

WYTWÓRNIĄ SPRZĘTU KOMUNIKACYJNEGO  
„PZL – MIELEC”

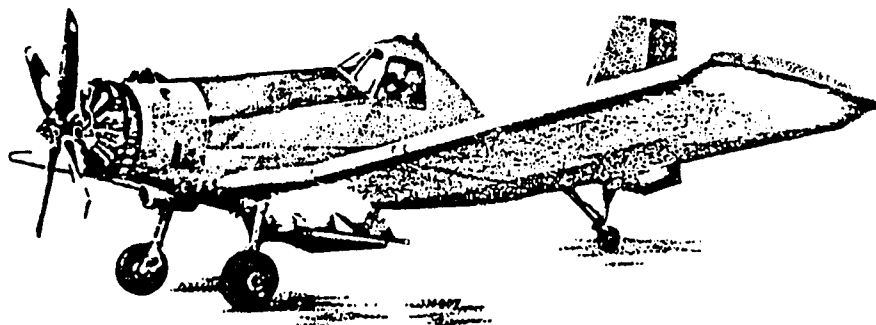
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# PZL M 18 "DROMADER"

AIRCRAFT  
- REPAIR  
MANUAL

MODEL: M18 , M18A , M18AS , M18B

Edition 3



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**PZL M 18**

WYTWÓRNA SPRZĘTU KOMUNIKACYJNEGO „PZL-MIELEC”  
AIRCRAFT REPAIR MANUAL

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### **GENERAL NOTES**

The operators may carry out work according to instructions given in FAA: AC 43.13-1A and AC 43.13-2A while performing inspections, repairs or modifications not described in this Manual.

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INSTRUKCJA NAPRAW + AIRCRAFT REPAIR MANUAL

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**XVIII. REPLACEMENT OF LH REAR FITTING D21.530.00.1 L /on 12026-01 and up/**

Having reached the service life of 3,000<sup>+300</sup> fl. hrs on all the M18, M18A, M18AS, M18B DROMADER airplanes, the D21.530.00.1L fitting shall be replaced for the new one.

**1. Replacement procedure.**

**1.1. Remove outer wings from the airplane.**

**1.2. Remove the centerwing, previously disconnecting the fuel, electric and control systems.**

**1.3. Unscrew the bolts attaching the D21.530.00.1 L fitting to the centerwing on the rear spar as shown in Sketch, p. 1-36.**

**NOTE:** The shim washers placed under the fitting should be marked accordingly to prevent their confusion during re-installation of the new fitting.

**1.4. Secure the removed fitting in the fixture 021.573.016988 and according to it identify the fixture adjustment elements to trace the spacing of holes under the bolts that attach the fitting to the centerwing. After setting the fixture adjustment elements and their locking, replace the old "reference" fitting for the new one for drilling out and prevent it against displacement using clips.**

**1.5. Make preliminary 4 holes of  $\phi$  6 and drill them out to  $\phi$  9.7. Next, enlarge them with a reamer to  $\phi$  9.9 H8 / $\begin{smallmatrix} +0,018 \\ 0 \end{smallmatrix}$ / and  $\phi$  10 H8 / $\begin{smallmatrix} +0,018 \\ 0 \end{smallmatrix}$ / and make chamfers of  $0.5/45^\circ$  on either side.**

**1.6. Place the previously removed shim washers on the centerwing identically as before disassembly, and set the drilled-out fitting fastening it with two bolts inserted into the holes diagonally. The remaining holes are to be re-enlarged with a reamer to  $\phi$  10 H8.**

**Insert two bolts into the drilled-out holes.**

**Earlier place the washers 3405A-0.5-10-18 under the bolt heads and the washers 3402A-1.5-10-18 at the nut's side.**

**Tighten the bolts alternately to compress the packet uniformly. Remove two bolts which retained the fittings for drilling out first two holes and next enlarge two remaining holes with a reamer up to  $\phi$  10 H8. Install bolts, washers, nuts in order as above. /See Sketch, p. 1-36/.**

**NOTE:** 1. Re-enlargement of the fitting in the centerwing is aimed at eliminating slight deviation from the alignment of particular elements of the packet for 4 holes of  $\phi$  10 H8.

2. The above-mentioned holes shall be drilled out with a hand enlarging bit.

3. After tightening the fitting, protect additionally the nut by single centrepunching.

**1.7. Check the fittings for proper installation.**

**NOTE:** Parts and materials needed for replacement of the fitting are listed under Specification No.1, whereas tools and devices are given under Specification No.2.



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SPECIFICATION No.1

Parts and materials indispensable for replacement of fitting  
D21.530.00.1L /service life up to 6,000 fl.hrs/.

| It. | Part No.        | Name    | Q-ty per<br>a/c | Notes                                                                                           |
|-----|-----------------|---------|-----------------|-------------------------------------------------------------------------------------------------|
| 1.  | D21.530.00.1L   | Fitting | 1               | without<br>4 holes<br>of $\phi$ 10<br>in the<br>fitting<br>mount<br><br>provided by<br>Operator |
| 2.  | 3021A-10-42     | Bolt    | 2               |                                                                                                 |
| 3.  | 3021A-10-44     | Bolt    | 2               |                                                                                                 |
| 4.  | 3405A-0,5-10-18 | Washer  | 4               |                                                                                                 |
| 5.  | 3402A-1,5-10-18 | Washer  | 4               |                                                                                                 |
| 6.  | 3373A-10        | Nut     | 4               |                                                                                                 |
|     |                 | Primer  |                 |                                                                                                 |

SPECIFICATION No.2

Tools and devices necessary for replacement of the fitting.

| It. | Part No.       | Name                              | Q-ty<br>per<br>a/c | Notes                                                       |
|-----|----------------|-----------------------------------|--------------------|-------------------------------------------------------------|
| 1.  |                | Driller                           | 1                  | Provided<br>by Operator<br>himself                          |
| 2.  |                | Drill $\phi$ 6                    | 1                  |                                                             |
| 3.  |                | Drill $\phi$ 9.7                  | 1                  |                                                             |
| 4.  |                | Chuckling<br>reamer $\phi$ 9.9 H8 | 1                  |                                                             |
| 5.  |                | Chuckling<br>reamer $\phi$ 10 H8  | 1                  |                                                             |
| 6.  |                | Plug gauge $\phi$ 10 H8           | 1                  |                                                             |
| 7.  |                | Hand reamer $\phi$ 10 H8          | 1                  |                                                             |
| 8.  | 021.573/016988 | Device                            | 1                  | Delivered<br>by WSK PZL-<br>Mielec at<br>Operator's<br>cost |



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AIRCRAFT REPAIR HARUA LT

# II. CONNECTIONS





## 1. FOREWORD

- 1.1. The principal purpose of this manual/catalogue is to give reference to the Customer on the assortment of the overhaul parts offered by the manufacturer for the M18 airplane as well as on the possibility and scope to overhaul the particular airplane assemblies.
- 1.2. As a base to design this manual/catalogue the M18 airplane technical documentation valid for 12001-08 series has been laid down and all designations of the aircraft parts have been quoted in accordance with this documentation.

## 2. MANUAL GENERAL ASSUMPTIONS

- 2.1. The manual/catalogue is the only document for the Users of the M18 aircraft manufactured by WSK PZL Mielec to specify the orders for the overhaul parts/components, to quote the overhaul diameters, number of the allowed overhauls as well as materials used to manufacture the needed parts.
- 2.2. It is presumed, the Customer will order within range of the overhaul parts only the offered assortment deeming each ordered part/element as separate order item.
- 2.3. For delivery of overhaul parts being of no use for the Customer because of wrong specified orders the manufacturer of the overhaul parts is not liable.
- 2.4. If there is a need to place order for parts and assemblies being not quoted in the manual/catalogue as offered assortment the Customer is due to draw up the separate order quoting therein besides the ordered quantity as well the drawing No., designation of the element/part as well delivery state/condition.

- 2.5. The manual presents only these connections which after being overhauled do not decrease the strength of the joint.

- 2.6. Joints not contained in this manual have their strength adversely when overhauling.

## 3. MANUAL/CATALOGUE ARRANGEMENT

- 3.1. The overhaul connections manual has been divided into 5 overhaul groups.  
The arrangement/lay-out of all overhaul groups is similar and each group contains the main draft showing the location of the entering overhaul joints of the given airplane group as well as drafts/sketches presenting the particular joints.
- 3.2. Overhaul connections manual covers all parts-those which may be disconnected as well as may not forming an integral constructional whole /welded riveted construction/.
- 3.3. Dimensions quoted in overhaul connections refer to all parts in which the overhaul procedures require performing of holes showing augmented diameters with respect to the nominal/rated ones.
- 3.4. The manufacturer offers only these overhaul dimension parts the mass of which increases with consecutive overhauls /bolts acc. to drawing, pins, shafts etc/.  
All parts the mass of which decreases with consecutive overhauls /fittings, joints etc. because of increasing hole diameters the manufacturer offers only with rated/nominal hole diameters.
- 3.5. To reach the minimum volume of the manual for left hand and right hand connections it is used the single drawing sketch. The part number designations have the letter markings L and P added.





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**3.d. Overhaul joint draft page pattern.**

|                                                                                        |  |                                    |                                   |                                                       |                                                       |                                                                                          |                                |                                                                                            |                                                 |
|----------------------------------------------------------------------------------------|--|------------------------------------|-----------------------------------|-------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------|
| Nr zaliczki<br>№ зсчисл.                                                               |  | (A)                                |                                   | (C)                                                   |                                                       |                                                                                          |                                |                                                                                            |                                                 |
| Sketch No<br>№ де фрезисте                                                             |  | (A)                                |                                   |                                                       |                                                       |                                                                                          |                                |                                                                                            |                                                 |
| Nazwa węzła:<br>Название соединения:                                                   |  | (B)                                |                                   |                                                       |                                                       |                                                                                          |                                |                                                                                            |                                                 |
| Name of the joint:<br>Nom du couple:                                                   |  |                                    |                                   |                                                       |                                                       |                                                                                          |                                |                                                                                            |                                                 |
| (D) Schemat połączenia<br>Схема соединения<br>Sketch of connection<br>Schema du couple |  | (E) Zn.<br>Созн.<br>Sym.<br>Марку. | (F) Pz.<br>Поз.<br>Pos.<br>Posil. | (G) Nr grupy<br>№ группы<br>Part No<br>№ de la groupe | (H) katalóg.<br>№ каталог.<br>Catalog No<br>№ catolog | (I) Nr rysunku, normy<br>№ чертежа, нормов<br>Drawing, standard No<br>№ du dessin, norme | (J) D nom.<br>D nom.<br>D nom. | (K) Wyniory remontowe<br>Ремонтные размеры<br>Overhaul dimeters<br>Dimension de reparation | (L) Uwagi<br>Примечания<br>Notes<br>Anbolicions |

- A. Overhaul joint No. on the overhaul group draft
- B. Joint No.
- C. Joint draft/sketch
- D. Sketch of joint connection drawn in column G
- E. Connection letter designation on the joint in column G
- F. Connection position No. at point D
- G. Engineering construction drawing No. or standard No.
- H. Nominal dimension acc. to engineering drawing and working tolerance.
- I. Diameter after first overhaul machined with tolerance quoted in column H.
- J. Diameter after second overhaul
- K. Diameter after third overhaul
- L. Diameter after fourth overhaul
- M. Notes - material

**NOTES:**

1. In column M is quoted diameter of the last permissible overhaul of the given connection.
2. If overhaul dimeters are ending in earlier columns that means that respective diameter is the last/final permitted overhaul diameter in this connection.
- 3.7. Overhaul diameter screws/bolts machined acc. to standard the safety-factor does not differ.  
Columns I,K,L,M contain dimensions and notes needed to machine the overhaul bolts/screws.
- 3.8. In column J /D mm./ allow to dimeter is quoted fit acc. to Polish Standard the equivalents of fits are specified in table 1.
- 3.9. In column M/notes/ is quoted overhaul part material acc. to Polish Standard. The material substitutes are quoted in table 2.



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II. INTERCHANGEABILITY OF FITS

TABLE 1

| Diameter | Shaft or hole | Tolerance        | Dimension          |                        |                                                            | Diameter | Shaft or hole | Tolerance        | Dimension          |                        |                                                            |
|----------|---------------|------------------|--------------------|------------------------|------------------------------------------------------------|----------|---------------|------------------|--------------------|------------------------|------------------------------------------------------------|
|          |               |                  | mm                 | inch                   | GO&T                                                       |          |               |                  | mm                 | inch                   | GO&T                                                       |
| ø 6      | H8            | +0.018<br>0      | 6.01800<br>6.00000 | 0.2369291<br>0.2362204 | C <sub>3</sub> /A <sub>3</sub> /                           | ø 16     | f7            | -0.016<br>-0.034 | 15.9840<br>15.9660 | 0.6292913<br>0.6285826 | X                                                          |
| ø 6      | H10           | +0.048<br>0      | 6.04800<br>6.00000 | 0.2381102<br>0.2363304 | C <sub>3</sub> <sup>a</sup> /A <sub>3</sub> <sup>a</sup> / | ø 16     | e6            | -0.006<br>-0.017 | 15.9940<br>15.9830 | 0.6296850<br>0.6292519 | A                                                          |
| ø 6,5    | H10           | +0.058<br>0      | 6.55800<br>6.50000 | 0.2581889<br>0.2559055 | C <sub>3</sub> <sup>a</sup> /A <sub>3</sub> <sup>a</sup> / | ø 16     | H7            | +0.018<br>0      | 16.0180<br>16.0000 | 0.6306299<br>0.6299212 | C/N                                                        |
| ø 8      | H8            | +0.022<br>0      | 8.02200<br>8.00000 | 0.3158267<br>0.3149606 | C <sub>3</sub> /A <sub>3</sub> /                           | ø 16     | H8            | +0.027<br>0      | 16.0270<br>16.0000 | 0.6309842<br>0.6299212 | C <sub>3</sub> /A <sub>3</sub> /                           |
| ø 9      | H8            | +0.022<br>0      | 9.02200<br>9.00000 | 0.3551968<br>0.3543307 | C <sub>3</sub> /A <sub>3</sub> /                           | ø 16     | r6            | +0.034<br>+0.023 | 16.0340<br>16.0230 | 0.6312598<br>0.6308267 | TP                                                         |
| ø 9      | u8            | +0.050<br>+0.028 | 9.05000<br>9.02800 | 0.3562992<br>0.3554330 | TP <sub>2</sub> a                                          | ø 18     | h10           | 0<br>-0.070      | 18.0000<br>17.9300 | 0.7086614<br>0.7059055 | C <sub>3</sub> <sup>a</sup> /B <sub>3</sub> <sup>a</sup> / |
| ø 11     | H8            | +0.027<br>0      | 11.0270<br>11.0000 | 0.4341338<br>0.4330708 | C <sub>3</sub> /A <sub>3</sub> /                           | ø 18     | H9            | +0.027<br>0      | 18.0270<br>18.0000 | 0.7097244<br>0.7086614 | C <sub>3</sub> /A <sub>3</sub> /                           |
| ø 11     | u8            | +0.060<br>+0.033 | 11.0600<br>11.0330 | 0.4354330<br>0.4343700 | TP <sub>2</sub> a                                          | ø 19     | H7            | +0.021<br>0      | 19.0210<br>19.0000 | 0.7488582<br>0.7480314 | C/A/                                                       |
| ø 12     | f9            | -0.016<br>-0.059 | 11.9840<br>11.9419 | 0.4718110<br>0.4701181 | X <sub>3</sub>                                             | ø 19     | a7            | +0.056<br>+0.035 | 19.0560<br>19.0350 | 0.7502362<br>0.7494094 | TP                                                         |
| ø 12     | f7            | -0.016<br>-0.034 | 11.9840<br>11.9660 | 0.4718110<br>0.4711023 | X                                                          | ø 25     | e6            | -0.007<br>-0.020 | 24.9930<br>24.9800 | 0.9839763<br>0.9834645 | A                                                          |
| ø 12     | H7            | +0.018<br>0      | 12.0180<br>12.0000 | 0.4731496<br>0.4724409 | C/A/                                                       | ø 25     | H7            | +0.021<br>0      | 25.0210<br>25.0000 | 0.9839787<br>0.9842519 | C/N                                                        |
| ø 12     | H8            | +0.027<br>0      | 12.0270<br>12.0000 | 0.4735039<br>0.4724409 | C <sub>3</sub> /3/                                         | ø 31     | H6            | +0.015<br>+0.002 | 31.0150<br>31.0020 | 1.2210629<br>1.2205511 | H                                                          |
| ø 15     | h6            | 0<br>-0.011      | 15.0000<br>14.9990 | 0.5905511<br>0.5901181 | C/B/                                                       | ø 31     | H7            | +0.025<br>0      | 31.0250<br>31.0000 | 1.2214566<br>1.2204724 | C/N                                                        |
| ø 15     | H8            | +0.027<br>0      | 15.0270<br>15.0000 | 0.5916141<br>0.5905511 | C <sub>3</sub> /A <sub>3</sub> /                           | ø 50     | H8            | +0.039<br>0      | 50.0390<br>50.0000 | 1.9700393<br>1.9689039 | C <sub>3</sub> /A <sub>3</sub> /                           |



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III. SUBSTITUTES OF MATERIALS

TABLE 2

| MATERIALS USED FOR AIRPLANE CONSTRUCTION            | SUBSTITUTE - USA                       | MATERIALS USED FOR AIRPLANE CONSTRUCTION                                                                                                    | SUBSTITUTE - USA                                                                                                              |
|-----------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>METAL MATERIALS</b>                              |                                        | <b>AVIATION OIL</b>                                                                                                                         |                                                                                                                               |
| Carbon steel 20                                     | 1020                                   | Aviation Oil AMG-10 acc. to GOST-7494-73                                                                                                    | AERO shell Fluid-4 <sup>MM</sup> or Fluid 41                                                                                  |
| Stainless and acid-proof steel 1H18N9T              | 303                                    | Aviation Oil MS-20, MK-22 acc. to GOST 21743-76 /Russia/                                                                                    | RD 2472 or 117 Grade 1100 with MIL-L-6082-B                                                                                   |
| Stainless and acid-proof steel H17N2                | 431                                    | Aviation Oils - viscosity at 100°C min. 20cST                                                                                               | Aeroshell W100 acc. to D.Eng. or RD 2450; MIL-L-228518; 3-GP-315, 320 and 321                                                 |
| Aluminium alloy /forgings/ AK-7                     | 356                                    | Hipol 15                                                                                                                                    | MIL-L-7870                                                                                                                    |
| Aluminium alloy PA-7                                | 2024                                   | <b>GREASE</b>                                                                                                                               |                                                                                                                               |
| Alloy steel 30H3SA                                  | 4130 <sup>MM</sup>                     | Graphite grease                                                                                                                             | -                                                                                                                             |
| Aluminium bronze BA1044A                            | Aluminium bronze acc.to AMS 4640       | CIATIM 201 grease                                                                                                                           | MIL-G-23827; MIL-L-7870; MIL-G-7711                                                                                           |
| Aluminium bronze BA1032                             | Aluminium bronze acc.to AMS 4640       | High-melting grease NK-50                                                                                                                   | TEXACO MARFAX GREASE or MOBIL GREASE 77 or MOBIL EP-2 GREASE<br>TEXACO MARFAX GREASE or MOBIL EP-2 GREASE                     |
| Aluminium alloy AK-6/PA-31/                         | 2014                                   | Bearing grease LT-4S3; LT-4; 1-13                                                                                                           | ALVANIA GREASE, NERITA GREASE<br>ENERGREASE PR, RBB, LS<br>MOBIL GREASE RBR, MOBILUX 1,2                                      |
| Special alloy steel BOHMAZ spec.                    | 4130N                                  | <b>FUELS</b>                                                                                                                                |                                                                                                                               |
| Aluminium alloy /weldable/ PA-1                     | 3003 Semi-finished product QQ-A-250/2D | Min. 91 octane number aviation petrol with max. 3.3 g tetraethyl lead per /0.0033 lb/1 lb/ B-91/115, B-95/130 acc. to GOST 1012/72 /Russia/ | 91/96, 100/130 acc. to D.Eng.RD 2485 /ENGLAND/<br>100, 100LL acc. to ASTM-D 910-75 /USA/<br>100/130 acc.to MIL-G-5572-F /USA/ |
| <b>NON-METAL MATERIALS</b>                          |                                        |                                                                                                                                             |                                                                                                                               |
| Polishing paste W1AM-2 <sup>MM</sup>                | -                                      |                                                                                                                                             |                                                                                                                               |
| Sealant PR1436G-B2 or U30MES-5 acc.to TU38105462-72 | PR1436G-B2 per MIL-S-81733A            |                                                                                                                                             |                                                                                                                               |
| Sealant PR1422B-2                                   | PR1422B-2                              |                                                                                                                                             |                                                                                                                               |
| Sealant PR1422A-2                                   | PR1422A-2                              |                                                                                                                                             |                                                                                                                               |
| Sealant PR1435                                      | PR1435                                 |                                                                                                                                             |                                                                                                                               |
| Fabric ST25                                         | TY 121 per PMS-B-1001                  |                                                                                                                                             |                                                                                                                               |
| Resin EP52                                          | POLYLITE 33-005 per PMS-H-1001         |                                                                                                                                             |                                                                                                                               |
| Hardener Z-1                                        | CATALYST D.D.M. per PPS-50004          |                                                                                                                                             |                                                                                                                               |
| Enamel A-8                                          | per PPS-25000                          |                                                                                                                                             |                                                                                                                               |

\* Adequately improved

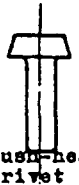
MM Pastes used by aviation firms to polish organic glass

MMM Designated: MIL-H5606E/USA/, DTD /England/, FHS-1 /France/, 3GP-26A /Canada/, OM-15 /international name/



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 AIRCRAFT REPAIR MANUAL

KINDS OF RIVETS USED WHILE CONSTRUCTING M-18 AIRCRAFT /ACCORDING TO POLISH STANDARDS/

| Kind of rivet                                                                                                               | PN Marking | Material acc.to PN | Shearing strength $\tau_s$ to PN | Chemical components in %                                                                                       | Admixtures                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------|------------|--------------------|----------------------------------|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>flush-head rivet                       | 3501A      | W65                | 25                               | Cu=3,9+4,5; Mg=0,15+0,30; Mn=0,3+0,5;                                                                          | $\left. \begin{array}{l} \text{Fe} \leq 0,2; \text{Si} \leq 0,25; \text{Zn} \leq 0,1; \text{Ti} \leq 0,1 \\ \text{Mn} \leq 0,2; \text{Fe} \leq 0,5; \text{Si} \leq 0,5; \text{Zn} \leq 0,1 \\ \text{Ti} \leq 0,1; \end{array} \right\} \begin{array}{l} \text{other max single} \\ \leq 0,05 \\ \text{other max to-} \\ \text{gether} \leq 0,15 \end{array}$  |
|                                                                                                                             | 3503A      | D18                | 19                               | Cu=2,2+5,0; Mg=0,2+0,5;                                                                                        |                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                             | 3506A      | 15; 10             | 34                               | Carbon steel /carbon content/ C=0,07+0,19                                                                      |                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                             | 3508A      | H18N9T /1H18N9T/   | 44                               | C $\leq$ 0,10; Mn $\leq$ 2,0; Cr=17,0+19,0; Ni=8,0+10,0; Si $\leq$ 0,8; Ti=0,5+0,8; P $\leq$ 0,045; S=0,030;   |                                                                                                                                                                                                                                                                                                                                                               |
| <br>round-head rivet                       | 3515A      | W65                | 25                               | Cu=3,9+4,5; Mg=0,15+0,30; Mn=0,3+0,5;                                                                          | $\left. \begin{array}{l} \text{Fe} \leq 0,2; \text{Si} \leq 0,25; \text{Zn} \leq 0,1; \text{Ti} \leq 0,1 \\ \text{Mn} \leq 0,2; \text{Fe} \leq 0,5; \text{Si} \leq 0,5; \text{Zn} \leq 0,1; \\ \text{Ti} \leq 0,1; \end{array} \right\} \begin{array}{l} \text{other max single} \\ \leq 0,05 \\ \text{other max to-} \\ \text{gether} \leq 0,15 \end{array}$ |
|                                                                                                                             | 3517A      | D18                | 19                               | Cu=2,2+5,0; Mg=0,2+0,5;                                                                                        |                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                             | 3521A      | 15; 10             | 34                               | Carbon steel /carbon content/ C=0,07+0,19                                                                      |                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                             | 3523A      | H18N9T /1H18N9T/   | 44                               | C $\leq$ 0,10; Mn $\leq$ 2,0; Cr = 17,0+19,0; Ni=8,0+10,0; Si $\leq$ 0,8; Ti=0,5+0,8; P $\leq$ 0,045; S=0,030; |                                                                                                                                                                                                                                                                                                                                                               |
| <br>flush-head rivet<br>$\angle 120^\circ$ | 3548A      | AMg5P              | 16                               | Mg=4,8+5,8; Mn=0,3+0,8; Ti=0,02+0,10; Be=0,0002+C,004                                                          | $\left. \begin{array}{l} \text{Fe} \leq 0,4; \text{Si} \leq 0,4; \text{Fe+Si} \leq 0,6 \\ \text{Cu} \leq 0,2 \end{array} \right\} \begin{array}{l} \text{other max single} \leq 0,05 \\ \text{other max together} \leq 0,15 \end{array}$                                                                                                                      |
|                                                                                                                             | 3547A      | W65                | 25                               | Cu=3,9+4,5; Mg=0,15+0,30; Mn=0,3+0,5                                                                           |                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                             | 3549A      | D18                | 19                               | Cu=2,2+5,0; Mg=0,2+0,5;                                                                                        |                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                             | 3551A      | 15; 10             | 34                               | Carbon steel /carbon content/ C=0,07+0,19                                                                      |                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                             | 3552A      | H18N9T /1H18N9T/   | 44                               | C $\leq$ 0,10; Mn $\leq$ 2,0; Cr=17,0+19,0; Ni=8,0+10,0; Si $\leq$ 0,8; Ti=0,5+0,8; P $\leq$ 0,045; S=0,030    |                                                                                                                                                                                                                                                                                                                                                               |
| <br>cup-head rivet                       | 3558A      | W65                | 25                               | Cu=3,9+4,5; Mg=0,15+0,30; Mn=0,3+0,5;                                                                          | $\left. \begin{array}{l} \text{Fe} \leq 0,2; \text{Si} \leq 0,25; \text{Zn} \leq 0,1; \text{Ti} \leq 0,1 \\ \text{Mn} \leq 0,2; \text{Fe} \leq 0,5; \text{Si} \leq 0,5; \text{Zn} \leq 0,1; \\ \text{Ti} \leq 0,1; \end{array} \right\} \begin{array}{l} \text{other max single} \\ \leq 0,05 \\ \text{other max to-} \\ \text{gether} \leq 0,15 \end{array}$ |
|                                                                                                                             | 3560A      | D18                | 19                               | Cu=2,2+5,0; Mg=0,2+0,5;                                                                                        |                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                             | 3563A      | 15; 10             | 34                               | Carbon steel /carbon content/ C=0,07+0,19;                                                                     |                                                                                                                                                                                                                                                                                                                                                               |
|                                                                                                                             | 3564A      | H18N9T /1H18N9T/   | 44                               | C $\leq$ 0,10; Mn $\leq$ 2,0; Cr=17,0+19,0; Ni=0,8+0,10; Si $\leq$ 0,8; Ti=0,5+0,8; P $\leq$ 0,045; S=0,030.   |                                                                                                                                                                                                                                                                                                                                                               |
| 2-6                                                                                                                         |            |                    |                                  |                                                                                                                | 05.25.81                                                                                                                                                                                                                                                                                                                                                      |



**PZL M18**  
**WYTWÓRNA SPRZĘTU KOMUNIKACYJNEGO „PZL-MIELEC”**  
 AIRCRAFT REPAIR MANUAL

| KINDS OF RIVETS USED WHILE CONSTRUCTING M-18 AIRCRAFT /ACCORDING TO POLISH STANDARDS/                                   |                    |                    |                                  |                                                                          |                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|----------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Kind of rivet                                                                                                           | PN Marking         | Material acc.to PN | Shearing strenght $\tau_s$ to PN | Chemical components                                                      | Admixtures                                                                       |
| flush-head rivet $\angle 90^\circ$<br> | 3533A<br><br>3537A | D18<br><br>15; 10  | 19<br><br>34                     | Cu=2,2+5,0; Mg=0,2+0,5;<br><br>Carbon steel /carbon content/ C=0,07+0,19 | Mn $\leq 0,2$ ; Fe $\leq 0,5$ ; Si $\leq 0,5$ ;<br>Zn $\leq 0,1$ ; Ti $\leq 0,1$ |
| <br>tubular rivet                      | 3610A              | 20; 20A select.    |                                  | Carbon steel /carbon content/ C=0,17+0,24                                | other max single 0,05<br>other max together 0,15                                 |
| 05.21.83                                                                                                                |                    |                    |                                  |                                                                          | 2-7:                                                                             |



## PZL M 18

WYTWÓRNIĄ SPRZĘTU KOMUNIKACYJNEGO "PZL-MIELEC"  
INSTRUKCJA NAPRAW

### UWAGI OGÓLNE DO OPISÓW WĘZŁÓW

#### 6. Informacje podane na szkicu:

Podana informacja na szkicu np:

- $De^{+0,15}$  oznacza dopuszczalne powiększenie /rozbitcie/ otworu w eksploatacji do 0,15 mm, przy osiągnięciu wskazanego rozbitcia, otwór /połączenie/ wymaga remontu;
  - $D_{max} \phi 13H8$  oznacza wielkość maksymalną /dopuszczalną/ do rozwiercania otworu remontowego;
  - 12H8/f7 - wymiar nominalny połączenia.
2. Pośrednie wymiary pomiędzy wymiarem nominalnym a  $D_{max}$  dopuszczają się stosować wg uznania remontującego /im mniejsze stopniowanie wymiarów remontowych, tym więcej razy można remontować/.
3. Dla umożliwienia stosowania nominalnych części złącznych, zaleca się stosowanie tulejowania otworów rozbitych. Wymiary, materiał i wytrzymałość tulejek /jeżeli się ją dopuszcza/ podaje się na szkicach schematów połączeń.
4. Przyjęte oznaczenia:
- ⇒ 12010-15 - obowiązuje do nr fabrycznego samolotu 12010-16
  - ⇒ - obowiązuje od nr fabrycznego samolotu

### ОБЩИЕ ЗАМЕЧАНИЯ

1. Данные приведенные на эскизе обозначают:
- $De^{+0,15}$  - допустимое увеличение /разбивание/ отверстия в эксплуатации до 0,15 мм; если отверстие разбито, соединение подлежит ремонту;
  - $D_{max} \phi 13H8$  - максимальную величину /допускаемую/ для рассверливания ремонтного отверстия
  - 12H8/f7 - номинальный размер соединения
2. Промежуточные размеры между номинальным размером и могут применяться по усмотрению ремонтирующего /чем меньше ступенчатость ремонтных размеров, тем больше раз допускается ремонт/
3. Для обеспечения применения номинальных соединительных деталей рекомендуется применять втулки для разбитых отверстий. Размеры материал и прочность втулок /если они допускаются/ указаны на эскизах схем соединений.
4. Принятые обозначения:
- ⇒ 12010-15 - действует до фабричного номера самолёта 12010-16
  - ⇒ - действует от фабричного номера самолёта

### GENERAL REMARKS

1. The symbols on the connection sketches mean as follows:
- $De^{+0,15}$  - the allowable enlargement /battering/ of holes in service to 0,15 mm; when the indicated hole dimension is reached the connection is to be repaired;
  - $D_{max} \phi 13H8$  - the maximum /allowable/ dimension to which the overhauled hole may be drilled;
  - 12H8/f7 - the nominal connection dimension
2. Intermediate dimensions between the nominal and  $D_{max}$  are allowed at the discretion of the repairman /the smaller the in-between graduations of the overhaul dimensions the more repairs may be made/.
3. To make usage of standard hardware possible it is recommended to use sleeves in battered holes. The dimensions, material and strength of sleeves /if allowed/ are given in the sketches.
4. Designations:
- ⇒ 12010-15 - means: "effective up to ser. no. 12015-15"
  - 12010-16 ⇒ - means: "effective on ser. no. 12010-16 and up".

### GENERALITES

1. Les symboles présentés sur les esquisses désignent:
- $De^{+0,15}$  - agrandissement admissible de l'orifice jusqu'à 0,15 mm. Quand l'orifice atteint la valeur précitée, il exige la réparation.
  - $D_{max} \phi 13H8$  - la dimension maximale /admissible/ de l'orifice.
  - 12H8/f7 - la dimension nominale de l'assemblage
2. Il est permis au réparateur d'utiliser à sa guise les dimensions comprises entre la dimension nominale et  $D_{max}$ .
3. Pour rendre possible l'utilisation des pièces d'assemblage standard, il est recommandé d'appliquer les douilles dans les orifices. Les dimensions, le matériel, la résistance des douilles /si l'on les utilise/ sont présentés sur les esquisses.
4. Désignations:
- ⇒ 12010-15 - en vigueur jusqu'au numéro de l'avion 12010-16
  - 12010-16 ⇒ - en vigueur dès le numéro de l'avion

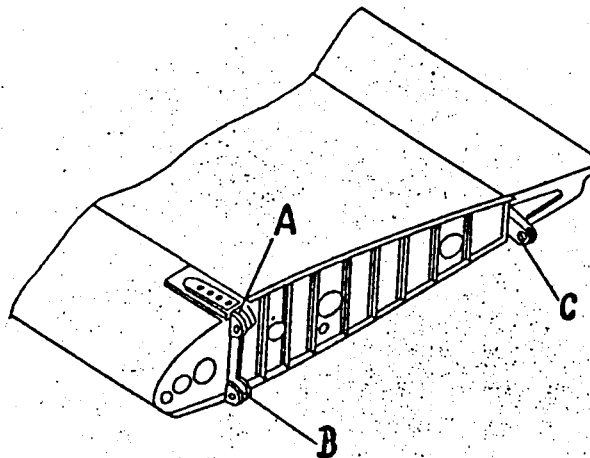
## 2.4

### WĘZŁY MOCOWANIA SKRZYDŁA DOCZEPNEGO

### УЗЛЫ КРЕПЛЕНИЯ ОЧК

## OUTER WING ATTACHMENT FITTINGS

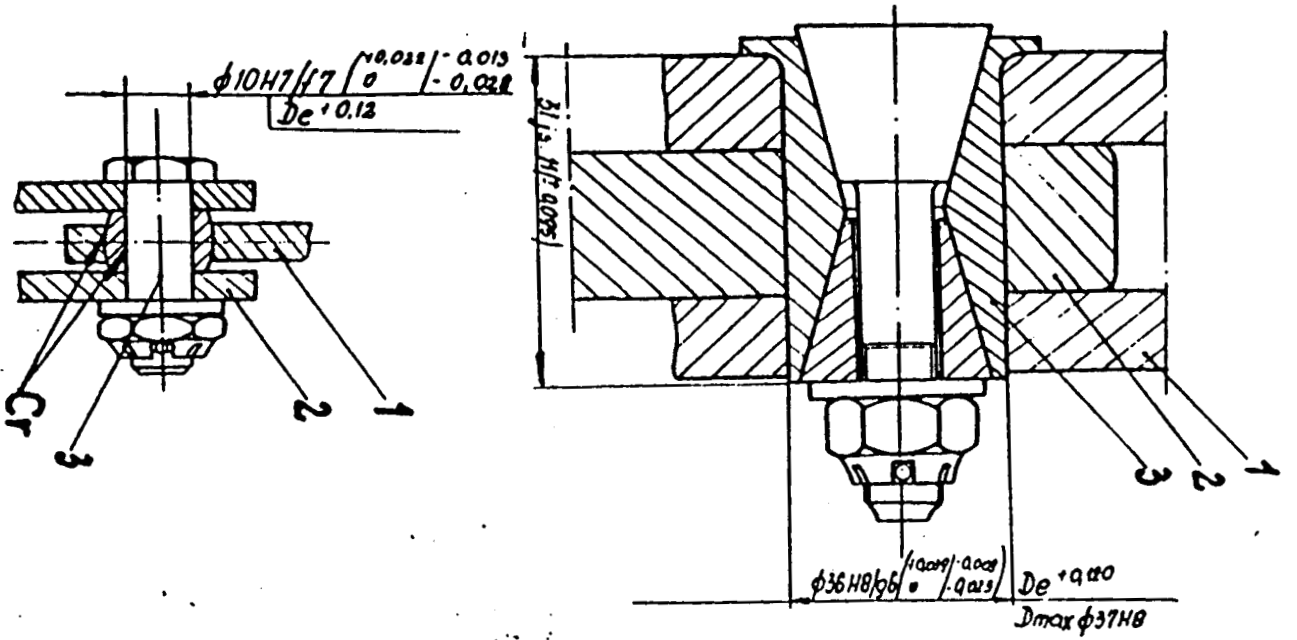
## NOEUDS DE FIXATION DE L'AILE ACCROCHABLE



| Schemat połączenia<br>Схема соединения<br>Sketch of connection<br>Schema du couplage | Ozn.<br>Обозн.<br>Sym.<br>Marqu. | Poz.<br>Поз.<br>Pos.<br>Posit. | Nr grupy<br>№ эскиза<br>Part No<br>№ de la groupe | Nr katalog.<br>№ каталог.<br>Catalog No<br>№ catalog | Nr rysunku, normy<br>№ чертежа, нормали<br>Drawing, standard No<br>№ du dessin, norme | D nom.<br>Д ном.<br>D nom.<br>D nom. | Wymiary remanowe<br>Ремонтные размеры<br>Overhaul diameters<br>Dimension de reparation |   |   |       | Uwagi<br>Примечание<br>Notes<br>Annotations |
|--------------------------------------------------------------------------------------|----------------------------------|--------------------------------|---------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------|---|---|-------|---------------------------------------------|
|                                                                                      |                                  |                                |                                                   |                                                      |                                                                                       |                                      | 1                                                                                      | 2 | 3 | 4     |                                             |
|                                                                                      | A                                | 1                              | 57.12.01                                          | 033                                                  | D21.200.48.0                                                                          | φ36H8                                |                                                                                        |   |   | φ37H8 | 30HGSA<br>Rm 1200MPa                        |
|                                                                                      |                                  | 2                              | 57.11.01                                          | 031                                                  | D22.200.35.1                                                                          | φ36H8                                |                                                                                        |   |   | φ37H8 | 30HGSA<br>Rm 1200MPa                        |
|                                                                                      |                                  | 3                              | 57.40.00                                          | 032                                                  | D22.535.00.0                                                                          | φ36g6                                |                                                                                        |   |   | φ37g6 |                                             |

| Uwagi<br>Примечания<br>Notes<br>Annotations | Wymiary remiennicy<br>Ремонтные размеры<br>Overhaul dimensions<br>Dimension de réparation |   |   |   | D nom.<br>D nom.<br>D nom. | Nr rysunku, normy<br>№ чертежа, нормам<br>Drawing, standard No | Nr katalog.<br>№ каталог.<br>Catalog No | Nr grupy<br>№ зенца<br>Part No | Poz.<br>Поз.<br>Pos. | Ozn.<br>Обозн.<br>Sym.<br>Morqu. | Schemat połączenia<br>Схема соединения<br>Sketch of connection<br>Schema du couplage |
|---------------------------------------------|-------------------------------------------------------------------------------------------|---|---|---|----------------------------|----------------------------------------------------------------|-----------------------------------------|--------------------------------|----------------------|----------------------------------|--------------------------------------------------------------------------------------|
|                                             | 1                                                                                         | 2 | 3 | 4 |                            |                                                                |                                         |                                |                      |                                  |                                                                                      |
| 30HGSA<br>Rm 1200MPa                        | Ø7H8                                                                                      |   |   |   | Ø6H8                       | D21.200.49.9                                                   | 034                                     | 57.12.01                       | 1                    | B                                |                                                                                      |
|                                             | Ø7H8                                                                                      |   |   |   | Ø6H8                       | D22.200.36.1                                                   | 030                                     | 57.11.01                       | 2                    |                                  |                                                                                      |
|                                             | Ø7g6                                                                                      |   |   |   | Ø6g6                       | D22.535.00.0                                                   | 032                                     | 57.40.00                       | 3                    |                                  |                                                                                      |
| 30HGSA<br>Rm 1200MPa                        | Ø12H7                                                                                     |   |   |   |                            | D21.300.39.0L/P                                                | 034                                     | 57.12.02                       | 2                    | C                                |                                                                                      |
|                                             |                                                                                           |   |   |   |                            | D22.301.00.1 L/P                                               | 028                                     | 57.11.02                       | 1                    |                                  |                                                                                      |
|                                             |                                                                                           |   |   |   |                            | 3027A-10-304kd                                                 | 033                                     | 57.40.00                       | 3                    |                                  |                                                                                      |





C O I F K C

|    |   |          |     | Nr du dessin, norme | D nom. |
|----|---|----------|-----|---------------------|--------|
| B. | 1 | 57.12.01 | 034 | D21.200.49.9        | φ36H8  |
|    | 2 | 57.11.01 | 030 | D22.200.36.1        | φ36H8  |
|    | 3 | 57.40.00 | 032 | D22.535.00.0        | φ36g6  |
| C  | 1 | 57.11.02 | 028 | D22.301.00.1 L/P    |        |
|    | 2 | 57.12.02 | 034 | D21.300.39.0L/P     |        |
|    | 3 | 57.40.00 | 033 | 3027A-10-304kd      |        |

| Inches    |          |        | Inches    |          |        | Inches    |          |         | Inches    |          |         |
|-----------|----------|--------|-----------|----------|--------|-----------|----------|---------|-----------|----------|---------|
| Fractions | Decimals | MM     | Fractions | Decimals | MM     | Fractions | Decimals | MM      | Fractions | Decimals | MM      |
| —         | .0004    | .01    | 25/32     | .781     | 19.844 | —         | 2.165    | 55      | 3-11/16   | 3.6875   | 93.983  |
| —         | .004     | .10    | —         | .7874    | 20     | 2-3/16    | 2.1875   | 55.563  | —         | 3.7008   | 94      |
| —         | .01      | .25    | 61/64     | .9375    | 20.241 | —         | 2.2047   | 56      | 3-23/32   | 3.719    | 94.456  |
| 1/64      | .0156    | .397   | 13/16     | .8125    | 20.638 | 2-7/32    | 2.219    | 56.356  | —         | 3.7401   | 95      |
| —         | .0197    | .50    | —         | .8268    | 21     | —         | 2.244    | 57      | 3-3/4     | 3.750    | 95.250  |
| —         | .0295    | .75    | 53/64     | .828     | 21.034 | 2-1/4     | 2.250    | 57.150  | —         | 3.7795   | 96      |
| 1/32      | .03125   | .794   | 27/32     | .844     | 21.431 | 2-9/32    | 2.281    | 57.944  | 3-25/32   | 3.781    | 96.044  |
| —         | .0394    | 1      | 65/64     | .859     | 21.828 | —         | 2.2835   | 58      | 3-13/16   | 3.8125   | 96.838  |
| 3/64      | .0469    | 1.191  | —         | .8661    | 22     | 2-5/16    | 2.312    | 58.738  | —         | 3.8169   | 97      |
| —         | .059     | 1.5    | 7/8       | .875     | 22.225 | —         | 2.3228   | 59      | 3-27/32   | 3.844    | 97.831  |
| 1/16      | .062     | 1.588  | 57/64     | .8906    | 22.622 | 2-11/32   | 2.344    | 59.531  | —         | 3.8563   | 98      |
| 5/64      | .0781    | 1.984  | —         | .9055    | 23     | —         | 2.3622   | 60      | 3-7/8     | 3.875    | 98.425  |
| —         | .0787    | 2      | 29/32     | .9062    | 23.019 | 2-3/8     | 2.375    | 60.325  | —         | 3.8978   | 99      |
| 3/32      | .084     | 2.381  | 59/64     | .922     | 23.416 | —         | 2.4016   | 61      | 3-29/32   | 3.9062   | 99.218  |
| —         | .0884    | 2.5    | 15/16     | .9375    | 23.813 | 2-13/32   | 2.408    | 61.119  | —         | 3.9370   | 100     |
| 7/64      | .109     | 2.778  | —         | .9449    | 24     | 2-7/16    | 2.438    | 61.913  | 3-15/16   | 3.9375   | 100.013 |
| —         | .1181    | 3      | 61/64     | .953     | 24.209 | —         | 2.4409   | 62      | 3-31/32   | 3.989    | 100.806 |
| 1/8       | .125     | 3.175  | 31/32     | .969     | 24.606 | 2-15/32   | 2.469    | 62.706  | —         | 3.9784   | 101     |
| —         | .1378    | 3.5    | —         | .9843    | 25     | —         | 2.4803   | 63      | 4         | 4.000    | 101.800 |
| 9/64      | .141     | 3.572  | 63/64     | .9844    | 25.003 | 2-1/2     | 2.500    | 63.500  | 4-1/16    | 4.062    | 103.188 |
| 5/32      | .156     | 3.969  | 1         | 1.000    | 25.400 | —         | 2.5197   | 64      | 4-1/8     | 4.125    | 104.775 |
| —         | .1575    | 4      | —         | 1.0238   | 26     | 2-17/32   | 2.531    | 64.294  | —         | 4.1338   | 105     |
| 11/64     | .172     | 4.368  | 1-1/32    | 1.0312   | 26.194 | —         | 2.559    | 65      | 4-3/16    | 4.1875   | 106.363 |
| —         | .177     | 4.5    | 1-1/16    | 1.062    | 26.988 | 2-9/16    | 2.562    | 65.088  | 4-1/4     | 4.250    | 107.950 |
| 3/16      | .1875    | 4.763  | —         | 1.063    | 27     | 2-19/32   | 2.594    | 65.881  | 4-5/16    | 4.312    | 109.538 |
| —         | .1969    | 5      | 1-3/32    | 1.094    | 27.781 | —         | 2.5984   | 66      | —         | 4.3307   | 110     |
| 13/64     | .203     | 5.159  | —         | 1.1024   | 28     | 2-5/8     | 2.625    | 66.675  | 4-3/8     | 4.375    | 111.125 |
| —         | .2165    | 5.5    | 1-1/8     | 1.125    | 28.575 | —         | 2.638    | 67      | 4-7/16    | 4.438    | 112.713 |
| 7/32      | .219     | 5.556  | —         | 1.1417   | 29     | 2-21/32   | 2.656    | 67.469  | 4-1/2     | 4.500    | 114.300 |
| 15/64     | .234     | 5.953  | 1-5/32    | 1.156    | 29.369 | —         | 2.6772   | 68      | —         | 4.5275   | 115     |
| —         | .2362    | 6      | —         | 1.1811   | 30     | 2-11/16   | 2.6875   | 68.283  | 4-9/16    | 4.562    | 115.888 |
| 1/4       | .250     | 6.350  | 1-3/16    | 1.1875   | 30.163 | —         | 2.7165   | 69      | 4-5/8     | 4.625    | 117.475 |
| —         | .2559    | 6.5    | 1-7/32    | 1.219    | 30.958 | 2-23/32   | 2.719    | 69.068  | 4-11/16   | 4.6875   | 119.063 |
| 17/64     | .2656    | 6.747  | —         | 1.2205   | 31     | 2-3/4     | 2.750    | 69.850  | —         | 4.7244   | 120     |
| —         | .2756    | 7      | 1-1/4     | 1.250    | 31.750 | —         | 2.7559   | 70      | 4-3/4     | 4.750    | 120.650 |
| 9/32      | .281     | 7.144  | —         | 1.2598   | 32     | 2-25/32   | 2.781    | 70.6439 | 4-13/16   | 4.8125   | 122.238 |
| —         | .2953    | 7.5    | 1-9/32    | 1.281    | 32.544 | —         | 2.7953   | 71      | 4-7/8     | 4.875    | 123.825 |
| 19/64     | .297     | 7.541  | —         | 1.2992   | 33     | 2-13/16   | 2.8125   | 71.4378 | —         | 4.9212   | 125     |
| 5/16      | .312     | 7.938  | 1-5/16    | 1.312    | 33.338 | —         | 2.8346   | 72      | 4-15/16   | 4.9375   | 125.413 |
| —         | .315     | 8      | —         | 1.3386   | 34     | 2-27/32   | 2.844    | 72.2314 | 5         | 5.000    | 127.000 |
| 21/64     | .328     | 8.334  | 1-11/32   | 1.344    | 34.131 | —         | 2.8740   | 73      | —         | 5.1181   | 130     |
| —         | .335     | 8.5    | 1-3/8     | 1.375    | 34.925 | 2-7/8     | 2.875    | 73.025  | 5-1/4     | 5.250    | 133.350 |
| 11/32     | .344     | 8.731  | —         | 1.3779   | 35     | 2-29/32   | 2.9062   | 73.819  | 5-1/2     | 5.500    | 139.700 |
| —         | .3543    | 9      | 1-13/32   | 1.406    | 35.719 | —         | 2.9134   | 74      | —         | 5.5118   | 140     |
| 23/64     | .359     | 9.128  | —         | 1.4173   | 36     | 2-15/16   | 2.9375   | 74.613  | 5-3/4     | 5.750    | 146.050 |
| —         | .374     | 9.5    | 1-7/16    | 1.438    | 36.513 | —         | 2.9527   | 75      | —         | 5.8056   | 150     |
| 3/8       | .375     | 9.525  | —         | 1.4587   | 37     | 2-31/32   | 2.969    | 75.406  | 6         | 6.000    | 152.400 |
| 25/64     | .391     | 9.922  | 1-15/32   | 1.469    | 37.306 | —         | 2.9921   | 76      | 6-1/4     | 6.250    | 158.750 |
| —         | .3937    | 10     | —         | 1.4961   | 38     | 3         | 3.000    | 76.200  | —         | 6.2992   | 160     |
| 13/32     | .406     | 10.319 | 1-1/2     | 1.500    | 38.100 | 3-1/32    | 3.0312   | 76.994  | 6-1/2     | 6.500    | 165.100 |
| —         | .413     | 10.5   | 1-17/32   | 1.531    | 38.894 | —         | 3.0315   | 77      | —         | 6.8829   | 170     |
| 27/64     | .422     | 10.718 | —         | 1.5354   | 39     | 3-1/16    | 3.062    | 77.788  | 6-3/4     | 6.750    | 171.450 |
| —         | .4331    | 11     | 1-9/16    | 1.562    | 39.688 | —         | 3.0709   | 78      | 7         | 7.000    | 177.800 |
| 7/16      | .438     | 11.113 | —         | 1.5748   | 40     | 3-3/32    | 3.094    | 78.581  | —         | 7.0866   | 180     |
| 29/64     | .453     | 11.509 | 1-19/32   | 1.584    | 40.481 | —         | 3.1102   | 79      | —         | 7.4803   | 190     |
| 15/32     | .469     | 11.906 | —         | 1.6142   | 41     | 3-1/8     | 3.125    | 79.375  | 7-1/2     | 7.500    | 190.500 |
| —         | .4724    | 12     | 1-5/8     | 1.625    | 41.275 | —         | 3.1498   | 80      | —         | 7.8740   | 200     |
| 31/64     | .484     | 12.303 | —         | 1.6535   | 42     | 3-5/32    | 3.156    | 80.169  | 8         | 8.000    | 203.200 |
| —         | .492     | 12.5   | 1-21/32   | 1.6582   | 42.089 | 3-3/16    | 3.1875   | 80.963  | —         | 8.2877   | 210     |
| 1/2       | .500     | 12.700 | 1-11/16   | 1.6875   | 42.863 | —         | 3.1890   | 81      | 8-1/2     | 8.500    | 215.900 |
| —         | .5118    | 13     | —         | 1.6929   | 43     | 3-7/32    | 3.219    | 81.758  | —         | 8.8614   | 220     |
| 33/64     | .5156    | 13.097 | 1-23/32   | 1.719    | 43.856 | —         | 3.2283   | 82      | 9         | 9.000    | 228.600 |
| 17/32     | .531     | 13.494 | —         | 1.7323   | 44     | 3-1/4     | 3.250    | 82.550  | —         | 9.0551   | 230     |
| 35/64     | .547     | 13.891 | 1-3/4     | 1.750    | 44.450 | —         | 3.2677   | 83      | —         | 9.4488   | 240     |
| —         | .5512    | 14     | —         | 1.7717   | 45     | 3-9/32    | 3.281    | 83.344  | 9-1/2     | 9.500    | 241.300 |
| 9/16      | .563     | 14.288 | 1-25/32   | 1.781    | 45.244 | —         | 3.3071   | 84      | —         | 9.8425   | 250     |
| —         | .571     | 14.5   | —         | 1.8110   | 46     | 3-5/16    | 3.312    | 84.1377 | 10        | 10.000   | 254.001 |
| 37/64     | .578     | 14.684 | 1-13/16   | 1.8125   | 46.038 | 3-11/32   | 3.344    | 84.9314 | —         | 10.2362  | 260     |
| —         | .5906    | 15     | 1-27/32   | 1.844    | 46.831 | —         | 3.3464   | 85      | —         | 10.8299  | 270     |
| 19/32     | .594     | 15.081 | —         | 1.8504   | 47     | 3-3/8     | 3.375    | 85.725  | 11        | 11.000   | 279.401 |
| 39/64     | .609     | 15.478 | 1-7/8     | 1.875    | 47.625 | —         | 3.3858   | 86      | —         | 11.0236  | 280     |
| 5/8       | .625     | 15.875 | —         | 1.8898   | 48     | 3-13/32   | 3.406    | 86.519  | —         | 11.4173  | 290     |
| —         | .6299    | 16     | 1-29/32   | 1.9062   | 48.419 | —         | 3.4252   | 87      | —         | 11.8110  | 300     |
| 41/64     | .6406    | 16.272 | —         | 1.9291   | 49     | 3-7/16    | 3.438    | 87.313  | 12        | 12.000   | 304.801 |
| —         | .6496    | 16.5   | 1-15/16   | 1.9375   | 49.213 | —         | 3.4646   | 88      | 13        | 13.000   | 330.201 |
| 21/32     | .656     | 16.669 | —         | 1.9685   | 50     | 3-15/32   | 3.489    | 88.106  | —         | 13.7795  | 350     |
| —         | .6693    | 17     | 1-31/32   | 1.969    | 50.006 | 3-1/2     | 3.500    | 88.900  | 14        | 14.000   | 355.801 |
| 43/64     | .672     | 17.066 | 2         | 2.000    | 50.800 | —         | 3.5039   | 89      | 15        | 15.000   | 381.001 |
| 11/16     | .6875    | 17.463 | —         | 2.0079   | 51     | 3-17/32   | 3.531    | 89.694  | —         | 15.7480  | 400     |
| 45/64     | .703     | 17.859 | 2-1/32    | 2.03125  | 51.594 | —         | 3.5433   | 90      | 16        | 16.000   | 406.401 |
| —         | .7087    | 18     | —         | 2.0472   | 52     | 3-9/16    | 3.562    | 90.4877 | 17        | 17.000   | 431.801 |
| 23/32     | .719     | 18.256 | 2-1/16    | 2.062    | 52.388 | —         | 3.5827   | 91      | —         | 17.7165  | 450     |
| —         | .7283    | 18.5   | —         | 2.0668   | 53     | 3-19/32   | 3.594    | 91.281  | 18        | 18.000   | 457.201 |
| 47/64     | .734     | 18.653 | 2-3/32    | 2.094    | 53.181 | —         | 3.622    | 92      | 19        | 19.000   | 482.801 |
| —         | .7480    | 19     | 2-1/8     | 2.125    | 53.975 | 3-5/8     | 3.625    | 92.075  | —         | 19.6850  | 500     |
| 3/4       | .750     | 19.050 | —         | 2.126    | 54     | 3-21/32   | 3.656    | 92.869  | 20        | 20.000   | 508.001 |
| 49/64     | .7656    | 19.447 | 2-5/32    | 2.156    | 54.789 | —         | 3.6814   | 93      | —         | —        | —       |

\*\* For emergency service call 1-800-800-7066 \*\*

(See other side for user friendly facts)

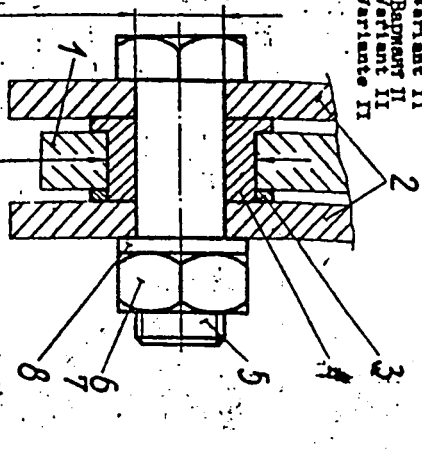
**American Metric Corporation**

CHAR

| Schemat połączenia<br>Czemu połączenia<br>Sketch of connection<br>Schéma de couplage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | Ozn.<br>Oznac.<br>Sym.<br>Morzu. | Poz.<br>Plo.<br>Pos. | Nr grupy<br>№ групи<br>№ skrupy :<br>For. №<br>№ de la groupe | Nr tablog.<br>№ каталог.<br>Catalog No<br>№ edolog. | Nr rysunku, nazwy<br>№, wyrysowa, wyposazam<br>Drawing, standard No<br>№ du dessin, norme | D. mont.<br>D. mont.<br>D. mont. | Wymiary, rozmieszczenie<br>Rozmieszczenie pasów<br>Orientation diameters<br>Direction de repartition |   |   |                      | Uwagi<br>Примечания<br>Notes<br>Anotations |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------|----------------------|---------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------|------------------------------------------------------------------------------------------------------|---|---|----------------------|--------------------------------------------|
| Variant II<br>Rysunek II<br>Variant II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | C                                | 1                    | 57.11.02                                                      | 039                                                 | D22.301.00.11/P                                                                           | Ø16, 5H8                         | 1                                                                                                    | 2 | 3 | 4                    | 30H9SA<br>Rm 1200MPa                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                  | 2                    | 57.12.02                                                      | 034                                                 | D21.300.39.01/P                                                                           |                                  |                                                                                                      |   |   | 30H9SA<br>Rm 1200MPa |                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                  | 3                    |                                                               |                                                     | D21.200.62.0R                                                                             |                                  |                                                                                                      |   |   |                      | 30H9SA<br>Rm 1200MPa                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                  | 4                    |                                                               |                                                     | D21.200.60.0R                                                                             | Ø10H8/<br>Ø16, 5H8               |                                                                                                      |   |   |                      | 30H9SA<br>Rm 1200MPa                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                  | 5                    | 57.40.00                                                      | 035                                                 | 3027A-10-30-4kd.<br>D21.200.61.0R                                                         | Ø10H8<br>Ø10, 2H8                |                                                                                                      |   |   |                      | 30H9SA<br>Rm 1200MPa                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                  | 6                    |                                                               |                                                     | Wkrętka 3356A-10<br>16kx<br>Nut<br>Ecrin                                                  |                                  |                                                                                                      |   |   |                      | 30H9SA                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                  | 7                    |                                                               |                                                     | 2.5-32/PK-64/M-82001<br>Zawleczka<br>Wkręt<br>Cotter pin<br>Couplille                     |                                  |                                                                                                      |   |   |                      |                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                  | 8                    |                                                               |                                                     | Podkładka 3402A2-10-20<br>Błacha<br>Washer<br>Rondele<br>D21-200.52.0.R                   |                                  |                                                                                                      |   |   |                      | 30H9SA<br>Rm 1200MPa                       |
| UWAGI:<br>Ozn. umieszczonego. see notes voir les notes<br>1. W przypadku nie pokrywania się współ-<br>osiłowości otworów Ø10H8 w częściach<br>poz. 2 i 4 należy otwory rozwielić<br>wspólnie na wymiar Ø10,2H8.<br>2. Do wykonania otw. Ø16, 5H8 w części<br>poz. 4 zaleca się zastosować specjalny<br>przyrząd OAS/V17/B9 oferowany<br>przez Producenta samolotu.<br>ПРИМЕЧАНИЯ:<br>1. В случае не соответствия осовосности<br>отверстий Ø10H8 в деталях поз.2 и4,<br>следует расоседрить отверстия<br>вместе на размер Ø10,2H8.<br>2. Для выполнения отверстия Ø16, 5H8 в де-<br>тали поз.4 рекомендуется воспользо-<br>ваться специальным приспособлением<br>OAS/V17/B9 изготавливаемое заводом-изго-<br>водителем. |  |                                  |                      |                                                               |                                                     |                                                                                           |                                  |                                                                                                      |   |   |                      |                                            |

01.04.89

2-29



Variant II  
 Rysunek II  
 Variant II  
 #Ø22H8/Ø10 (Ø22/10)  
 #Ø5H8/Ø10 (Ø5/10)  
 #Ø22H8/Ø10 (Ø22/10)  
 #Ø5H8/Ø10 (Ø5/10)  
 #Ø22H8/Ø10 (Ø22/10)  
 #Ø5H8/Ø10 (Ø5/10)

1. W przyrędku nie pokrywania się wzdłuż osi otworów Ø10H8 w częściach poz. 2 i 4 należy otwory rozciągnąć wzdłużnie na wymiar Ø10,2H8.
  2. Do wykonania otw. Ø16, 5H8 w części poz. 4 należy się zastosować specjalny przyrząd O45/417/89 sterowany przez producenta samolotu.
- IPRAEWAHJH:  
 1. В случае не соответствия геометрии отверстий Ø10H8 в деталях поз.2 и4/ следует расширить отверстия шесте на размер Ø10,2H8.  
 2. Для выполнения отверстия Ø16, 5H8 в детали поз.4 рекомендуется использовать специальное приспособление О45/417/89 изготовленное производителем самолета.

| Schéma polycrocin<br>Ciemo coactemins<br>Sketch of coaction<br>Schéma de couple                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Ora.<br>Odoak.<br>Sym. | Poz.<br>Tita.<br>Pos. | Nr. grupy<br>Nr. scruza<br>Part No<br>Nr de la gruppe | Nr. loblog.<br>Nr. korasor.<br>Coblog No | Nr. rymku, normy<br>Nr. represa, noproam<br>Drawing, standard No<br>Nr de desin, norme | D. nom.<br>A. nom.<br>D. nom. | Wymiarzy remonto-<br>Remontowa paszupa<br>Overhaul dimension<br>Dimension de repenion |   |   |   | Uwagi<br>Remarques<br>Notes<br>Amendons |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------|-------------------------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|---|---|---|-----------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |                       |                                                       |                                          |                                                                                        |                               | 1                                                                                     | 2 | 3 | 4 |                                         |
| <b>NOTES:</b><br>1. In case when 10B8 in parts No.2 and 4 are not coaxial, the hole should be enlarged to 10,2B8.<br>2. To make the 16,5B8 hole in the part No.1 use a special - O49/V17/89 instrument offered by aircraft producer.<br><b>NOTES:</b><br>1. Dans le cas de la discordance de la coaxialité des orifices dans les pièces pos.2 et 4, il faut élargir ensemble les orifices à la dimension 10,2B8.<br>2. Pour faire les orifices 16,5B8 dans la pièce de la pos.1, il est recommandé d'utiliser un appareil spécial O49/V17/89 offert par le Producteur de l'avion. |                        |                       |                                                       |                                          |                                                                                        |                               |                                                                                       |   |   |   |                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |                       |                                                       |                                          |                                                                                        |                               |                                                                                       |   |   |   |                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |                       |                                                       |                                          |                                                                                        |                               |                                                                                       |   |   |   |                                         |

## 7. AIRFRAME SERVICE LIFE IN OVERLOAD VERSION

The service life is established for the airplane takeoff weight of 10,340 Lbs (4700 kG).

Increase in T-O weight up to 11,700 Lbs (5300 kG) causes higher fatigue wear and drop of service life by 1.35 times.

Thus, the recorded flown time with the weight ranged from 10,340 Lbs (4700 kG) to 11,700 Lbs (5300 kG) shall be multiplied by 1.35 coefficient and the obtained result is to be regarded as a basis for calculating the service life of the airplane.

An exemplary calculation of the airplane flying time:

Flying time at  $Q \leq 4700 \text{ kG}$  ..... 2,000 h  
Flying time at  $4700 \text{ kG} < Q \leq 5300 \text{ kG}$  ..... 1,000 h

Flying time calculation:

$$2000 \text{ h} + (1000 \text{ h} \times 1.35) = 3350 \text{ h}$$

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