG. 4-2 FOR BALANCE OF BREAKDOWN)						
		NOTE 1: THE FOLLOWING PARTS USED COLLECTIVELY ARE USABLE ON KITS K-1 THRU K-52: 50-012-08N400 UNION, MS28778-4 PACKING, 50-012-01N404 INSERT, AND 204-072-299-1 RESTRICTOR. THE FOLLOWING PARTS USED COLLECTIVELY ARE USABLE ON KITS K-52 AND SUB: 212-070-173-3 ADAPTER, MS28778-4 PACKING AND 50-012-06N400 NUT AND SLEEVE ASSY.						

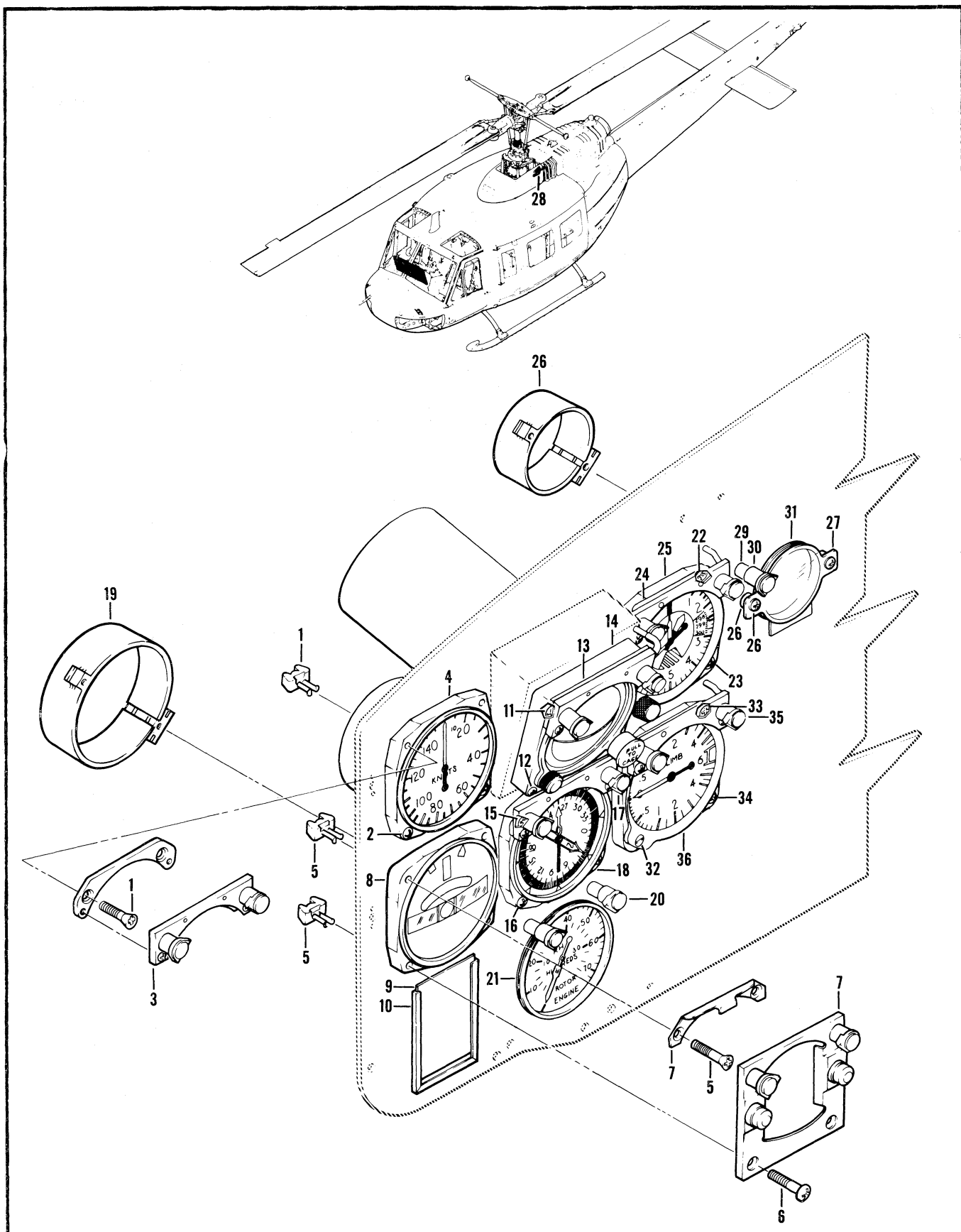


Figure 4-2. Instrument Installation (Copilots)
Auxiliary Equipment Kit.

FIGURE & INDEX NUMBER	PART NUMBER	DESCRIPTION	UNITS PER ASSY.	MODELS USABLE ON				NON PROCURABLE
		1234567						
4-2-	205-706-090-1	INSTRUMENT INSTL (COPILOT).....	REF					
		AUXILIARY EQUIPMENT KIT (SEE FIG 4-1 FOR BALANCE OF BREAKDOWN						
- 1	MS24693BB33	.SCREW.....	2					
	MS33737-11	.NUT.....	2					
- 2	MS35214-31	.SCREW.....	2					
	MS33737-11	.NUT.....	2					
- 3	90-027-327R1	.LIGHT SHIELD.....	1					
- 4	AC131A	.AIRSPEED INDICATOR (07580)..... (ALTERNATE)	1					
	S15KAW	.AIRSPEED INDICATOR.....	1					
- 5	MS24693BB33	.SCREW.....	2					
	MS33737-11	.NUT.....	2					
- 6	MS35214-31	.SCREW.....	2					
	MS33737-11	.NUT.....	2					
- 7	90-007-1	.LIGHT SHIELD.....	1					
- 8	A1600	.TURN AND SLIP INDICATOR (06275).. (REPLACED BY 2800-7970)	1					
	2800-7970	.TURN AND SLIP INDICATOR (06987).. (REPLACES A1600)	1					
- 9	AN5823-1	.COMPASS CORRECTION CARD.....	1					
- 10	AN5800-1	.CARD HOLDER ASSY.....	1					
- 11	MS35214-30	.SCREW.....	2					
	MS33737-9	.NUT.....	2					
- 12	MS24693BB32	.SCREW.....	2					
	MS33737-9	.NUT.....	2					
- 13	90-025-1-327R1	.LIGHT SHIELD.....	1					
- 14	14608-1APB1	.ATTITUDE INDICATOR..... (REPLACED BY 4300-7975)	1					
	4300-7975	.ATTITUDE INDICATOR (06987)..... (REPLACES 14608-1APB1)	1					
- 15	MS24693BB34	.SCREW.....	2					
	MS33737-11	.NUT.....	2					
- 16	MS35214-31	.SCREW.....	2					
	MS33737-11	.NUT.....	2					
- 17	90-027-327R1	.LIGHT SHIELD.....	1					
- 18	212-070-180-3	.COURSE INDICATOR.....	1					
- 19	MS28042-2	.CLAMP.....	1					
- 20	90-031-327R1	.LIGHT FIXTURE.....	2					
- 21	204-072-129-5	.DUAL TACHOMETER.....	1					
- 22	MS24693BB34	.SCREW.....	2					
	MS33737-11	.NUT.....	2					
- 23	MS35214-109	.SCREW.....	1					
	MS33737-11	.NUT.....	1					
- 24	90-037-327R1	.LIGHT SHIELD.....	1					
- 25	A35MA	.ALTIMETER INDICATOR (98810)..... (ALTERNATE)	1					
	371P1-01	.ALTIMETER INDICATOR (89944).....	1					
	G371-011B	.ALTIMETER INDICATOR (08124).....	1					
- 26	MS35214-29	.SCREW.....	2					
	AN960PD6	.WASHER.....	2					
	MS33737-11	.NUT.....	2					
	NAS43DD1-15A	.SPACER.....	2					
	MS28042-1	.CLAMP.....	1					
- 27	205-070-043-1	.DIAL GLASS.....	1					
- 28	205-061-059-1	.TORQUE PRESSURE INDICATOR..... (SEE FIG. 4-3 FOR BREAKDOWN)	1					
- 29	NAS43DD4-12A	.SPACER.....	1					
- 30	90-034-327R1	.LIGHT FIXTURE.....	1					
- 31	205-075-170-1	.TORQUE PRESSURE INDICATOR.....	1					
	204-070-148-1	.DECAL (TORQUE).....	1					

FIGURE & INDEX NUMBER	PART NUMBER	DESCRIPTION	UNITS PER ASSY.	MODELS USABLE ON				NON PROCURABLE
		1234567						
4-2- 32	MS35214-31	.SCREW.....	1					
- 33	MS24693BB34	.SCREW.....	2					
- 34	MS33737-11	.NUT.....	3					
- 35	90-027-327R1	.LIGHT SHIELD.....	1					
- 36	RC30V	.INDICATOR, RATE OF CLIMB (98810).	1					

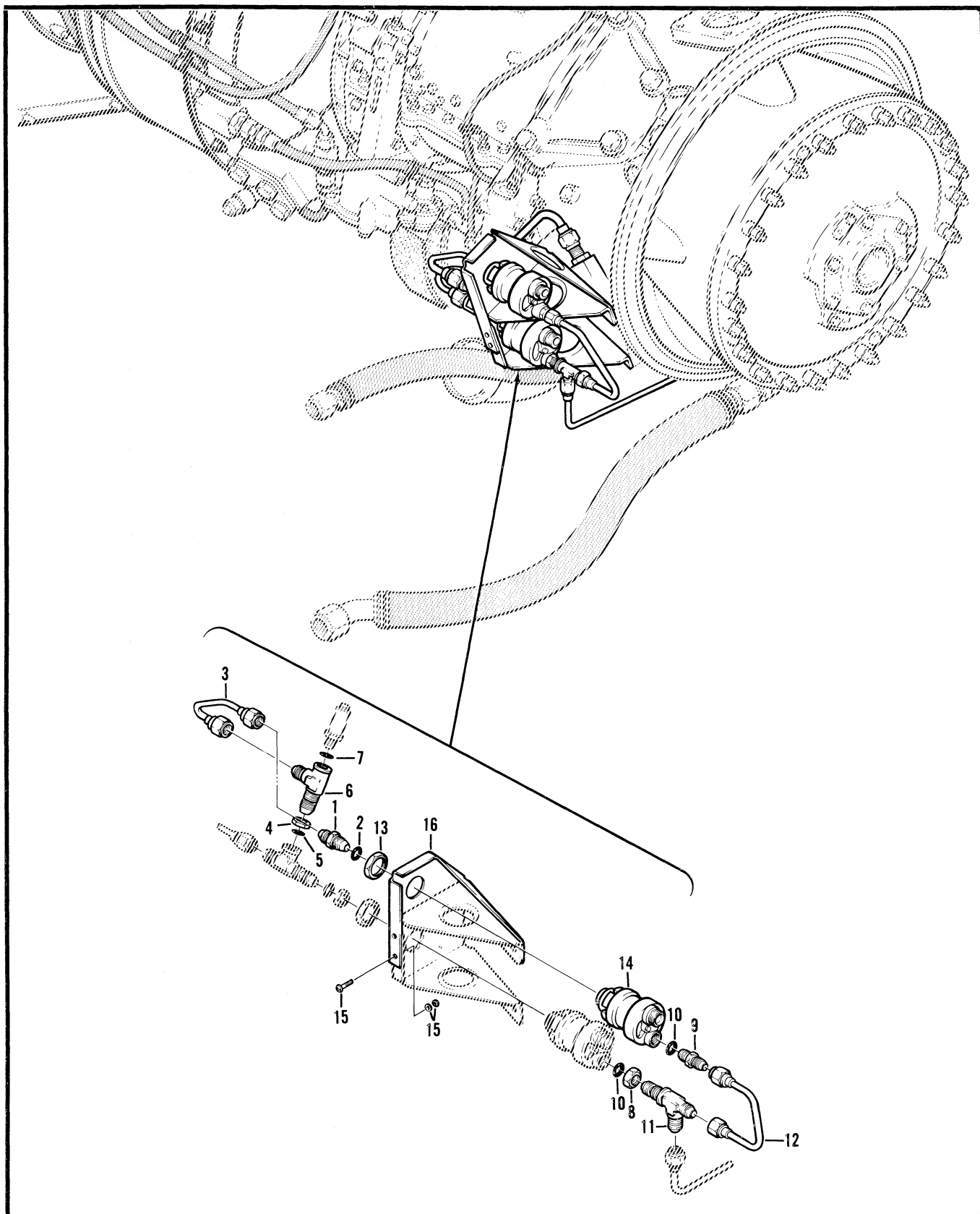


Figure 4-3. Torque Transmitter (Copilot) Installation

FIGURE & INDEX NUMBER	PART NUMBER	DESCRIPTION	UNITS PER ASSY.	MODELS USABLE ON				NON PROCURABLE
		1234567						
4-3-	205-061-059-1	TORQUE TRANSMITTER (COPILOT) INSTL. (SEE FIG. 4-2 FOR NHA)	REF					
- 1	AN815-4	.UNION.....	1					
- 2	NAS617-4	.PACKING.....	1					
- 3	205-061-057-1	.TUBE ASSY.....	1					
- 4	AN924-4	.NUT.....	1					
- 5	NAS617-4	.PACKING.....	1					
- 6	AN784-4	.TEE.....	1					
- 7	NAS617-4	.PACKING.....	1					
- 8	AN924-4	.NUT.....	1					
- 9	AN815-4	.UNION.....	1					
- 10	NAS617-4	.PACKING.....	2					
- 11	AN804-4	.TEE.....	1					
- 12	205-061-058-1	.TUBE ASSY.....	1					
- 13	205-060-084-1	.NUT.....	1					
- 14	418-00161	.TORQUE PRESSURE TRANSMITTER..... (19500) (REPLACED BY 130-020-9)	1					
	130-020-9	.TORQUE PRESSURE TRANSMITTER..... (REPLACES 418-00161)	1					
- 15	NAS679A3	.NUT.....	2					
	AN960C10L	.WASHER.....	2					
	AN525-10R6	.SCREW.....	2					
- 16	205-061-056-1	.BRACKET.....	1					