

RESTRICTED

AL No 456
(Radio - Automatic Height Encoding
- intro)

AP 101B-1801-2
Leaflet No. Q9

GNAT T Mk 1 Aircraft - Radio - To introduce Automatic Height Encoding equipment, Kollsman Mk 30A Altimeter (Ref No. 6A/1146374) in rear cockpit and Mk 29B (Ref No. 6A/6201976) in front cockpit.

(Mod No. Gnat/708)

(Class B/2(CWP)

(ADSM25/A/25274.- 15.7.74)
(ADP No. GNO70800)

1. INTRODUCTION

Subsequent to the introduction of SSR.2100 to Gnat aircraft (Mod 679) it is an Air Staff requirement to fit Gnat aircraft with height encoding equipment.

A proof installation is not required for this modification.

(1) This modification does not supersede, partially supersede or satisfy the work called for by any other modification, Command modification, SRIM or Special Instruction (Technical).

(2) This modification is essentially connected with Mod No. Gnat G79 (Radio - To make provision for and introduce SSR.2100 - Part 'A' - (Premod Gnat/303, Part 'B' (Post Mod Gnat/303)). If that work is not already embodied it must be effected concurrently.

(3) This modification is also applicable to Gnat T.85D Aircraft.

2. EMBODIMENT

This modification is to be embodied as directed by Command Headquarters.

NOTE: Embodiment by Contractors Working Party is recommended.

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3. APPROXIMATE TIME REQUIRED FOR EMBODIMENT

The work will take approximately 260 man hours (20 to strip, 210 to embody, 30 to reassemble) plus normal testing time.

4. DRAWINGS REQUIRED

The following drawings are required and will be supplied by the Contractor for CWP use.

<u>Drawing No.</u>	<u>Title</u>
1809-4041	Installation of P.E. Unit in Nose.
1809-4042	Installation of Junction Box in Cockpit.
1809-4043	Installation of Mk 29B Altimeter on Front Instrument Panel.
1809-4044	Installation of Mk 30A Altimeter on Rear Instrument Panel.
1809-4045	Installation of Height Encording Altimeters.
1809-4075	Additional Alterations in Nose.
1881-2737 Sheet 1	Test Schedule.
1881-2737 Sheet 2	Test Schedule.
1882-549	Wiring Diagram.

5. PARTS AND SPECIAL TOOLS REQUIRED

(1) Parts and Materials

(a) The Modification Kit which consists of the following items supplied by the Contractor will be assembled by No. 16 Maintenance Unit under Ref No. 26DN/100708:

<u>Ref No.</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Class of Equipment</u>
26DN/NIV	1809/4044B	Patch Plate	1	
NIV	1810/7067	Fuse Block Mtg	1	
NIV	1810/7069	Audio Warning Mtg	1	
NIV	1810/7071	Z Section Mtg	1	
NIV	1810/7073	Mtg Plate	1	
NIV	1810/7075	Relay Mtg Plate	1	
NIV	1810/7077	Relay Support Bracket	1	
NIV	1810/7079	Relay Support Bracket	1	
NIV	1880/503C	Flexible Hose	1	
NIV	1880/503D	Flexible Hose	1	
NIV	1880/758	Pipe	1	
NIV	1880/760	Pipe	1	

<u>Ref No.</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Class of Equipment</u>
26DN/NIV	1880/762	Pipe	1	
NIV	1880/764	Pipe	1	
NIV	1880/766	Pipe	1	
26DN/6623	1880/853	Clip-Pipe	1	C
26DN/4133	1880/855	Spacing Piece	2	C
26DN/NIV	1880/857V	Pipe	1	
NIV	1880/857W	Pipe	1	
NIV	1880/857X	Pipe	1	
NIV	1880/859R	Pipe	1	
NIV	1880/859T	Pipe	1	
26DN/1443622	1880/1707	Banjo Fitting	2	C
26DN/1443623	1880/1709	Banjo Bolt	2	C
26DN/1443624	1880/1711	Special Washer	2	C
26DN/1498090	1880/1745	Connect. Fitting	1	C
26DN/1498091	1880/1747	Connect. Fitting	1	C
26DN/NIV	1880/1749	Clip	1	
NIV	1880/1751	Mtg. Plate	1	
NIV	1881/2723	Support Bracket	1	
NIV	1881/2725	Bracket	1	
NIV	1881/2727	Bracket	1	
NIV	1881/2729	Fuse Block Mtg. Plate	1	
NIV	1881/2731	Spacer	1	
NIV	1881/2733	Link Special	1	
NIV	1882/551	Junction Box Wired	1	
NIV	1882/555	Cable	1	
NIV	1882/557	Cable	1	
NIV	1882/559	Fwd. Support Brkt.	1	
NIV	1882/561	Aft Support Brkt.	1	
NIV	FDS.37.Sht.39	Label Dymomite R	1	
NIV	FDS.37.Sht.39	Label Dymomite CJ	1	
NIV	FDS.37.Sht.39	Label Dymomite 7	1	
NIV	FOS.22.S.2	Bracket	1	
28DU/9419617	A.113-3C	Bolt	3	C
28D/1010658	A.25.1.B	Bolt	1	C
28D/9133012	A.25.3.C	Bolt	2	C
28S/1017747	A.32.A.14	Screw	4	C
28DU/9419565	A.102.I.D.	Bolt	3	C
28DU/9419567	A.102.4.D.	Bolt	1	C
28DU/9419976	A.102.16.D.	Bolt	2	C
28DU/9419536	A.113.1.B.	Bolt	4	C
28S/9435594	A.204.B.12	Screw	1	C
28S/9513003	A.204.B.40	Screw	2	C
28S/207002	A.205.B.10	Screw	2	C
28S/ -	A.205.B.40	Screw	6	
28S/ -	A.205.D.16	Screw	4	

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<u>Ref No.</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Class of Equipment</u>
28Q/9486479	AS.156.304	Rivet	2	C
28Q/1015151	AS.156.404	Rivet	2	C
28Q/4661885	AS.164.403	Rivet	35	C
28Q/4661208	AS.164.404	Rivet	14	C
28Q/9564474	AS.164.405	Rivet	8	C
28Q/9129592	AS.2230.404	Rivet	2	C
28Q/9129594	AS.2230.405	Rivet	2	C
28Q/-	AS.2809.4.040	Distance Tube	1	
28E/9436819	AS.3180.3.B	Clip	1	C
28E/1200546	AS.3180.5.C	Clip	1	C
28E/1201808	AS.3180.6.C	Clip	1	C
28F/18958	AS.6712	Elbow	1	C
28F/4051898	AS.6715	Union Body	2	C
28F/1037452	AS.8599	Union Nut and Bush	4	C
28M/1275903	AS.8600.B	Nut	2	C
28M/1275904	AS.8600.D	Nut	5	C
28F/1046307	AGS.838-1	Union Body	1	C
28F/1046308	AGS.838-2	Tee	1	C
28F/1037653	AGS.838-13	Union Nut and Seal	6	C
28M/1987493	AGS.2001.A.1	Nut	4	C
28M/1278189	AGS.2001.B.1	Nut	1	C
29C/1200328	AGS.2037.B	Shakeproof Washer	2	C
28Q/9417226	AGS.2050-429	Pop Rivet	12	C
28F/19983	AGS.3093	Pitot Connector	1	C
28F/4051943	AGS.3095	Static Connector	1	C
28F/19986	AGS.3098	O Ring Seal	1	C
28F/19987	AGS.3099	O Ring Seal	1	C
28E/NIV	AGS.3925.00	Hose Clip	2	
28E/NIV	AGS.3925.2	Hose Clip	2	
28W/1014056	SP.124.C	Washer	3	C
28W/9419464	SP.13.A	Washer	4	C
28W/9419474	SP.15.B	Washer	1	C
28W/9471274	SP.124.B	Washer	2	C
28W/9457834	SP.124.D	Washer	12	C
28W/5806394	SP.125.D	Washer	2	C
28Q/418727	SP.80.503	Rivet	1	C
26DN/NIV		Sleeve HT20 x $\frac{3}{4}$ "	2	C
		(Pink) (Helsyn		
		.50 sleeving)		
26DN/NIV		Sleeve P15 x $\frac{1}{8}$ "	4	C
		(Red) coded		
		(PVC tubing 1.5mm		
		i/d x 0.3mm thick		
		BS 3858 type 3)		
26DN/NIV		Sleeve P15 x $\frac{1}{8}$ "	6	C
		(Yellow) coded		
		(PVC tubing 1.5mm		
		i/d x 0.3mm thick		
		BS 3858 type 3)		

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<u>Ref No.</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Class of Equipment</u>
5X/9462951	HC.294	Ring Terminal	2	C
5X/1429242	CD.28073	Plug	1	C
5X/4500053		Socket Term Assy	4	C
5X/9522350		Cover	1	C
5X/9033		Fuse Block 6 Way	1	C
10H/1047920		Dummy Fuse	1	
10H/4709559		Fuse 2.5 A	1	
5CZ/1035380	WB/UN/1146/52B	Terminal Block		
		2 Way	1	
5CZ/1131364	WB/UN/1114/28	Pillar	2	
5CZ/4340512	WB/NY/UN/1110B2	Cover	1	

Service supply items:

<u>Ref No.</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Class of Equipment</u>
6A/6203321	L83271-00-000	P.E. Corrector Unit (Kollsman)	1	A
6A/1146374	L83261-04-010	Altimeter MK.30A (Kollsman)	1	A
6A/6201976	L82621-04-010	Altimeter MK.29B (Kollsman)	1	A
6A/6203326	L84340-00-060	Correction Module (Kollsman)	1	A
6A/6204138	L84380-00-100	Mooring Plate (Kollsman)	2	C
5X/1942384	467-14-19P	Test Socket (Hellerman Deutsch)	1	C

All the above items will be issued on issue order to RAF Units at home and those overseas Units on direct re-supply; no demands are to be submitted. Other RAF Units abroad and all other users, are to demand separately their requirements of kits as listed at sub-para (a) above in accordance with current regulations.

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(b) The following materials are to be provided under Unit arrangements:

<u>Ref No.</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Class of Equipment</u>
30A/9437135		Locking Wire 22 SWG	As req'd	C
32A/9539173		Stainless Steel, Spec DID189A Thread Fibre Glass .037" dia (Tygadur)	As req'd	C
5K/9569329	G51HA	Flexiform Strip (Hellermann)	As req'd	C
33B/9428824		Paint-Bright Spec BSX28 (BS381C/110)	As req'd	C

(2) Special Tools and Test Equipment

No special tools or test equipment are required for the embodiment of this modification.

6. MODIFICATION OF SPARES

The following list shows the spares affected by this modification and the parts required to modify them:

<u>Ref No.</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Class of Equipment</u>
<u>Spare affected:</u>				
26DN/9152	1880/539A/1	Grate (Rear Cockpit)	1	B
26DN/8038	1880/539A/UN/1	Grate (Rear Cockpit)	1	B
<u>Parts required:</u>				
28Q/9129592	AS.2230-404	Rivets	2	C

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<u>Ref No.</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Class of Equipment</u>
<u>Spare affected:</u>				
26DN/1497305	1810/4005A/3	Nose Hatch	1	A
26DN/1497306	1810/4005A/UN/3	Nose Hatch	1	A
<u>Parts required:</u>				
26DN/NIV	1810/7067	Fuse Block Mtg	1	
NIV	1810/7069	Audio Warning Mtg	1	
NIV	1810/7071	Z Section Mtg	1	
NIV	1810/7073	Mtg Plate	1	
NIV	1810/7075	Relay Mtg Plate	1	
NIV	1810/7077	Relay Support Brkt	1	
NIV	1810/7079	Relay Support Brkt	1	
NIV	FOS.37.SH39	Dymomite Label R	1	
NIV	FOS.37.SH39	Dymomite Label 7	1	
28DU/9419536	ALL3.1.B	Bolt	4	C
28Q/4661885	AS.164.403	Rivet	35	C
28Q/4661208	AS.164-404	Rivet	14	C
28Q/9417226	AGS.2050.429	Rivet Pop	12	C

7. CHANGE OF REFERENCE, PART AND ASSEMBLY NUMBERS

The embodiment of this modification changes Reference, Part and Assembly Numbers as follows:

<u>Ref No.</u>	<u>Old Part/ Assy No.</u>	<u>Nomenclature</u>	<u>Ref No.</u>	<u>New Part/ Assy No.</u>
26DN/9152	1880/539A/1	Crate (Rear Cockpit)	26DN/-	1880/539A/2
26DN/8038	1880/539A/UN/1	Crate (Rear Cockpit)	26DN/-	1880/539A/UN/2
26DN/1497305	1810/4005A/3	Nose Hatch	26DN/-	1810/4005A/4
26DN/1497306	1810/4005A/UN/3	Nose Hatch	26DN/-	1810/4005A/UN/4
26DN/-	1881/1753A/3	Cable Assembly, Main No. 2	26DN/-	1881/1753A/4

8. SEQUENCE OF OPERATIONS

The following is the sequence of operations:

NOTE: Before any electrical circuit is disturbed or disconnected, all electrical power supplies in, to or from the aircraft are to be disconnected. Power supplies are to be reconnected only when the person responsible for embodying or inspecting the modification is satisfied that all action has been taken to make the aircraft safe for reconnection.

This modification will be embodied by Contractors Working Party.

9. SPECIAL TESTS AFTER EMBODIMENT

(1) When this modification has been embodied and inspected carry out functional tests of all systems which have been disturbed for the purpose of embodying this modification in accordance with current testing instructions.

(2) Test the Height Encoding Altimeters installation in accordance with the test schedule 1881-2737 sheets 1 and 2.

10. RECORDING ACTION

When this modification has been embodied and inspected, in accordance with current authorised procedure the relevant entries are to be made in the appropriate aircraft records.

11. DISPOSAL OF REDUNDANT PARTS

(1) The undermentioned parts rendered redundant by the embodiment of this modification are to be returned to No. 14 MU, RAF Carlisle.

<u>Ref No.</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Class of Equipment</u>
6A/4339201		Altimeter MK.22E	2	A
6A/5465		Amplifier MK.1A	2	A

(2) The undermentioned parts rendered redundant by the embodiment of this modification are to be disposed of as scrap in accordance with AP 830, Vol 1 (5th Edition), Leaflet A19/1.

<u>Ref No.</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Class of Equipment</u>
26DN/7084	1810/5409A	Spigot Plate	1	
26DN/-	1880/839	Pipe	1	
26DN/7125	1810/1889	Connector	1	
26DN/7124	1810/1891	Connector	1	
10H/23864		Fuse 5A	1	
5H/73		Fuse Block 3 Way	1	

12. EFFECT ON WEIGHT AND MOMENT

This modification causes a change in the basic weight of plus 9.1 lbs. with a change in moment of plus 722 lbs/inches about the C.G. datum.

13. EFFECT ON AIRCRAFT OR EQUIPMENT OPERATION AND HANDLING

This modification completes provision for and introduces an Automatic Height Encoding Facility in the Altimeter Servo Encoding MK.30A(6A/1146374).

In the event of electrical failure to the Altimeters, the Front Cockpit MK.29B Altimeter will automatically revert to capsule operation in the "STANDBY" Mode. Other equipment or handling of the aircraft is not affected.

14. EFFECT ON SERVICING AND ON GROUND SUPPORT EQUIPMENT

Servicing will be affected by the change in type of Altimeters and the introduction of the P.E. Unit. Ground Support Equipment is not affected by this modification.

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