ROYAL AUSTRALIAN AIR FORCE.

SECRET.

CONTRACT SPECIFICATION No. 10/42

for

WIRRAWAY MK.III.

MANUFACTURED IN AUSTRALIA

by

COMMONWEALTH AIRCRAFT CORPORATION PTY. LTD.

Department of Air,
DIRECTORATE OF TECHNICAL SERVICES

Approved by :-

AIR MEMBER FOR ENGINEERING AND MAINTENANCE.

Date: 16.7.43.

D.T.S.376/43.

SECRET.

D.T.S. OUTLINE SPECIFICATION NO. 16/42.

for

WIRRAWAY MK.III.

1.00 GENERAL.

1.01 This specification is issued to cover the construction of a General Purpose Aeroplane manufactured in Australia by the Commonwealth Aircraft Corporation, Pty. Ltd. for the R.A.A.F. This aircraft will be known as the Wirraway Mk.III.

1.02 The aircraft are to be manufactured in accordance with the Commonwealth Aircraft Corporation Pty. Ltd's design for Wirraway Mk.II production aircraft. The drawing list for the C.A.9 series aircraft is to be the basis for this aircraft, except as modified to meet any special requirements of this specification.

1.03 The airframes are to be fitted with an S1H1-G Wasp geared engine as manufactured in Australia by the Commonwealth Aircraft Corporation and detailed in paragraph 13 of this specification.

1.04 The engine is to be fitted with a three bladed 10 ft. diameter Hamilton Standard Constant Speed Type 3.D.40 metal propellor, having a pitch range of 20 degrees and a setting of 19 to 39 degrees.

1.05 The markings of the aeroplane and aeroplane parts shall be in accordance with the requirements of Specification D.T.D. 1003 (Issue 3) and any corrigenda thereto received and current up to 1.11.42.

1.06 Specification D.T.D.1000 Issue 2 shall be deemed to form part of this specification and shall be read in conjunction with it.

1.07 All materials must comply with the latest issue of B.S.I, D.T.D., S.A.A. or other approved specification as required by the drawings.

1.08 Unless specifically stated and detailed in this specification the relevant general requirements given in D.T.D.1028 are deemed to be part of this specification and are to be completely fulfilled except where they are obviously inapplicable to an aeroplane of this type and where prior written concurrence of the Department of Air has been obtained.

1.09 For the purpose of the determination of airworthiness and structural strengths, the Commonwealth Aircraft Corporation shall be considered an approved firm as defined in A.D.M.298, Section 1, paragraph 2.

1.10 Wherever in this specification an Air Ministry Publication is referred to it is to be noted that the personnel and directorates mentioned in the Air Ministry documents are to be read as referring to their counter parts in the Royal Australian Air Force. Wherever a doubt arises, the counter part will be referred to as the Secretary, Department of Air.

1.11 Prior to the delivery of the first aircraft, the Commonwealth Aircraft Corporation shall certify to the Department of Air that it has been built in accordance with this specification except where variations have been agreed to in writing by the Department of Air.

2.00 MODIFICATIONS.

2.01 All Department of Air Technical Orders and Instructions as set out in Appendix II hereto, current up to 1.6.43 for the Wirraway aircraft are to be incorporated in the first production aircraft. Approved Commonwealth Aircraft Corporation modifications will be accepted.

2.02 All Department of Air Technical Orders and Instructions for the Wirraway Mk.II prepared subsequent to 1.6.43 are to be incorporated in the aeroplane as instructed by the Resident Technical Officer.

2.03 Modifications are to be prepared as directed by the Department of Air where considered necessary to overcome defects experienced in service.

2.04 As soon as possible after a modification or engineering change is introduced and approved the Commonwealth Aircraft Corporation shall forward to the Resident Technical Officer the following:-

Installation Statement
Modification Drawings

2.05 Immediately modifications are classified and approved by the Department of Air, supply action will be taken by the Department of Aircraft Production on the Commonwealth Aircraft Corporation in respect of retrospective parts as far as Contractor's parts are concerned.

2.06 Formal notice for incorporation of a modification in production aircraft will be passed to the Commonwealth Aircraft Corporation by the Department of Aircraft Production after their receipt of a Wirraway Contract Memo for the Department of Air.

2.07 When stocks of any parts have been supplied as spares, a statement showing the part numbers together with the despatch advice under which the supply has been made shall be forwarded to the Department of Air upon request.

3.00 MANUFACTURE AND INSPECTION.

3.01 The aircraft are to be manufactured in accordance with the latest issue of the relevant approved drawings and specifications and to the satisfaction of the Director of Aeronautical Inspection.

4.00 INTERCHANGEABILITY.

4.01 Component parts of the structure of all the aircraft manufactured in Australia to this specification are to be interchangeable in accordance with D.T.D.1019, Issue 2.

4.02 Similar parts of this aircraft and the Wirraway Mk.II aircraft are to be interchangeable.

4.03 Should the design of any part of this aircraft be common to other types of aircraft manufactured in Australia by the Commonwealth Aircraft Corporation for the Department of Air, then such information indicating this interchangeability shall be clearly noted on the drawings of these parts so that the Department of Air may maintain a common stock.

4.00 INTERCHANGEABILITY. (Cont'd)

4.04 Standard parts common to other types of aircraft are to be manufactured to the requirements of the relevant standard drawings and to the satisfaction of the Director of Aeronautical Inspection.

4.05 In all cases where interchangeability is affected, departure from interchangeability requirements is to be covered by concession procedure.

5.00 DRAWINGS.

5.01 Unless detailed otherwise A.D.M.358, Issue 2 shall apply.

5.02 On the date of delivery of the tenth aircraft, the drawings shall be regarded as sealed. The drawing li t shall be made up as from this date.

5.03 At the date of delivery of the tenth aircraft, one set of drawings and schedules covering all the variations between the Wirraway C.A.9 and Mk.III aircraft is to be submitted to the Department of Air. Further drawings or sets shall be supplied on demand.

5.04 The Commonwealth Aircraft Corporation shall forward continuously to the Department of Air details of any raised issues of the drawings. Should any raised issue of a drawing affect the outline, new copies shall be forwarded to the Department of Air. Further copies of raised issues of drawings or sets shall be supplied on demand.

5.05 The Commonwealth Aircraft Corporation shall supply modification drawings, (the number to be as specified by the Resident Technical Officer) showing the modifications incorporated in the aircraft as the modifications become effective.

5.06 Interchangeability between C.A.9 and the Wirraway Mk.III shall be shown by the allocation of the same drawing number in each case.

5.07 Drawings are not to be changed by the allocation of raised issues of drawing numbers for C.A.C. class A changes apart from the correction of drawing errors, unless sanction is obtained in writing from the Department of Air. This will enable the Department of Air to determine the effect of such raised issue numbers on the stores procedure within the R.A.A.F.

6.00 SPARES AND VOCABULARY.

6.01 The Commonwealth Aircraft Corporation shall prepare and supply to the Department of Air a list of assemblies and components which differ in any way from the C.A.9 aircraft. The details supplied shall be such as will enable the Commonwealth Aircraft Corporation in co-operation with the Department of Air to amend the vocabulary of spare parts. This amendment is to be completed concurrently with the tenth production aircraft.

6.02 Under R.A.A.F. stores procedure, it is necessary to ensure that similar parts intended to carry out the same function which may differ in strength or form due to modification are easily identifiable. Therefore when an alteration to a part necessitates distinction between the original and the altered part as defined above, then the part number must not be changed by raising the issue of the drawing, but instead a new part number must be allotted. Each departure from this must be approved of in writing by the Department of Air.

6.00 SPARES AND VOCABULARY. (Cont'd)

6.03 Concurrently with the first and every twentieth aircraft and in accordance with the approved schedules, airframe and engine spares are to be made available by the Commonwealth Aircraft Corporation in such range and quantities as are determined for Air Force stocks and the effective maintenance of the aircraft.

7.00 EQUIPMENT INSTALLATION.

7.01 The Appendix "A" shall be supplied to the Commonwealth Aircraft Corporation by the Department of Air.

7.02 Equipment shall be fitted or provided for in accordance with the equipment listed in the current Appendix "A" for the Wirraway Mk.III aircraft.

7.03 All equipment is to be located so as to permit of its most efficient use by the crew and to the satisfaction of the Department of Air.

7.04 All items indicated as "service supply contractors fitment" will be supplied by the Department of Air to the Commonwealth Aircraft Corporation upon application by them through the Resident Technical Officer, and installed in the aircraft before delivery to the R.A.A.F. Equipment so supplied shall be maintained by the Commonwealth Aircraft Corporation in accordance with the procedure laid down in Air Publication No.830 Volume II.

7.05 Items indicated as "service fitment" may be installed before delivery if so desired by the Department of Air. Installation of "service fitment" items will normally be carried out by R.A.A.F. personnel unless otherwise directed by the Department of Air.

8.00 ARMAMENT EQUIPMENT.

8.01 Fixed Guns

8.011 Provision is to be made for the installation of two .303" Vickers Mk.V guns firing through propellor arc in the top fuselage.

8.012 The mountings provided shall be adjustable in the horizontal and vertical planes.

8.013 Provision is to be made for 600 rounds of .303" ammunition for each gun. Bins complete with feed chutes shall be provided.

8.014 A Mk.III* reflector sight in addition to the ring and bead sight is to be provided and installed.

8.015 Provision is to be made for the installation, operation and control of complete synchronising gear for the two fixed guns. The generators shall be operated by cam gear located at the rear of the engine.

8.016 The guns are to be mechanically fired.

8.02 Flexible Gun

8.021 Provision is to be made for the installation of one .303" Vickers type "K" gun at the observers cockpit.

8.022 The mounting shall consist of a moveable carriage provided with a hydraulically operated gun hoist moving on a semi-circular track.

RMAMENT EQUIPMENT. (Cont'd)

8.023 A clip shall be provided for retaining the gun when in the stowed position.

8.024 Provision shall be made for 800 rounds of .303" ammunition.

8.025 Provision shall be made for both ring and bead and reflector sights Mk.IIIs.

8.03 Bomb Installation

8.031 Provision is to be made for the following electrical bomb release slips to be internally fitted in the aircraft as defined under paragraph 8.033:-

4 universal carriers on the outer wings 2 to each side.
6 light series carriers in the wing centre position.

8.032 Each universal carrier shall be capable of carrying and releasing one bomb of any of the following types:-

100 lb. A.S.
112 lb. H.E.
120 lb. G.P.
250 lb. G.P., S.A.P., A.S., I

The inboard carrier shall also be capable of carrying one 500 lb. S.A.P.

8.033 Each universal carrier shall consist of one electro-magnetic release unit operating a standard single claw release slip. Two channel mountings for the standard electro-magnetic fusing units shall be provided for each carrier.

8.034 Each light series carrier shall be capable of carrying and releasing one bomb of any of the following:-

8½ lb. Practice Bomb Mk.I
11½ lb. Practice Bomb Mk.I

8.035 Each light series carrier shall consist of one electro-magnetic release unit with integral release slips.

8.036 All electrical connections for the release and fusing units shall be readily accessible. Easily detachable inspection doors shall be provided for this purpose.

8.037 The bombs are to be released electrically by selective means and by an electrically operated automatic bomb distributor together with the necessary associated equipment. The bomb distributor, bomb selector switches and firing switch are to be located in the pilot's compartment. A bomb firing switch shall also be provided in the bomb aimer's compartment.

8.038 The bombs are to be capable of being jettisoned by the pilot.

8.04 Bomb Sight

8.041 Provision shall be made for mounting a course setting bomb sight Mk.9C below the floor in the rear cockpit.

8.042 Bomb sighting doors are to be provided in the fuselage floor and shall be operated manually by the bomb airmer when in a prone position. The opening shall allow unrestricted view of the target by the bomb aimer.

8.00 ARMAMENT EQUIPMENT. (Cont'd)

8.05 Pyrotechnics

8.051 Provision shall be made for the carriage and mechanical release of two 4½ inch reconnaissance flares on mechanical bomb carriers internally installed in the wing centre section. The release of the flares shall be from the pilots cockpit.

8.052 Provision shall be made for the installation, stowage and upward firing of a 1½ inch signal pistol complete with 8 cartridges in the front cockpit.

8.053 No provision need be made for the stowage or launching of 4 inch training flares in the rear portion of the fuselage.

9.00 RADIO EQUIPMENT.

9.01 Provision is to be made for the installation of a suitable shock mounting for the transmitter receiver T.R.11B.

9.02 Provision is to be made for the installation of a suitable shock mounting for transmitter type A.T.10 receiver type A.R.14.

9.03 Provision is to be made for the installation of a suitable shock mounting for receiver type A.B.K. Mk.II (12 volt).

9.04 Provision is to be made for the installation and fitment of the necessary fixed and trailing aerials as are required by the above units of radio installation.

9.05 Provision is to be made for the installation of all the associated equipment including remote controls as required for the above units of radio installation.

9.06 Stowage facilities for log books, message pads, radio drawings etc. are to be provided adjacent to the wireless operator.

9.07 Inter-communication will be provided using the facilities built into T.R.11B and A.R.14.

9.08 Any special wiring as required for any of the units of radio installation is to be provided and installed in the aircraft.

9.09 Suitable 12 volt power outlet points are to be provided as required for all the above units of radio equipment.

10.00 ELECTRICAL EQUIPMENT.

10.01 The low tension electrical installation shall be nominal 12 volts direct current using single wire ground return system. In certain circuits adjacent to the compasses a limited amount of double pole wiring may be found necessary to ensure conformity with A.D.M.410. Whenever a doubt arises in this connection advice should be sought from the Resident Technical Officer.

10.02 Electric supply and suitable controlling devices shall be supplied to all services including:-

Navigation Lights (Port, Stb'd & Tail)
Identification Lights (1 up, 1 down)
Undercarriage Indicators
Audible Undercarriage Warning
Pressure Head
Engine starting

Instrument Panel Lights
Formation Keeping Lights
Signalling Lamp
Reflector Sights
Landing Lights
Fuel Gauge Lighting
Bomb Installation.
Radio Equipment
Cine Camera Gun and Auxiliary Equipment
Lead Lights

(and any other services which are called for in this specification).

10.03 Approved thermal overload switches are to be used for control of all electrical circuits. Alternatively standard switches and fuses may be used.

10.04 A suitable isolating switch is to be installed in the main battery circuit.

10.05 Electrical supply shall be provided by one 750 watt 15 volt eclipse direct current generator driven direct on the mounting pad at the rear of the engine.

10.051 The output of the generator shall be controlled by an approved carbon pile type voltage regulator. The reverse current relay shall be shock mounted in an approved manner. A vibrating reed (Tyrrel) will be acceptable pending availability of the carbon pile type.

10.052 An approved generator main control switch and ammeter is to be provided in the generator circuit together with a volt test socket. Alternatively an approved indicating light device to show if the generator output falls may be fitted. In this case an approved ammeter ground test socket shall be provided in a convenient location.

10.06 The accumulator fitted will have a capacity of 68 amperes hrs. at the 5 hour rate and shall be of the R.A.A.F. (Air Ministry) fully non-spillable type.

10.061 The battery container shall be fitted with a drain pipe having its outlet aft of the rear cockpit.

10.07 Electric cables must conform to specifications AC/95/27074, AC/95/27273, AN/32057, AN/J/C/48 or SAA E (D) 1502. Cables without any rubber insulation are desirable. Where cables are locally manufactured they must conform with specification AN/J/C/48 or E (D) 1502.

10.071 All low tension electrical wiring shall be shielded in rigid metal or flexible metallic conduits. All conduit connections shall be of the screw coupling type and readily accessible.

10.072 All junction boxes shall be located so as to facilitate the testing and renewal of all the wirng and the dis-connection of the component parts of the aeroplane.

10.073 Identification tabs shall be fitted to all wiring at least at each end and at each junction and inspection box. All poles of removable pluge and sockets shall be identified.

10.074 All inter-connecting wires between the units of the camera installations shall be a permanent integral part of the aircraft electrical system.

10.075 Permanent schematic wiring diagrams of all the relevant sections of the electrical installation shall be stowed in the inside access cover of all major electrical boxes. Diagrams are to be serially numbered to correspond to the aircraft.

10.076 Provision is to be made for the installation and stowage of an R.A.A.F. technical data stowage bag to Drg. No.A5490 for the stowage of all appropriate electrical wiring diagrams of the aircraft.

10.08 All lights are to be provided with adjustable rheostats in order to control the intensity of light output. Rheostats shall be of an approved type and have a smoothly graded resistance unit capable of dimming the lamps filament to an extremely low intensity. The resistance element shall be capable of continuous operation with all the resistance in circuit.

10.081 Suitable lighting shall be installed in the following positions:-

Instrument Panels.
Undercarriage Warning Light.
Cockpit and Interior Lights.
Bomb Sight Position.

Standard 2 pin S.B.C. lamp holders shall be used throughout, except as required by special indicating devices or the like.

10.09 Port, starboard and tail navigation, one upward and one downward identification lamps are to be installed. The upward and downward identification lamps are to be controlled by an approved selector and keying switch installation.

10.10 Provision is to be made for electrically starting the engine by:-

(a) An external battery supply.
(b) The aircraft battery.

The socket for the connection of the external accumulator is to be so arranged that the external accumulator is connected to the aircraft electrical system to permit ground testing of all electrical and radio equipment from the external accumulator.

10.11 Appropriate warning devices are to be installed on the hydraulic system.

10.12 An approved earthing device other than a conducting tailwheel tyre shall be fitted.

10.13 Suitable audibleand visible undercarriage warning device shall be installed.

10.14 All electrical devices as are called for on the approved drawing are to be installed in convenient positions and are to be of a type acceptable to the Department of Air. Similar components are to be fully interchangeable with those installed in the Wirraway Mk.II.

10.15 The ignition switch shall be mounted in the rear cockpit. A mechanical inter-connection shall be made to an indicator plate and hand lever in each cockpit.

10.16 The electrical system is to be bonded and screened in such a manner so as to cause no interference with the radio installation.

10.161 No general service or instrument unscreened wiring shall be installed closer than 18 inches to an unscreened wireless aerial lead in.

10.162 The rigid and flexible metallic conduit system for the low tension wiring system must be installed with sufficient supports to prevent intermittent contact occurring with other conduits or metal structures. Metallic and flexible pipes and conduits comprising metallic construction shall be bonded to the structure at their ends and at points not exceeding 5 ft. apart. The electrical resistance of the conduit between these bonding points prior to the installation must not exceed 0.05 ohms.

10.163 The ignition system including booster, coils and switches shall be completely screened.

11.00 INSTRUMENTS.

11.01 Provision is to be made in the pilot's compartment for the incorporation of the following instruments:-

G106A/54 ⁎ Airspeed Indicator (0-300 m.p.h.)
G106A/220 ⁎ Bank and Turn Indicator
G106A/215 ⁎ Rate of Climb Indicator
G106A/2014 ⁎ Altimeter (0-20,000 - 40,000 ft.)
OR OR
G6A/685 ⁎ Sensitive 0-35,000 ft. lum.
G106A/2005 ⁎ Exhaust gas analyser - Cambridge
G106A/2010 ⁎ Suction Gauge.
G106A/20 ⁎ Clock (8 day).
G6A/602 ⁎ Directional Gyro - Sperry.
G6A/3181 ⁎ Artificial Horizon Sperry
G106A/157 ⁎ Manifold Pressure Gauge.
G106A/191 ⁎ Engine Speed Indicator (0-3,500 r.p.m.)
G106A/237 ⁎ Engine Gauge Unit.
OR OR
G6A/3197 ⁎ Fuel Pressure, 0/20 lbs. sq. in. direct reading.
G6A/3198 ⁎ Oil Pressure 0/200 lbs. sq. in. direct reading.
G6A/3207 ⁎ Oil Temp. Thermometers (0-120°C Weston Model 606 12 V.
G106A/262 ⁎ Cylinder Temperature Indicator - Weston.
G6A/3204 ⁎ Air and Carburettor Temperature Thermometer 12 V.
G6A/726 P-8 Horizontal Type Compass.
G6C/12690 Air Temperature Switch.

(all instruments marked thus ⁎ are to be installed in a shock mounted panel).

11.02 Provision is to be made for the following instruments to be fitted in the rear cockpit:-

G106A/54 ⁎ Airspeed Indicator (0-300 m.p.h.)
G106A/220 ⁎ Bank and Turn Indicator.
G106A/2014 ⁎ Altimeter (0-20,000 - 40,000 ft.)
OR OR
G6A/685 ⁎ Sensitive 0-35,000 ft. lum.
G106A/20 ⁎ Clock - 8 day.
G106A/157 ⁎ Manifold Pressure Gauge.
G106A/191 ⁎ Engine Speed Indicator (0-3500 r.p.m.)
G6A/728 P-8 Horizontal Type Pilots Compass.

(all instruments marked thus ⁎ are to be installed in a shock mounted panel).

11.03 The following instruments shall be fitted in a position adjacent to the bomb sight in the bomb aimers position:-

G106A/54 = Airspeed Indicator (0-300 m.p.h.)
G106A/2014 = Altimeter (0-20,000 - 40,000 ft.)
OR
G6A/685 = Sensitive 0-35,000 ft. lum.

11.04 Provision is to be made for the installation and fitment of the following ancillary equipment for the instruments installed:-

G106A/52 Electrically heated pitot head.
G106A/200 Analyser unit cell.
G106A/404 Air temperature Gauge resistance bulbs.
G106A/356 Leads Weston D.75378.
OR
G106A/256 Leads Weston D.75379.
G106A/289 Gasket Weston D.75418.
OR
G106A/218 Gasket Weston D.91033.

11.05 The flying instruments are to be operated alternatively by means of:-

(a) an engine driven vacuum pump.
(b) a dual venturi installation situated in the engine bay.

A changeover cock under the control of the pilot shall be installed for this purpose.

11.06 Provision is to be made on the starboard side of the centre section for an electrically operated cine camera gun type G.42-B, G.45 or "N" type G.S.A.P. with over run control. The camera gunsshall be controlled from the front cockpit.

11.07 Provision shall be made for mounting and electrically operating cine camera gun type G.42-B, G.45 or "N" type with over run control, on the rear flexible gun mounting.

11.08 Provision shall be made for the installation of an F.24 Aircraft Camera on type 25 mounting. The camera shall be located to the rear of the observers cockpit and shall be accessible for adjustments and for changing magazines during flight.

11.09 Provision is to be made for the fitment of all the ancillary equipment required for all the above units of camera installation.

11.10 Provision is to be made for the stowage of the necessary navigational instruments in a suitable position in the rear cockpit.

12.00 SUNDRY.

12.01 Each aircraft is to be equipped with the following loose equipment:-

Engine Cover.
Airscrew Hub Cover.
Cockpit Cover.
Engine & Airframe Tool Rolls.
Appropriate Wiring Diagrams of the Aircraft Services.

12.02 A rear view mirror shall be installed in order to increase the pilots view rearwards.

12.03 Provision shall be made for locking the controls in the cockpit for parking and picketing the aircraft in the open as called for in A.D.M.478.

12.031 Suitable external locking devices shall also be supplied and installed in the aircraft.

12.04 An approved lap type strap shall be installed in each cockpit.

12.05 A parachute type seat shall be provided in each cockpit. The rear seat shall be capable of being rotated through approximately 240°. A lock shall be provided when rotating 180° from its normal position.

12.06 A hand operated fire extinguisher shall be installed at a position accessible from both cockpits for use by the observer or pilot and accessible from the ground. Alternatively stowage is to be provided in the rear cockpit and mounting for a stowage bracket in the front cockpit.

12.07 Provision shall be made for communication between the front and rear cockpits by means of voice tubes.

12.08 Dive brakes operated by a single lever from the pilots cockpit are required for limiting the speed in a sustained dive.

12.081 Provision is to be made to easily disconnect the upper dive brake flaps from the operating mechanism, and lock them in the normal position.

12.09 The aircraft must pass the test for carbon monoxide as specified by A.D.M.513 Issue 2.

12.10 Provision is to be made for the installation of armour plating in accordance with Wirraway order No.56.

12.11 Castor base hydraulic fluid (R.A.A.F. Ident K2/140) is to be used throughout the hydraulic system.

12.12 An approved type of water drain must be installed in each fuel tank at the lowest point with the aircraft in the tail down position. The drain cocks used shall not protrude outside t e skin of the aircraft.

12.13 Provision is to be made in the fuel cock selection system for independent selection of two auxiliary drop tanks. The tanks will be a possible future requirement.

13.00 POWER PLANT INSTALLATION.

13.01 The engines manufactured by the Commonwealth Aircraft Corporation Pty. Ltd. are to incorporate all Department of Air Technical Orders and Modification current as at 1.6.43.

13.02 The engines are to be fitted with a ten to one ratio blower.

13.03 The engines are to be fitted with an approved R.A.A.F. type carburettor air filter.

14.00 FINISHED COLOUR SCHEME.

14.01 The aircraft are to be finished both externally and internally in accordance with R.A.A.F. Aircraft General Instruction F.21.

14.02 The aircraft are to be externally painted with R.A.A.F. Standard finishes and markings for day flying aircraft in accordance with Aircraft General Instructions C.11 Issue 5 and R.A.A.F. Diagram Number 5192.

14.03 The serial numbers are to be A.20-623 to A.20-772 inclusive.

15.00 TYPICAL SERVICE LOADS.

15.01 The total loads carried by the aeroplane shall be as set out in accordance with Appendix I hereto.

16.00 AIRCRAFT RELEASED MINUS EQUIPMENT.

16.01 All items of equipment called for in this specification which are the responsibility of the Contractor to supply and fit are to be installed in the aircraft before delivery shall be deemed to have been made. In such cases where the Contractors responsibilities have not been met, aircraft will not be accepted except as agreed by the Resident Technical Officer and the Supply Liaison Officer.

17.00 SPECIAL TOOLS AND JIGS.

17.01 The aircraft handling gear for use with this aircraft is to be identical with that used by a Wirraway Mk.II.

18.00 REPAIR INSTRUCTIONS AND HANDBOOKS.

18.01 The following publications relevant to the operation, maintenance and repair of the aircraft are to be compiled and/or provided by the Commonwealth Aircraft Corporation in a form to be approved by the Department of Air:-

Engine.
Operating Instructions.
Overhaul & Repair Manual.

Airframe.
Volume I in accordance with A.D.M.353 Latest Issue
Volume II Part 3 "Instructions for Repair" in accordance with A.D.M.257 Issue 3.

Propellor.
Operating Instructions.
Overhaul & Repair Manual.

The number of these publications supplied is to be in accordance with requirements specified by the Department of Air.

19.00 LOG BOOKS AND SCHEDULES.

19.01 Log books for every airframe, engine and propellor shall be supplied to the Commonwealth Aircraft Corporation by the Department of Air. The Contractor shall treat them as confidential documents and shall record the relevant history of the equipment to the satisfaction of the Director of Aeronautical Inspection or his accredited representative.

20.00 DELIVERY AND ACCEPTANCE.

20.01 Delivery of each aircraft shall be deemed to be made upon the same being released by the Director of Aeronautical Inspection or his accredited representative and accepted by the service test pilot.

20.02 The final acceptance of the aircraft is a certification in the log book by the Director of Aeronautical Inspection or his accredited representative.

21.00 WEIGHT AND CENTRE OF GRAVITY.

21.01 The Commonwealth Aircraft Corporation shall furnish to the Department of Air or its representative (before the aircraft will be delivered) the tare weight and the weight when fully loaded of the first and each subsequent 20th aircraft off the contract. The co-ordinates of the centre of gravity measured in a plane of symmetry from the datum point parallel and perpendicular to the datum line (A.D.M.205) shall be stated in both cases.

21.02 The tare weight is the weight of the aircraft when fitted with all fixed equipment and none of the removable equipment, and with fuel and oil tanks empty.

21.03 The stated weights shall be accurate to within 0.5%.

21.04 The co-ordinate of the centre of gravity parallel to the datum line is to be accurate to within one per cent of the mean cord dimensions. The co-ordinate of the centre of gravity perpendicular to the datum line is to be accurate to within 5% of the mean cord dimesnions. The calculated co-ordinate perpendicular to the datum line may be accepted, provided that the error in the calculated value of the co-ordinate parallel to the datum line is not greater than 2% of the mean cord when compared with its measured value.

21.05 On or before the completion of the 10th aircraft the Commonwealth Aircraft Corporation shall forward to the Resident Technical Officer a schedule of weights and positions relative to the datum for all fixed and removable equipment. A form suitable for the analysis will be issued to the contractor by the Resident Technical Officer.

22.00 FLIGHT TESTS.

22.01 The aircraft will not be flown unless and until a certificate of safety for flight has been given by the Director of Aeronautical Inspection or his accredited representative.

22.02 Each aircraft is to be flight tested for a minimum of half an hour by the contractor to prove airworthiness, stability and correct functioning of all instruments and accessories.

22.03 Pilots, aerodromes and locations for flight and/or taxying trials must be approved in writing by the Resident Technical Officer before the aircraft is flown. This approval may be withdrawn at any time if in the opinion of the Resident Technical Officer the local conditions are such as to involve undue risk for the aircraft.

22.04 During the trials the aircraft must depart and return to the aerodrome approved for that purpose and in no cases may it be landed at any other aerodrome or location unless circumstances attributable to the weather, failure of the aircraft or other causes beyond the control of the pilot necessitates such a landing. The course of the flight must be such that if a forced landing is necessary, it shall not have to be made at a distance from the approved aerodrome greater than can be attributed to the nature of

22.00 FLIGHT TESTS. (Cont'd)

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the tests to be made. In addition in no case shall the aircraft be flown more than five miles out to sea unless the circumstances in the opinion of the pilot warrent it.

22.05 After satisfactory completion of flight trials each aircraft is to be submitted to the Director of Aeronautical Inspection or his accredited representative for final inspection.

22.06 The contractor shall, in respect of each and every test flight carried out by them under the contract, render certified copies of the report thereof made by the pilot or pilots for each and every flight. These reports are to be on the form or forms as shall be from time to time prescribed for use in this connection. The test reports to be carried out under this clause shall be received and made available to the Director of Aeronautical Inspection.

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APPENDIX I TO SPECIFICATION 10/42.

TYPICAL SERVICE LOADS.

(A) RECONNAISSANCE AIRCRAFT.

(1) The removable military load specified hereunder.

(2) Fuel - 92 gallons, oil - 83 gallons.

		Lbs.	
(1)	2 Vickers Guns Mk.V.	61	
	1200 rounds .303" ammunition	87	
	1 Vickers G.O. Gun.	25	
	8 drums .303 ammunition	67	
	Pyrotechnics	42	
	Cameras	43	
	Electrical	6	
	Navigational Instruments	8	
	Radio T.R.11B.	32	
	Radio A.T.10/A.R.14	97	
	Radio R.3018	36	
	Fire Extinguisher.	5	
	First Aid.	3	
	Crew 2.	430	
			952
(2)	Fuel 92 gallons		690
	Oil 8½ gallons.		76
			1708

(B) DIVE BOMBER.

(1) Removable Military Load specified hereunder.

(2) Fuel - 75 gallons. Oil - 8½ gallons.

(1)	2 Vickers Guns Mk.V.	61
	1200 rounds .303 ammunition	87
	1 Vickers G.O. Gun.	25
	8 drums .303 ammunition.	67
	Pyrotechnics.	6
	Navigational Instruments.	8
	Radio T.R.11B.	32

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(B) DIVE BOMBER. (CONT'D)

	Lbs.	
Radio R.3108	36	
Fire Extinguisher	5	
First Aid Equipment	1	
Bomb Distributor	5	
Bombs 4X250	1000	
Crew 2.	430	
		1773
(2) Fuel 75 gallons		562
Oil 8½ gallons.		76
		2411

APPENDIX II TO SPECIFICATION 10/42.

List of Wirraway Orders, Instructions, Engineering Changes etc., applicable to the C.A.16 Contract Specification.

WIRRAWAY ENGINEERING CHANGES.

1, 2, 3, 5, 7, 8, 9, 11, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23,
24, 25, 26, 27, 28, 29, 30, 32, 35, 37, 38, 39, 40, 41, 42, 43, 44,
46, 47, 48, 49, 50, 51, 52, 55, 56, 57, 59, 60, 61, 62, 63, 65, 66,
68, 69, 70, 71, 72, 73, 74, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85,
86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 201,
202, 203, 204, 205, 207, 209, 214, 215, 216, 220, 223, 235, 239, 242.

WIRRAWAY ORDERS.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20,
23, 24, 25, 26, 27, 29, 33, 34, 35, 36, 38, 40, 41, 42, 44, 45, 47,
48, 49, 50, 51, 52, 53, 54, 58, 59, 60, 61, 62, 63, 64, 65, 66, 69,
70, 71, 72, 73, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 88, 89,
90, 91, 92, 95, 96, 103, 104, 105, 107, 108, 109, 111, 112, 114.

WIRRAWAY INSTRUCTIONS.

15, 17, 20, 21, 23, 27, 28, 29, 30, 34, 35, 36, 37, 38, 39, 42, 43.

WIRRAWAY INSTRUMENT ORDERS.

1/6, 1/10, 1/13, 2/8.