

Chapter 5 ALIGHTING GEAR

LIST OF CONTENTS

	Para.
DESCRIPTION AND OPERATION	
General	1
Main undercarriage	2
Main wheel brake unit	4
Nose undercarriage	5
SERVICING	
General	6
Main undercarriage adjustments	
Radius rod alignment and lock-plate micro-switch setting	7
Wheel clearance and UP and DOWN lock micro-switch settings	8
Radius rod kidney slot clearance	9
	Fig.
Retraction movement	1
Wheel brake unit	2
Radius rod	3
Main wheel door mechanism	4

	Para.
Wheel door and wheel door retraction	10
Wheel door catches and micro switch settings	11
Leg fairing position	12
Selector lever lock plunger micro switch setting	13
Nose undercarriage adjustments	
Radius rod alignment, lock-plate micro switch setting and kidney slot clearance	14
Nose wheel retraction	15
Leg fairing and wheel door retraction	16
Nose wheel door catch setting	18
Nose wheel UP lock micro switch setting	19
Nose wheel DOWN lock micro switch setting	20

	Para.
Charging and inflating the shock-absorber struts	21
Retraction tests	22

REMOVAL AND ASSEMBLY

General	23
Main wheel	24
Main undercarriage leg	25
Main undercarriage radius rod	26
Nose wheel	27
Nose undercarriage unit	28
Nose undercarriage radius rod	29
Self-centring mechanism	30

LIST OF ILLUSTRATIONS

	Fig.
Main wheel door catches	5
Leg link micro switch	6
Nose wheel door mechanism	7
Nose wheel door catch	8

	Fig.
Main undercarriage	9
Nose undercarriage	10
Self-centring mechanism	11
Lubrication details	12

DESCRIPTION AND OPERATION

General

1. The tricycle alighting gear consists of two main wheels fitted with Dunlop pneumatic brakes and a single castoring nose wheel, each mounted on an undercarriage leg incorporating a shock-absorber unit. A full description of the shock-absorber unit together with relevant dismantling and servicing instructions, will be found in A.P.1803C, Vol. 1. All three undercarriage assemblies are retracted hydraulically and are enclosed in the *up* position by their respective leg fairings and hinged doors.

Main undercarriage

2. The port and starboard undercarriage legs are handed by virtue of the position of the torque link assembly and the jack attachment lever, both of which may be reversed to render the units interchangeable. The legs are oleo-pneumatic in operation and each comprises a plunger tube sliding freely in a cylinder, loads being absorbed by com-

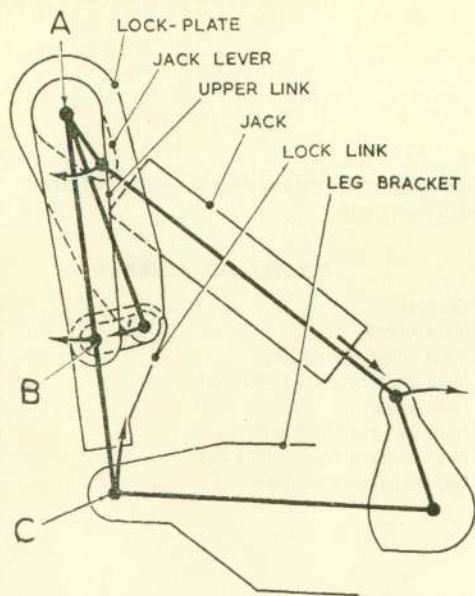
pressed air and the action damped by fluid in the leg being forced through restrictor holes. The alighting gear is raised or lowered by operating the selector lever mounted on the throttle control box in the cockpit. When the alighting gear is lowered for landing and as soon as the weight of the aircraft is transferred to the wheels, the lever is secured in the DOWN position by a solenoid operated lock plunger, thus preventing inadvertent retraction of the alighting gear when the aircraft is on the ground (*para.* 13). The sequence of movement of the undercarriage mechanism on retraction is shown diagrammatically in fig. 1, whilst the general arrangement of the various components is illustrated in fig. 9.

3. The wheel door for each main undercarriage is operated by a hydraulic jack housed in the wing just forward of the wheel well, its ram being connected to the door via a torque shaft and levers, and by an

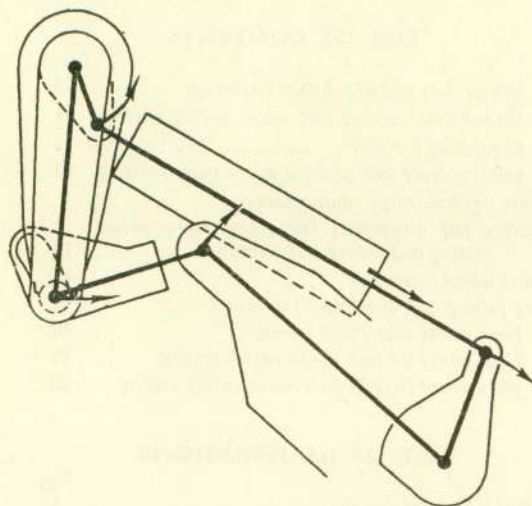
intermediate link. Upon retracting the undercarriage, the jack operates to close the door immediately the striker on the radius rod (*fig.* 3) depresses the plunger of a hydraulic sequence valve, i.e. after the leg lock is broken and the wheel has started to rise. Another striker on the radius rod assembly then operates a trip mechanism and thus, via Bowden cables (*fig.* 5), causes catch hooks to secure the door in the fully closed position. This locking mechanism is so arranged, that in the event of the hooks being inadvertently closed when the aircraft is on the ground, they will automatically open to receive the door pegs as soon as the alighting gear begins to retract.

Main wheel brake unit

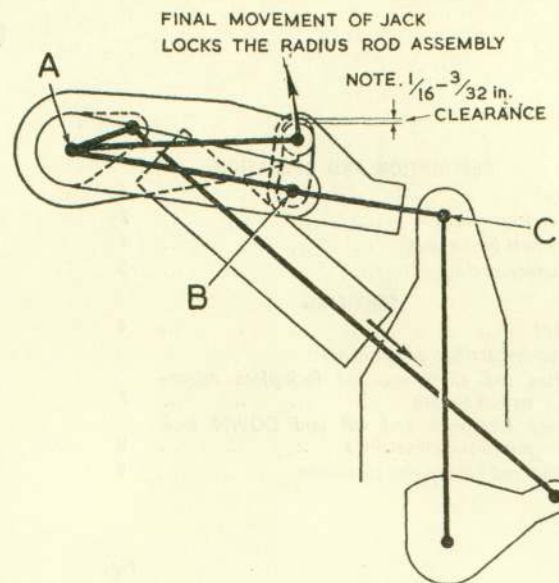
4. Fig. 2 shows the arrangement and function of the Dunlop pneumatic wheel brake unit components. The operation of the brake system as a whole, is described in Chap. 7 of this Section.



LEG LOCKED DOWN



LEG PARTIALLY RETRACTED



LEG RETRACTED

NOTE. Points A, B, and C, to be in straight line in both up and down locked positions.

Fig. 1. Retraction movement

Nose undercarriage

5. The operation of the nose undercarriage shock-absorber unit is similar to that of each main undercarriage leg. The fully castering nose leg is housed in an articulated

support casting and is connected at the top to a self-centring mechanism (fig. 11) and at the bottom to the hinged wheel fork. The entire assembly is hydraulically-retracted rearwards into the wheel well and is enclosed

in the *up* position by the leg fairing and a mechanically-operated hinged door. The general arrangement of the nose undercarriage is illustrated in fig. 10, whilst the wheel door operating mechanism is shown in fig. 7.

WARNING

Except on aircraft embodying a relief valve in the hand pump circuit (Venom Mod. 553), the manually-operated by-pass valve on the port rear face of bulkhead No. 2 must be held open whenever the hydraulic pump is used, failure to observe this precaution may result in serious damage to one or more of the retracting mechanism components. Should a wedge be used for this purpose, a red flag must be attached to it to ensure its removal when servicing is completed. Manipulation of this non-return valve will otherwise only be necessary for ground testing the dive brakes.

General

6. All bearing surfaces of the alighting gear must be kept clean and the points detailed in fig. 12, well lubricated. Before commencing any alighting gear servicing operations, the aircraft should be jacked up with all wheels clear of the ground and the relevant accumulator hydraulic pressure released. (Sect. 3, Chap. 6.)

Main undercarriage adjustments

Note . . .

Whenever the rigging of an undercarriage or wheel door is checked or adjusted, the following sequence of operations must be strictly adhered to.

SERVICING

Radius rod alignment and lock-plate micro switch setting

7. With the undercarriage fully *down* and the lock-plate in the locked position (fig. 3), adjust the radius rod stop bolt to contact the face of the stop, ensuring that the roller has full free travel in the kidney slot. Points A, B and C (fig. 1) will then be in a straight line. Secure the stop bolt lock-nut and wire lock the bolt and nut together. The striker for the lock-plate micro switch, which is mounted on the upper link of the radius rod and wired in series with both the *up* and *down* lock micro switches, should next be adjusted so that it operates the switch plunger when the lock-plate roller is $\frac{3}{8}$ in. from the locked position.

RESTRICTED

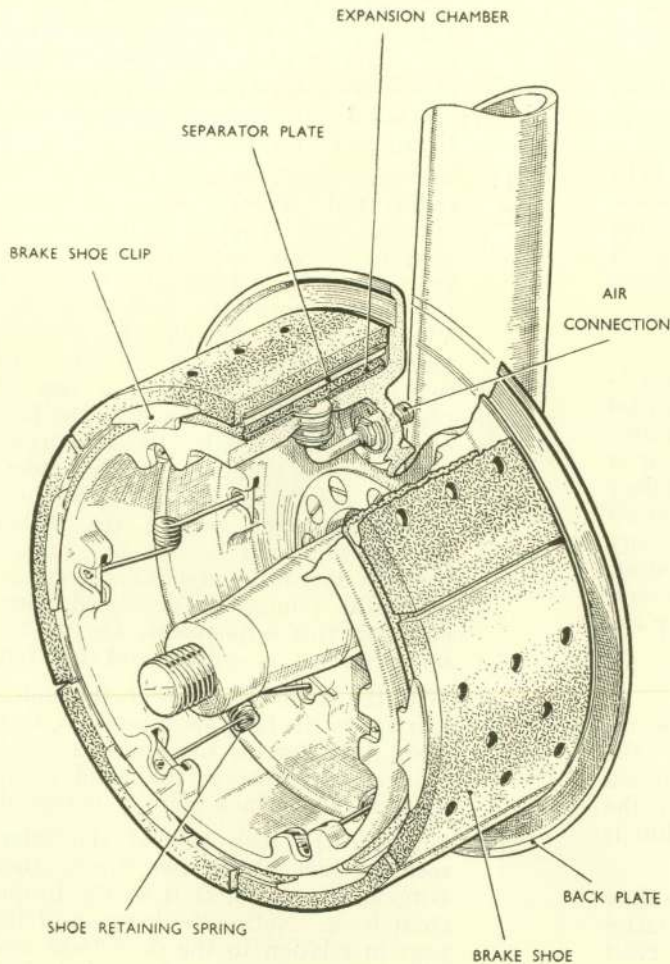


Fig. 2. Wheel brake unit

Wheel clearance and UP and DOWN lock micro-switch settings

8. Before carrying out this adjustment, the leg attachment eye-bolt (fig. 3) should be screwed in sufficiently, to prevent the wheel rim striking the beam in the roof of the wheel well on initial retraction of the undercarriage, thereby causing undue stressing of the radius rod assembly. The leg fairing should then be removed, the wheel door intermediate link disconnected from

the torque shaft lever and the adjustment carried out in the following manner:—

- (1) Affix a $\frac{1}{4}$ in. thick strip of plasticine to the lower face of the beam mentioned above, lightly smear the wheel rim with grease and fully retract the undercarriage using the hand pump and observing the WARNING preceding para. 6.
- (2) Lower the undercarriage and measure the thickness of the plasticine at the wheel rim impressions. This dimension, at either position, must not be less than $\frac{1}{8}$ in.
- (3) Screw the leg attachment eye-bolt in or out respectively to increase or decrease this clearance as necessary, then reconnect it to the pick-up casting on the leg and re-check the wheel/beam clearance as described above.
- (4) Repeat operations (1), (2) and (3) until the required clearance is obtained, then check the eye-bolt for safety and secure its lock-nut and tab washer.
- (5) With the undercarriage fully retracted, adjust the striker of the up lock micro switch until the latter has just operated, then adjust the striker a further three complete turns to depress the button still further then lock it securely.
- (6) Finally, lower the undercarriage fully, slacken and rotate the

down lock micro switch, located on the wing structure immediately below the jack ram, until the button is depressed to 0.1 in. from its full travel position and tighten the switch attachment bolts.

Radius rod kidney slot clearance

9. The length of the jack ram is critical for the satisfactory operation of the undercarriage. With the ram extended, its fork end should be adjusted to give a clearance

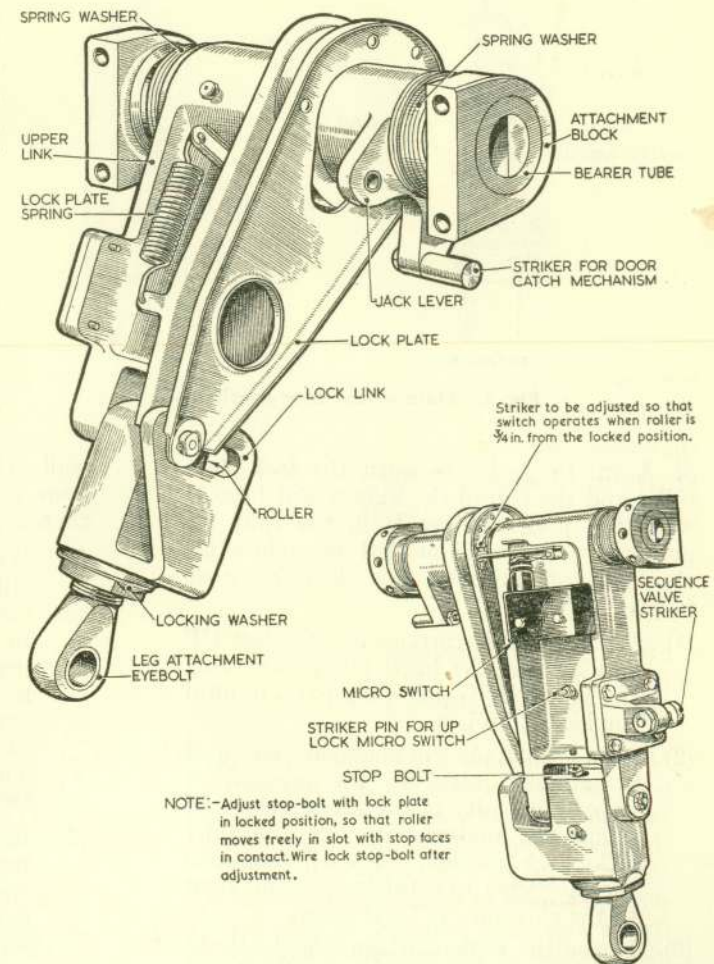


Fig. 3. Radius rod

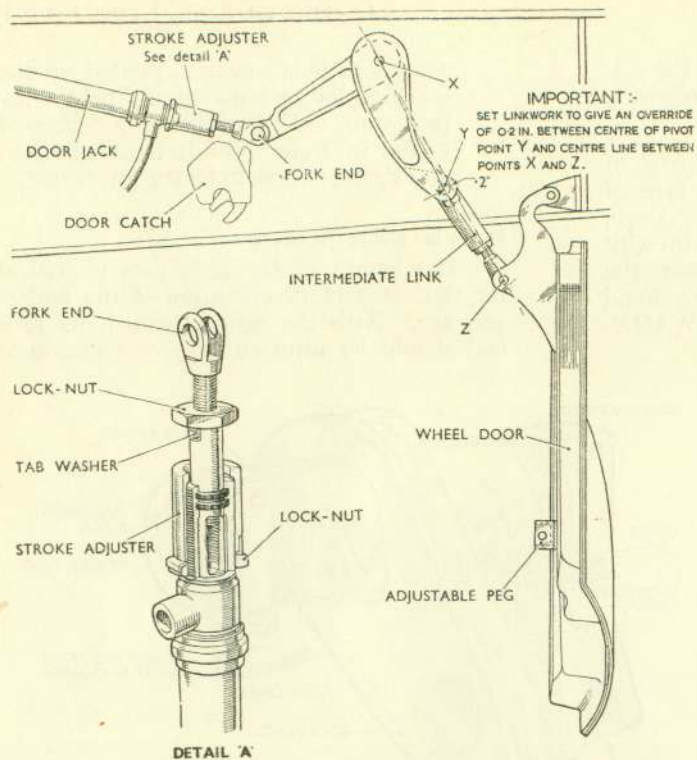


Fig. 4. Main wheel door mechanism

of $\frac{1}{16}$ in. to $\frac{3}{32}$ in. between the lock-plate roller and the end of the kidney slot (fig. 1) when the undercarriage is in the fully up position. The recommended procedure for checking and adjusting this clearance is as follows:—

- (1) With the undercarriage down, select UP and operate the hand pump observing the WARNING preceding para. 6, until the lock is broken.
- (2) Affix a small piece of plasticine, wrapped in adhesive tape, to the inboard or upper extremity of the kidney slot and pump the undercarriage to the fully locked up position. This will compress the plasticine to a thickness equivalent to the clearance to be checked.
- (3) Lower the undercarriage sufficiently to allow careful removal of the plasticine, then measure its thickness.

- (4) Adjust the position of the jack ram fork end as necessary (para. 25, sub-para. 5, 6 and 7) and repeat operations (1) to (3) until the required clearance has been obtained. Check that the fork end is in safety and secure the lock-nut. Reconnect the eye-bolt to the pick-up casting, fitting the slotted nut and split pin securely, and refit the down lock micro switch and access panels.

Note . . .

If the extension of the leg attachment eye-bolt is re-adjusted after the kidney slot clearance has been correctly rigged, it is essential to re-check the kidney slot clearance and to re-adjust the jack ram length as necessary to restore the required setting. Such an action would of course necessitate re-rigging the up and down lock micro switches.

Wheel door and wheel door retraction

10. To carry out this adjustment, it will be necessary to remove the appropriate panels from the forward wall of the wheel well, to gain access to the door jack stroke adjuster. The procedure is then as follows:—

- (1) With one door catch open and the door still disconnected, ensure that the latter possesses the requisite "built in" twist by raising it manually until the relevant peg abutts the open catch hook, then measure the distance between the under-surface of the door and wing in the vicinity of both the front and rear pegs. The forward dimension should exceed the aft dimension by 0.3 in.
- (2) Adjust the position of the door pegs by increasing or decreasing the number of their packing washers, so that when the door is forcibly held closed by hand and its surface is flush with the surrounding undersurface of the wing, the pegs locate firmly against the centre of the

arch in the door catch slide plates. Lock the door peg securing nuts by peening. At the same time, ensure that there is a clearance of 0.05 in. to 0.2 in. between the periphery of the door and the edge of the wing underskin; adjustment is effected by fitting spacing washers to the hinge pins as necessary.

- (3) The striker on the upper link of the radius rod assembly (fig. 3) which operates the sequence valve should next be set and locked, so that with the undercarriage fully retracted, using the hand pump and observing the WARNING preceding para. 6, the valve plunger is depressed a minimum of 0.2 in. For this purpose, a ring of plasticine should be affixed to the face of the plunger guide. When correct adjustment is obtained and the undercarriage is fully retracted, the thickness of the plasticine bearing the striker impression should be 0.1 in. Ensure that the door jack extends and retracts, when the plunger is depressed when checking this adjustment, i.e. as the undercarriage is raised and lowered.
- (4) With the ground locks, secure the undercarriage in the fully down position, then select UP, depress the sequence valve plunger and operate the hand pump until the door jack is fully extended.
- (5) Unscrew the fork end of the intermediate link about two turns, then temporarily reconnect it to the torque shaft lever. Notice the location of the pegs in relation to the door locks and adjust the extension of the link fork end (and if necessary, that of the jack), so that when the door is locked closed, the upward pressure of the pegs is such that a weight of 50 lb. must be hung at both corners of the door simultaneously, to pull the pegs down into contact with the lower edge of their catch hooks.
- (6) Lower the undercarriage fully and with the door jack stroke adjuster, set the linkwork to give an override of 0.2 in. at point Y on the centre-line between points X and Z (fig. 4). Remove the ground lock.

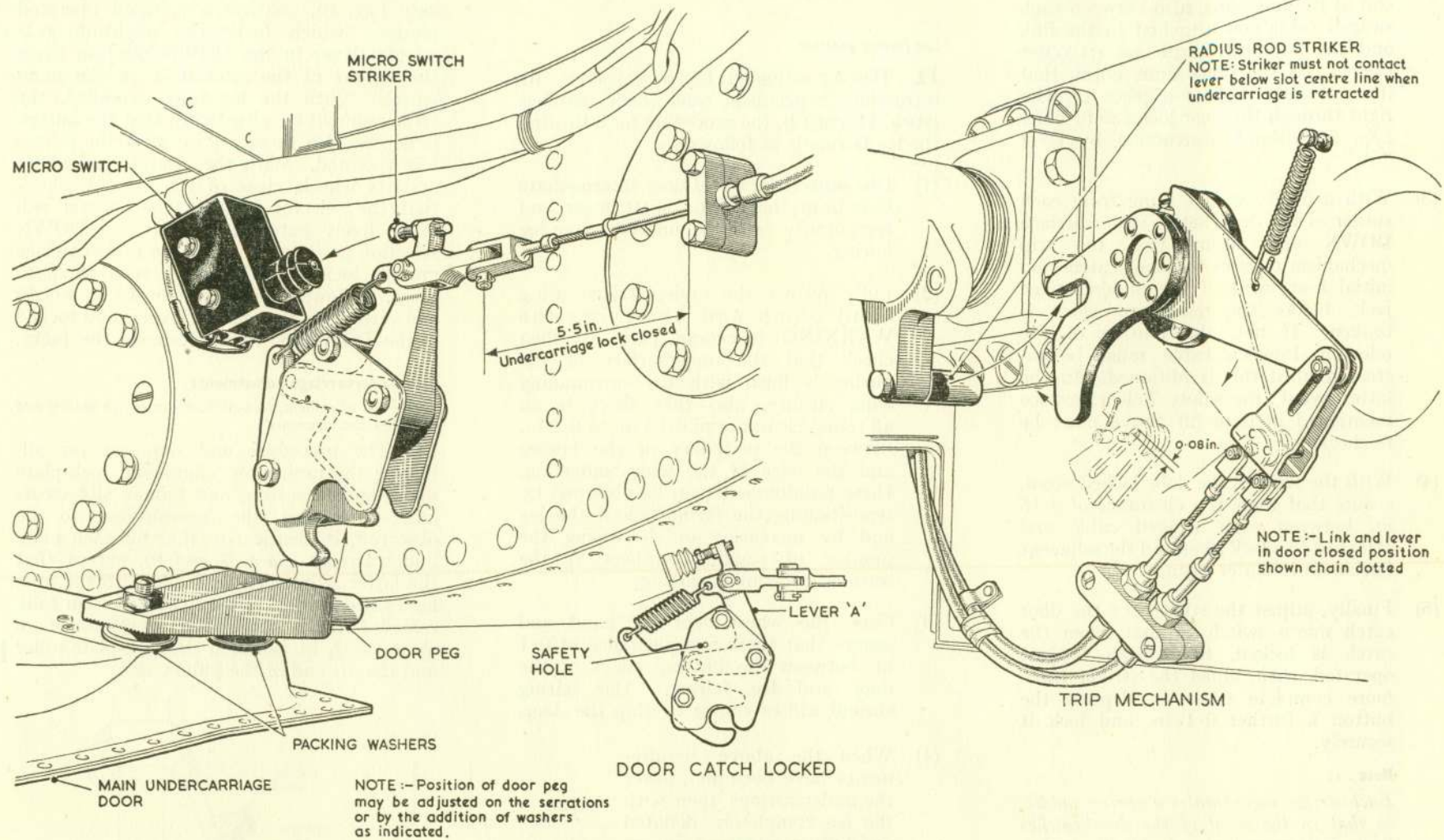


Fig. 5. Main wheel door catches

IMPORTANT

The structure of the wing is largely dependent upon the security of the access panels on the walls of the wheel well and, it is therefore essential that all these panels are refitted and securely fastened before flight.

Wheel door catches and micro switch settings

II. The main wheel door catches are designed to lock the door automatically in

the *up* position, immediately its two pegs enter the catch hooks and are adjusted in the following manner :—

- (1) With the Bowden cables disconnected, ensure that the friction loading required to initiate movement of the cables in their outer casings does not exceed 6 lb. and 9 lb. for the forward and aft assemblies respectively, then reconnect

them to the trip and lock mechanisms, fitting each pin with its head towards the wall of the wheel well.

- (2) With the intermediate link still temporarily connected and with the undercarriage and door locked in the *up* position, adjust the length of each Bowden cable to the dimension given in fig. 5. Ensure that there is a clearance

of 0.08 in. between the pin connecting the link to the operating lever and the end of the link slots, also between each swaged cable end attached to the link and the adjacent ferrule on its outer casing. At the same time, check that it is possible to pass a piece of wire right through the door lock safety holes (fig. 5) without obstruction by lever "A."

- (3) With a 50 lb. weight hung from each corner of the door, select undercarriage DOWN and ensure that the trip mechanism releases the door catches on initial movement of the undercarriage jack, before the radius rod lock is broken. If not, the tension of the relevant Bowden cable must be increased until this is obtained. In the latter event, the safety hole clearance mentioned in item (2) above must be re-checked.
- (4) With the leg and the door locked down, ensure that there is a clearance of 0.15 in. between each swaged cable end attached to a lock lever and the adjacent ferrule on its outer casing.
- (5) Finally, adjust the striker for the door catch micro switch so that when the catch is locked, the switch is just operated, then adjust the striker three more complete turns to depress the button a further 0.1 in. and lock it securely.

Note . . .

Each striker incorporates a spring saddle, so that in the event of the door catches being inadvertently closed while the undercarriage is down, they will automatically open to receive the door pegs as soon as the undercarriage begins to retract. Care must therefore be taken to ensure on adjustment of the striker, that the spring of the micro switch does not render the spring of the door lock ineffective.

- (6) Lower and retract the undercarriage once more, checking that the catches function correctly and that the radius rod striker does not contact the cam

face of the operating lever as the door closes (fig. 5).

Leg fairing position

12. Having adjusted the wheel door, its retracting mechanism and door catches (para. 11 and 12), the procedure for adjusting the leg fairing is as follows:—

- (1) Disconnect the wheel door intermediate link from the torque shaft lever and temporarily refit the undercarriage leg fairing.
- (2) Fully retract the undercarriage using hand pump and observing the WARNING preceding para. 6, then check that the undersurface of the fairing is flush with the surrounding wing surface, also that there is an all round clearance of 0.05 in. to 0.2 in. between the periphery of the fairing and the edge of the wing underskin. These requirements can be obtained by repositioning the fairing about the leg and by increasing or decreasing the number of packing washers at the serrated attachment fittings.
- (3) Close the wheel door by hand and ensure that there is a clearance of 0.1 in. between the butting edges of the door and leg fairing. The fairing shroud will of course overlap the door.

- (4) When the above requirements have been met, lower the undercarriage, then with the leg completely deflated and fully compressed, ensure that the torque links do not foul the leg fairing.

- (5) Finally, re-inflate the leg and tighten the fairing attachments securely and connect up the wheel door completely, then re-check the fit of these components with the undercarriage again fully retracted. Lower the undercarriage.

Selector lever lock plunger micro switch setting

13. This switch which is fitted to the port leg only (fig. 6), controls a solenoid operated plunger, which locks the alighting gear selector lever in the DOWN position when the weight of the aircraft is on the main wheels. With the leg fully extended, the striker should be adjusted so that the button is depressed a further $\frac{1}{8}$ in. after the switch has operated. With the aircraft jacked up and its wheels clear of the ground, check that the selector lever in the cockpit will move freely between the UP and DOWN selection positions, then fit the undercarriage ground locks to the radius rods (Sect. 2, Chap. 1), lower the aircraft on to its wheels and verify that the selector lever is now locked in the DOWN position. Remove the jacks.

Nose undercarriage adjustments

Radius rod alignment, lock-plate micro switch setting and kidney slot clearance

14. The procedure and sequence for adjusting the radius rod alignment, lock-plate micro switch setting and kidney slot clearance, including the precautions to be observed, is identical to that for each main undercarriage (para. 7 and 9), except that the latter adjustment is made with the nose leg locked down, i.e. with the jack ram fully extended there should be a clearance of $\frac{1}{16}$ in. to $\frac{3}{32}$ in. between the lock-plate roller and the aft end of the kidney slot.

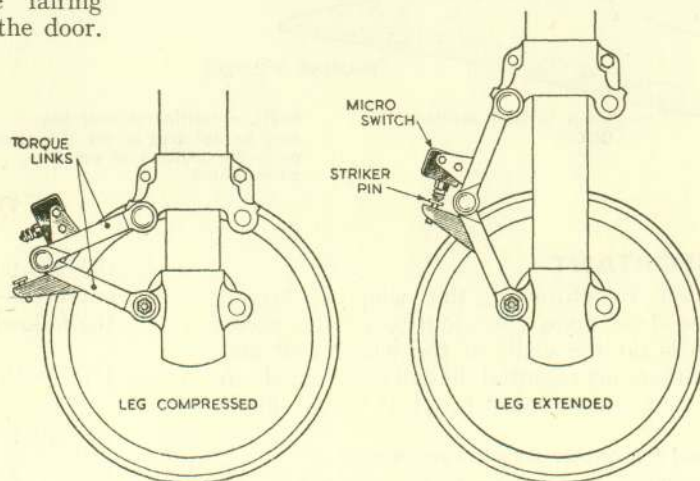


Fig. 6. Leg link micro switch

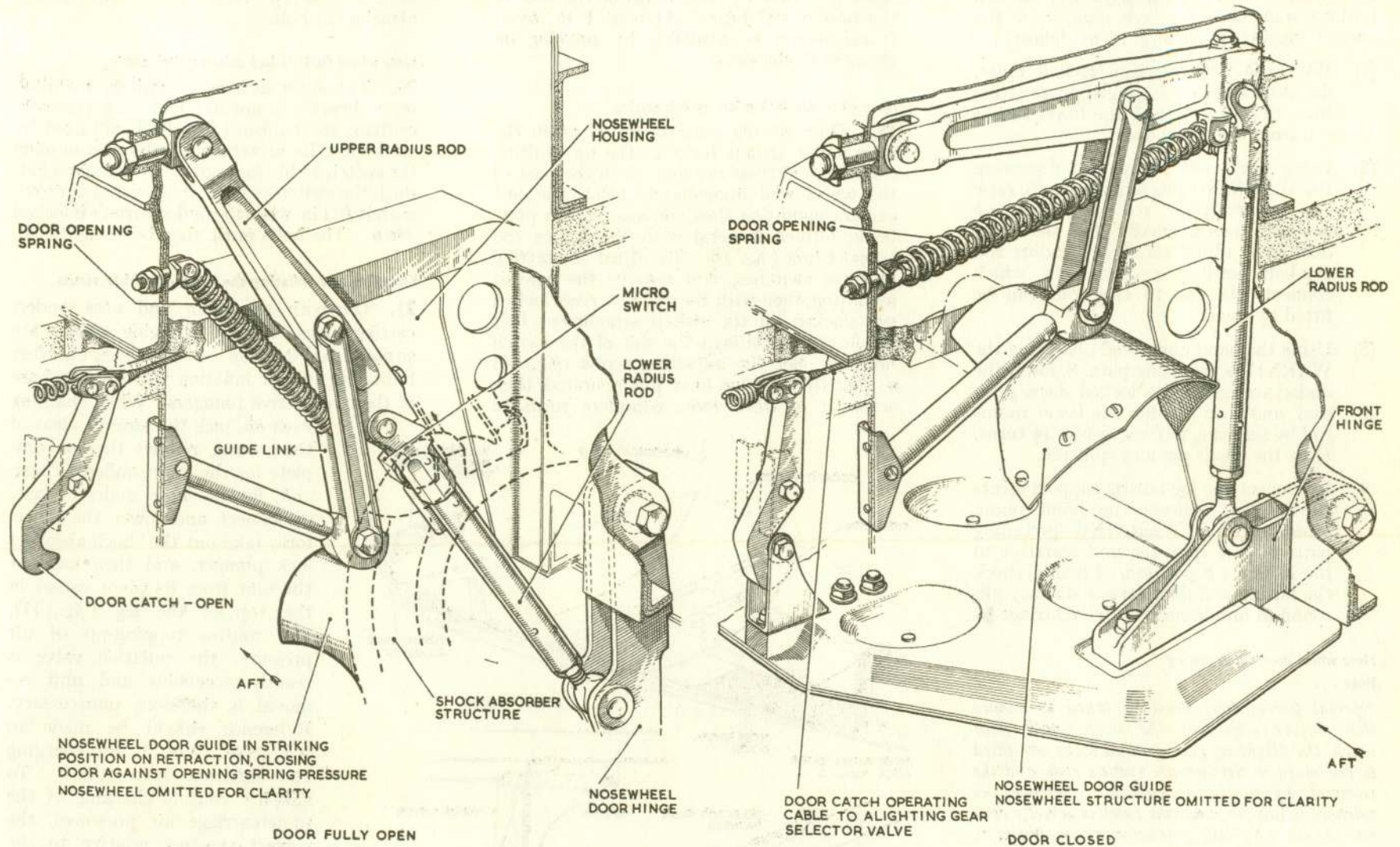


Fig. 7. Nose wheel door mechanism

Nose wheel retraction

15. The extent to which the nose wheel retracts into its wheel well is governed by the length of the radius rod link (fig. 10), the nominal pin-centre length of which is 7.4 in. This rod should of course be adjusted so that the entire wheel is within the well when fully retracted.

Leg fairing and wheel door retraction

16. When the nose undercarriage is fully retracted, it is enclosed by the leg fairing and a mechanically operated wheel door. The leg fairing being closed by virtue of its being attached directly to the nose wheel leg (fig. 10), and the wheel door by pressure exerted by the nose leg door guide (fig. 7)

against the spring-loaded linkwork which automatically opens the door when the undercarriage is lowered. The wheel door is locked in the fully closed position by a single catch which is operated through a 5 cwt. cable connected to the alighting gear selector valve plunger.

◀17. The leg fairing and wheel door should be adjusted to lie flush with the cannon fairings and nose fuselage skin, and the correct rigging procedure is as follows:—

- (1) With the undercarriage locked *down*, disconnect the leg fairing support struts from the nose leg and the lower radius rod from the wheel door.
- (2) Using the hand pump and observing the WARNING preceding para. 6, raise the undercarriage to the locked *up* position, then manually close the wheel door and adjust the lower radius rod eye-bolt until the clevis pin which connects the rod to the door can be fitted by hand.
- (3) Using the hand pump and observing the WARNING preceding para. 6, lower the undercarriage to the locked *down* position, and then shorten the lower radius rod by screwing in the eye-bolt $1\frac{1}{2}$ turns. Refit the clevis pin and split pin.
- (4) Reconnect the leg fairing support struts to the leg, operate the hand pump (observing the WARNING preceding para. 6), and raise the undercarriage to the locked *up* position. Finally, check the fairing and door for satisfactory all-round fit and lower the undercarriage.▶

Nose wheel door catch setting

Note . . .

Special precautions must be taken to ensure that, before adjusting the nose wheel door catch, the alighting gear ground locks are fitted to the main undercarriage radius rods and the relevant hydraulic accumulator pressure is released (Chap. 6), since the catch is directly connected to the alighting gear selector valve plunger.

18. Fully retract the nose undercarriage using the hand pump and observing the WARNING preceding para. 6, then tension the cable by means of the turnbuckle (fig. 8) until the slack is eliminated without extending the catch lever spring. Ensure that there is a nominal clearance of 0.05 in. between the door roller and the catch (fig. 8) by shimming the roller bracket as necessary. Select undercarriage *DOWN*, and check that the

nose catch completely disengages from the roller and that its nose is below the face of the nose wheel beam. At least $\frac{3}{8}$ in. over-travel should be available by pressing on the nose of the catch.

Nose wheel UP lock micro switch setting

19. Three switches are operated when the nose undercarriage locks in the *up* position (Sect. 5), and these are located in the roof of the wheel well immediately below the cine camera mounting their common striker plate being formed integral with the radius rod support link (fig. 10). To adjust the setting of these switches, first remove the camera mounting, then with the undercarriage locked *up*, slacken off the switch attachment bolt which passes through the slot of the switch housing. Set the adjusting screw (fig. 10) so that the switches have just operated, then screw it in three more complete turns to

depress the buttons still further. Lock the adjusting screw and tighten the switch attachment bolt.

Nose wheel DOWN lock micro switch setting

20. The *down* lock micro switch, mounted on a bracket immediately above the self-centring mechanism (fig. 10), is adjusted by slackening its attachment bolts and moving the switch bodily forward or aft in its bracket, until the switch plunger is depressed approximately 0.1 in. when the undercarriage is locked *down*. The bolts must then be re-tightened.

Charging and inflating the shock-absorber struts

21. On both the main and nose undercarriage legs, the oil charging points are situated at the top of the shock-absorber units and the air inflation valve at the base of their respective plungers. When charging with oil, jack the aircraft clear of the ground, remove the leg complete for the main undercarriage, and, for the nose undercarriage, disconnect and lower the wheel fork, take out the shock-absorber lock plunger, and then unscrew the unit from its pivot socket in the top of the leg (fig. 11). For routine topping-up of air pressure, the inflation valve is readily accessible and unit removal is therefore unnecessary. Reference should be made to A.P.1803C, Vol. 1, for charging and inflation instructions. To simplify routine checking of the undercarriage air pressures, the correct pressure relative to the leg extension is shown graphically in Sect. 2, Chap. 2, thus eliminating the need for jacking the aircraft.

Retraction tests

22. Alighting gear retraction tests are described in Chap. 6.

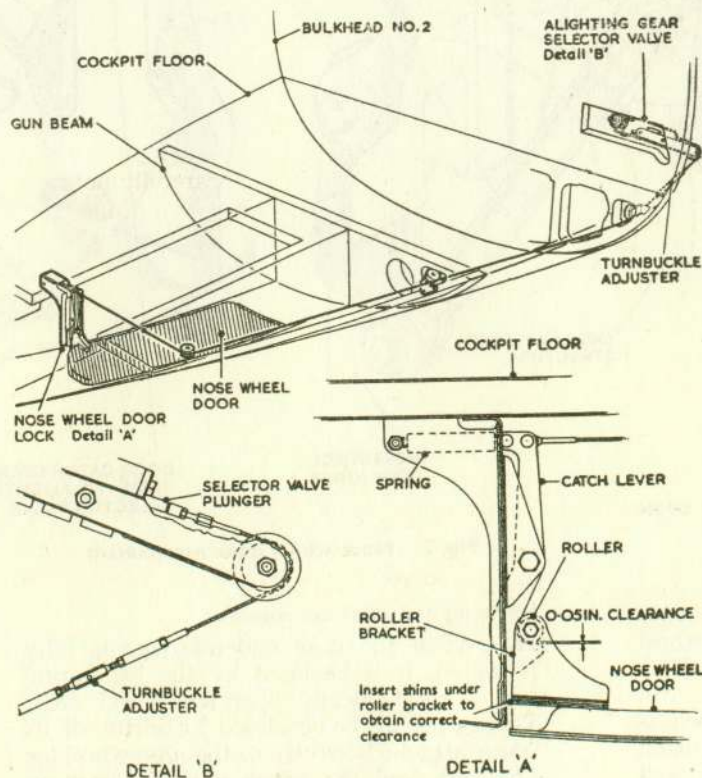


Fig. 8. Nose wheel door catch

REMOVAL AND ASSEMBLY

General

23. The following paragraphs give an outline of the procedure to be adopted for removing the major alighting gear components from the aircraft. Although a recommended sequence of operations is listed however, it will be obvious that to adhere strictly to this sequence will not always be necessary or convenient. Re-assembly of the components mainly entails only the reversal of the dismantling procedure unless instructions to the contrary are emphasized. Prior to the assembly of a new component which involves subsequent striker adjustment, it is advisable to set the striker extension so as to ensure minimum operation of the relevant micro switch or sequence valve, to reduce the possibility of damage due to over-travel on initial retraction and extension of the undercarriage.

Main wheel

24. (1) Jack the aircraft evenly with both wheels clear of the ground.
- (2) Remove the split pin, wheel retaining nut and washer from the axle and, ensuring that the brakes are released, withdraw the wheel from the axle with a suitable extractor. It is advisable, at this stage, to disconnect the pneumatic supply hose from the brake unit, to safeguard the shoes etc. from damage due to inadvertent operation of the brake lever.

WARNING

Under no circumstances must air pressure be admitted to the brakes whilst the wheels are removed.

- (3) If the wheel is not to be immediately replaced, cover the brake shoes to protect them from grease, oil, dirt, etc.

Main undercarriage leg (fig. 9)

25. (1) Jack the aircraft clear of the ground positioning the jacks so that the leg can be swung inboard as instructed in sub-para. (7), release the hydraulic pressure from the relevant accumulator (*Chap. 6*) and the air pressure from the pneumatic system.
- (2) Remove the forward detachable tail boom fairing from the under-surface of the wing and disconnect the pneumatic hose at the two-way adapter on the rear of the leg.
- (3) Remove the main wheel and for the port undercarriage, detach the clips securing the leads to the leg link micro switch from the fixed leg fairing, then detach the micro switch itself from its mounting, leaving the leads connected.
- (4) Remove the fairing, carefully noting its position on the leg and the number of shims fitted at the serrated attachment points.
- (5) Disconnect the radius rod eye-bolt from the pick-up casting on the leg.
- (6) Remove the circular access panel, situated just forward of the undercarriage position in the undersurface of the wing, and dismantle the *down* lock micro switch complete with bracket from the front diaphragm of the radius rod recess, leaving the leads connected.
- (7) Remove the split pin and nut from the special bolt which secures the jack ram fork-end to the undercarriage lever, select undercarriage UP to break the circuit hydraulic lock, swing the leg inboard and withdraw the bolt. Select undercarriage DOWN.

- (8) Support the leg and unscrew the two square-headed bolts securing each pivot bearing block to its mounting and lower the leg clear of the wing.

Main undercarriage radius rod (fig. 9)

26. The radius rod assembly can be removed independently of the shock-absorber leg. After releasing the hydraulic pressure from the relevant accumulator and the pneumatic system air pressure, the procedure is as follows :—

- (1) Jack the aircraft clear of the ground positioning the jacks so that the leg can be swung inboard as instructed in sub-para. (4).
- (2) Remove the circular access panel, situated just forward of the undercarriage position in the undersurface of the wing, and dismantle the *down* lock micro switch complete with bracket from the front diaphragm of the radius rod recess, leaving the leads connected.
- (3) Disconnect the radius rod eye-bolt from the pick-up casting on the undercarriage leg.
- (4) Remove the split pin and nut from the special bolt which secures the jack ram fork-end to the undercarriage lever, select undercarriage UP to break the circuit hydraulic lock, swing the leg inboard and withdraw the bolt. Select undercarriage DOWN.
- (5) Disconnect the pneumatic pipe and hose from the connection which is bracketed to the rear diaphragm of the radius rod recess, and dismantle the hydraulic sequence valve.
- (6) Remove the wheel door catch operating lever assembly from the forward diaphragm of the radius rod recess.

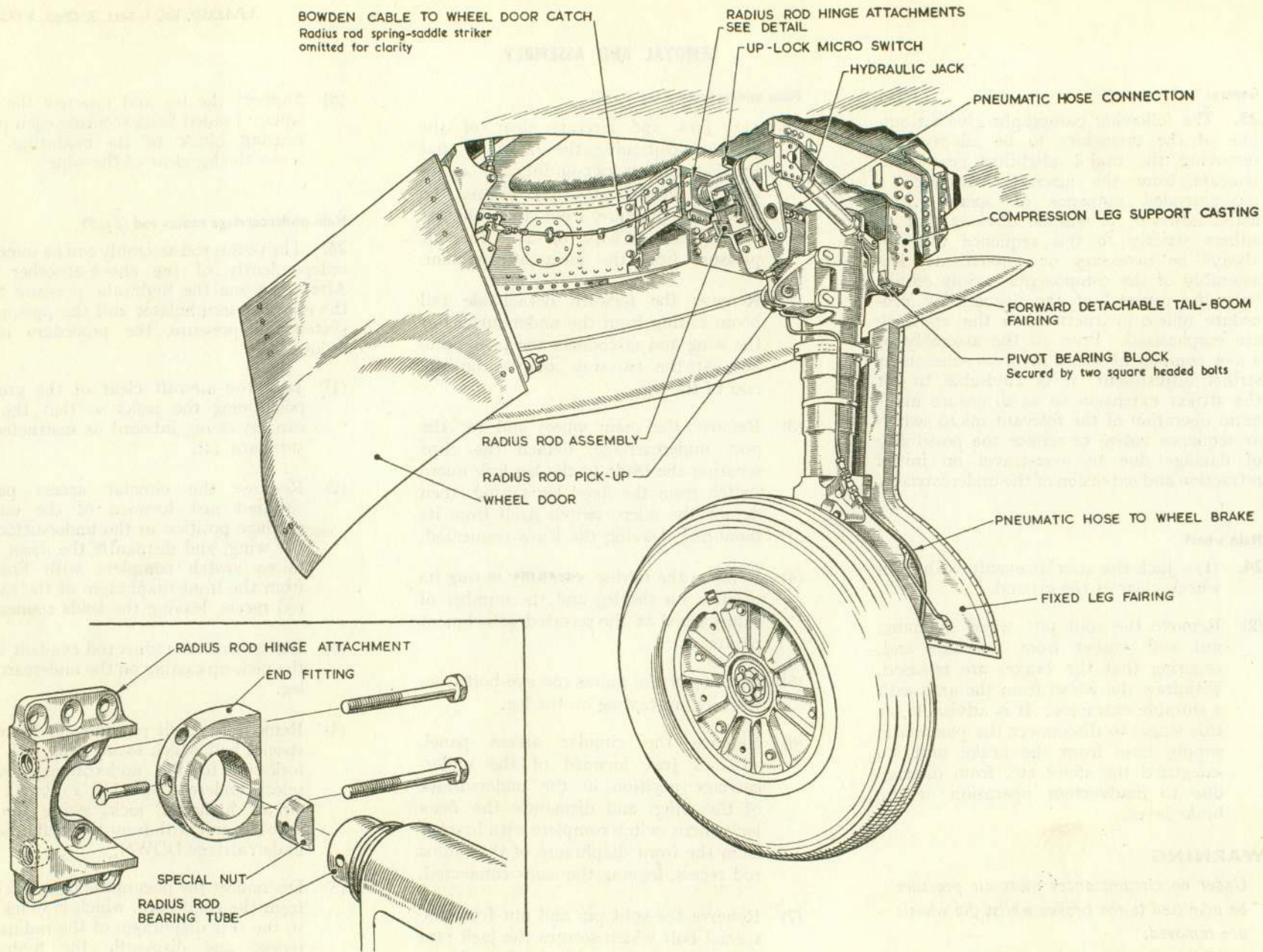



Fig. 9. Main undercarriage

- (7) Undo the two  bolts which secure each bearing tube attachment block to its mounting, slide the radius rod assembly inboard and lower it clear of the wing.

RESTRICTED

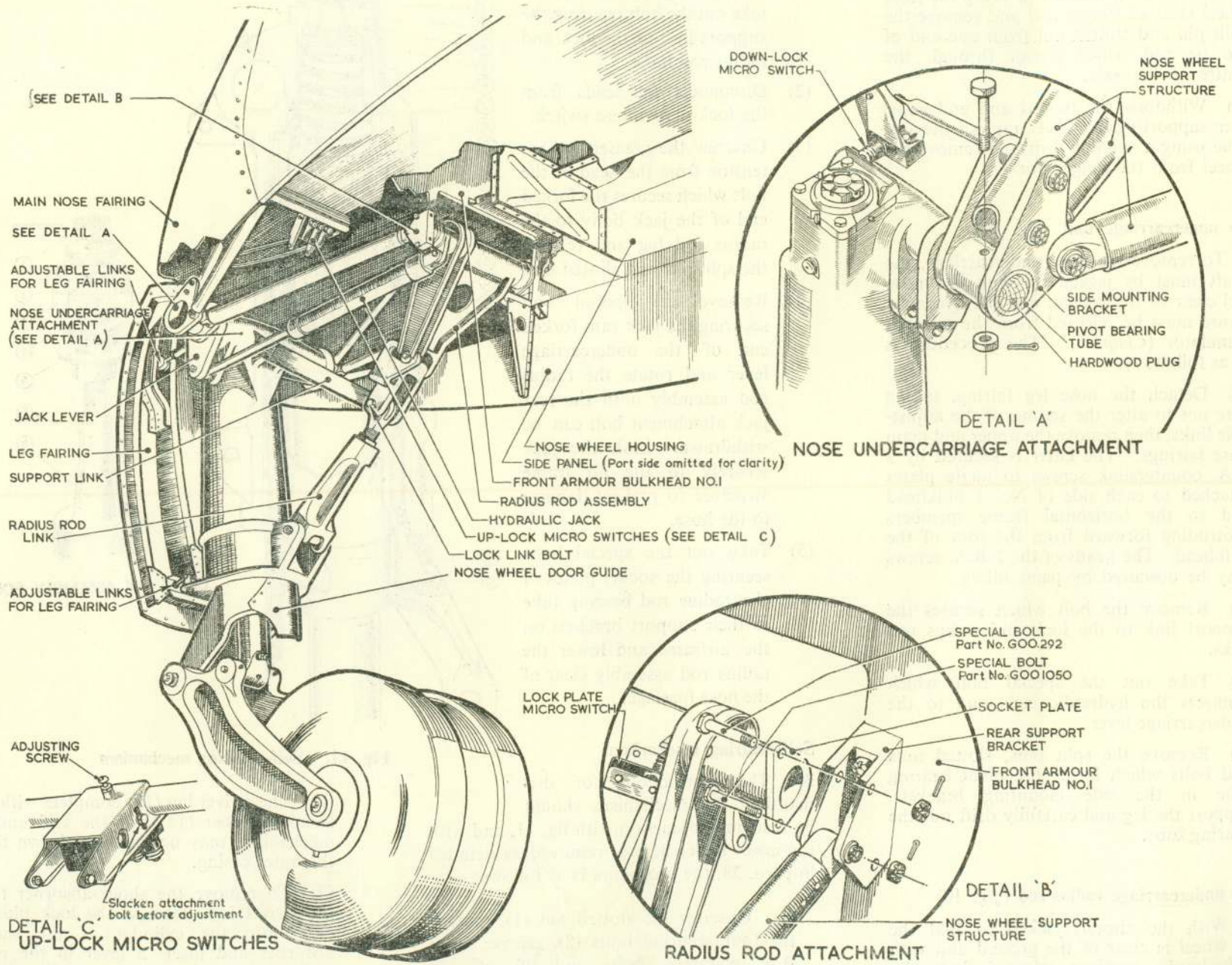


Fig. 10. Nose undercarriage

Nose wheel

27. (1) Jack the aircraft to bring the nose wheel clear of the ground and remove the split pin and slotted nut from one end of the tie rod which passes through the centre of the axle.

(2) Withdraw the tie-rod and end caps, then supporting the wheel, tap out the axle tube using a suitable drift and remove the wheel from the hinged fork.

Nose undercarriage unit (fig. 10)

28. To remove the nose undercarriage, the aircraft must be jacked up with the nose wheel clear of the ground and the hydraulic pressure must be released from the relevant accumulator (Chap. 6). The procedure is then as follows:—

(1) Detach the nose leg fairing, taking care not to alter the setting of the adjustable links, then remove the upper and main nose fairings. The latter is secured by 2 B.A. countersunk screws to angle plates attached to each side of No. 1 bulkhead and to the horizontal frame members protruding forward from the foot of the bulkhead. The heads of the 2 B.A. screws may be obscured by paint filling.

(2) Remove the bolt which secures the support link to the lock and radius rod links.

(3) Take out the special bolt which connects the hydraulic jack ram to the undercarriage lever.

(4) Remove the split pins, slotted nuts and bolts which locate the pivot bearing tube in the side mounting brackets, support the leg and carefully drift out the bearing tube.

Nose undercarriage radius rod (fig. 10)

29. With the aircraft jacked so that the nose wheel is clear of the ground and with the hydraulic pressure released from the relevant accumulator (Chap. 6), proceed as follows:—

(1) Remove the upper and main nose fairings (para. 27) and take out the bolt securing the support link to the lock and radius rod links.

(2) Disconnect the leads from the lock-plate micro switch.

(3) Unscrew the greaser and extension from the head of the bolt which secures the forked end of the jack body to the radius rod lug and remove the split pin and slotted nut.

(4) Remove the special bolt securing the jack ram forked end of the undercarriage lever and rotate the radius rod assembly until the rear jack attachment bolt can be withdrawn. Lash the jack securely to the air frame structure to prevent damage to the hose.

(5) Take out the special bolts securing the socket plates of the radius rod bearing tube to their support brackets on the airframe and lower the radius rod assembly clear of the nose fuselage.

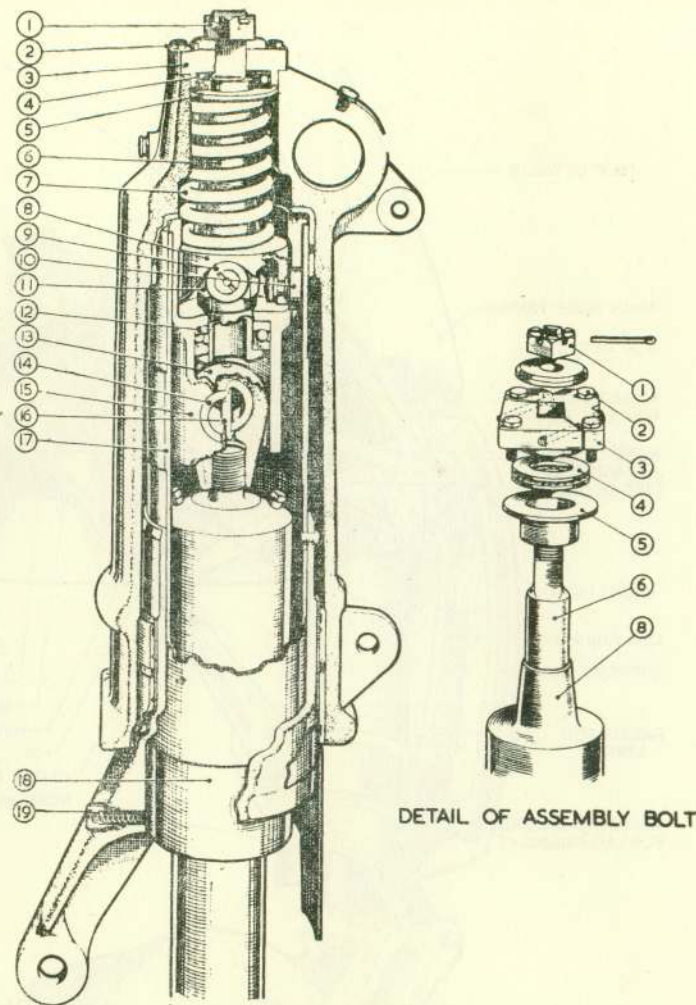


Fig. 11. Self-centring mechanism

Self-centring mechanism

30. The instructions for dismantling this mechanism should be read in conjunction with fig. 11, and with the nose undercarriage removed as detailed in para. 28, the procedure is as follows:—

(1) Unscrew the slotted nut (1), remove the four securing bolts (2), release the 2 B.A. clamping bolts and lift off the locating clamp (3). Then remove thrust bearing (4), spring collar (5) and spring (7.)

(2) The swivel lug (17) complete with the shock-absorber (18) and the self-centring mechanism, may now be withdrawn from the outer casing.

(3) To remove the shock-absorber from the swivel lug, unscrew the lock plunger (19), grip the cylinder of the shock-absorber and insert a lever in the pivot socket pin (14). Unscrew the shock-absorber from the pivot socket (13) and withdraw the strut from the swivel lug.

- (4) Unscrew bolt (16) and drive out pivot socket pin (14). The self-centring mechanism and the pivot socket (13) may now be withdrawn from the swivel lug.
- (5) Remove the self-centring cam (8) from the assembly bolt (6). This enables slipper (10) to be removed.

- (6) Remove the two rollers (9) and the support collar (11). Assembly bolt (6) and thrust race (12) may now be withdrawn from the thrust head (15).

Note . . .

When reassembling the locating clamp (3), it is important that the three bolts (2) securing the larger portion of the clamp

are assembled first, then tighten the slotted nut (1) to ensure a free fit on assembly bolt (6). Release the nut and tighten the three securing bolts (2) evenly. Tighten the two 2 B.A. clamping bolts evenly, then finally assemble and tighten the fourth corner bolt (2).

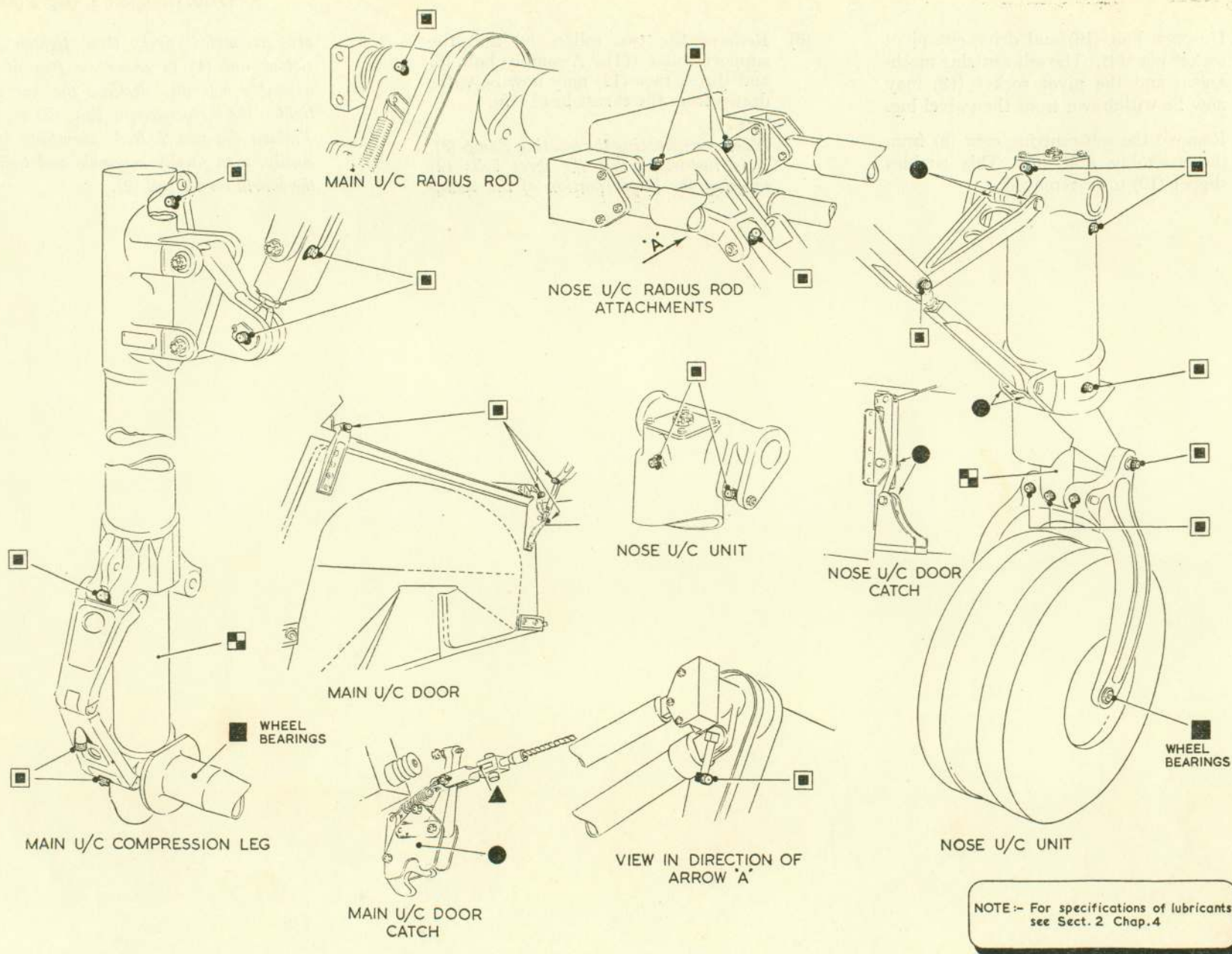


Fig. 12. Lubrication details

RESTRICTED

This file was downloaded
from the RTFM Library.

Link: www.scottbouch.com/rtfm

Please see site for usage terms,
and more aircraft documents.



LIGHTNING MK. 1
COVER PITOT HEAD
EB2-88-5111