

**Operation performed on SACEM machine for carriage 07820913100**

**Operation -1**

CLAMP THE JOB ON SUITABLE SUPPORTS & BLOCKS KEEPING SURFACE A UPWARD. SET W.R.T SURFACE A & CONTROL DIAMETER MARKED ON IT.

FINISH TURN D1894-0.2. FACE D1894/D2564, D2564 & BEARING SEATING FACE D2564 MAINTAINING HEIGHT 1326(+/-0.5)

Time – 48 hours

**Operation -2**

CLAMP JOB ON SUITABLE SUPPORTS & BLOCKS KEEPING SURFACE A UPWARD ON ROTARY TABLE OF MACHINE. SET W.R.T SURFACE A AND CENTRE W.R.T MACHINED DIAMETER D1894 (-0.2) LOAD NC RIGHT ANGLE HEAD ON MACHINE & JOB ON BLOCKS

FINISH DRILL 29 HOLES D26 & REAM 1 HOLE D26H7 ON R1961(+/-0.2) AS PER NC PROGRAM FINISH DRILL 63 HOLES D9 AND 2 HOLES D9 ON D2594 AS PER LOCATION GIVEN ON DRG & AS PER PROGRAM

REFER SECII, SH 3/7: DRILL 7 HOLES D22, 1 HOLE D32, HOLE D22 WITH BACK CBR D45 AS PER SEC SECL'L'

REFER SECAA, SH 2/7 & VIEW Z, SH3/7: USING LONG ENDMILL FINISH FACE OF PAD MAINTAINING DIMN 414MM FROM TRUNION CENTRE LINE.

REFER SH 2/7, VIEW Y & Z SH 3/7: FINISH MILL BOTTOM FACE OF LEGS MAINTAINING HEIGHT 1340MM FROM TRUNION CENTRE. FINISH MILL STEPS ON BOTTOM FACES MAINTAINING HEIGHT 1326 (+/-0.5) FROM TRUNION CENTRE.

REFER SH3/7, VIEW Y & SECF'F', SECD'D': FINISH DRILL & TAP 2 HOLES M22X1.5 WITH CBR D22+0.18 ON LEG AS PER SECF'F' AND VIEW Y, 1 HOLE D12H7 WITH CBR D17X3 AS PER SECD'D' AND VIEW SH 3/7

REFER SH3/7, VIEW Z: FINISH DRILL 1 HOLE D12H7 WITH CBR D17X3 SECH'H' AND 2 HOLES D16 SECG'G'.

DRILL & REAM 2 HOLES D12H7 WITH CBR D17X3, 1 HOLE D13 & 1 HOLE M12 ON SIDE FACE MAINTAINING DIST 35MM & 48MM AS SHOWN IN SH 2/7 SECAA.

REFER SECN2-N2: DRILL & TAP 4 HOLES DIAMETRICALLY OPPOSITE AS PER DRG.

REFER SECAA, SH 2/7: DRILL & BORE 1 HOLE D50 WITH 3 TAP HOLES M14 MB WITH BACK CBR D14(+0.15) ON PCD D72.

REFER MAIN VIEW SH1/7: REMOVE NC RIGHT ANGLE HEAD & USING ENDMILL FINISH MILL THE SIDE FACES OF 2 LEGS PROJECTED UPWARD MAINTAINING DIMN 289MM FROM CENTRE LINE.

Time : 84 hours

### Operation - 3

SET & CLAMP 4 SUITABLE BLOCKS ON 4 CORNERS OF TABLE . FINISH MILL A STEP DIA TO LOCATE THE D1894 OF CARRIAGE ON 4 BLOCKS.

SET JOB ON ABOVE BLOCKS KEEPING SURFACE A DOWNWARD & CLAMP THE JOB AT SUITABLE PLACES.

FINISH MILL THE HOOD SEATING SURFACE MAINTAINING THE HEIGHT DIMN 870MM FROM THE TRUNION CENTRE.

DRILL 63 HOLES D14 ON HOOD SEATING SURFACE AS SHOWN IN SH 7/7 AS PER NC PROGRAM.

REFER SECU'U', SH1/7: FINISH MILL FACE OF BOSS AT 790MM FROM TRUNION AXIS & DRILL 3 HOLES M8.

REFER SEC L2-L2 SH 1/7: MILL FACE OF BOSS AT DIMN 824 FROM TRUNION AXIS, FINISH BORE D140H7, DRILL / CBR D14(+0.15) ON THREAD HOLES AND 1 HOLE D8H7.

REFER SECO'O', SH1/7: MILL FLAT 122MM WIDTH ON MAIN RIM. DRILL & REAM 1 HOLE D48H7, 1 HOLE D30, 3 HOLES M8 & 4 HOLES M12.

REFER VIEW X, SH 4/7: MILL FLAT 111 WIDTH ON MAIN RIM MAINTAINING HEIGHT 812.5 FROM TRUNION CENTRE LINE & DRILL 4 HOLES D10.3 FOR HELICOIL M10.

REFER SECE'E', G2G2,F2F2, SH 1/7: FINISH CBR D60 ON 4 HOLES D26 ON MAIN RIM

REFER SECAA, SH 2/7: MILL FLAT ON 3 BOSSES OF GEAR BOX TO DIMN 870(+/-0.2). DRILL & TAP 3 HOLES M20X55 DEEP.

REFER SECT'T', SH 2/7: DRILL & REAM ONE HOLE D25H7 WITH CBR D35X3.

REFER SECKK, SH 1/7: DRILL CBR & TAP 4 HOLES M16.

REFER SEC AA, SH 3/7: DRILL 8 HOLES D22, 1 HOLE

D32 & CBR 1 HOLE D45 AS PER SEC L'L'.

Time -129 hours

#### **Operation -4**

ROTATE THE NC RIGHT ANGLE HEAD BY 90DEG AND CARRYOUT FOLLOWING MACHINING: REFER SEC BB, SH 3/7: FINISH SECBB, SH 3/7: FINISH MILL THE 2 NOS TRAPAZOIDAL BOSSES MAINTAINING 490MM FROM THE CENTRE LINE AS PER SEC M'M' & N'N'.

DRILL,CBR & TAP 4 HOLES 1 1/8"-12 UNJF & REAM 2 HOLES D30H7 AS PER SEC M'M' & N'N'. REFER SECLL,SH 3/7 & SEC AA SH 2/7: FINISH MILL THE RECTANGULAR BOSS MAINTAINING DIMN 494 FROM CENTRE LINE. DRILL, TAP & CVR4 HOKLES 11/8-12UNJF & ONE HOLE D19.

REFER VIEW H, SH 4/7: FINISH INSIDE FACES OF TRUNION MAINTAINING 1052+/-0.5 EQUAL FROM CENTRAL AXIS. FINISH MILL INSIDE FACES OF 3 BOSSES AT DIMN 525 FROM CENTRAL LINE AS PER SECQQ. REFER SECII, SH 2/7: MILL TAPER SLOT 40MM ON INNER FACE OF ONE TRUNION. REFER MAIN VIEW, SH 1/7: FINISH MILL THE FACES OF 2 REMAINING LEGS TO MAINTAIN 289MM FROM CENTRE LINE.

**Time : 51 hours**

#### **Operation- 5**

REMOVE RIGHT ANGLE HEAD & CARRY OUT THE FOLLOWING WORK WITH MACHINE SPINDLE REFER SECDD,SH4/7 & SECGG, SH 2/7: FINISH MILL OUTER FACES OF LEFT & RIGHT TRUNION MAINTAINING 116MM AS PER VIEW H SH 4/7.

FINISH BORE D150H7, STEP D165 & GROOVE D178 ON BOTH TRUNIONS.

CHECKING BY QC ON MACHINE FOR CONCENTRICITY  
REFER VIEW X, SH4/7: DRILL & TAP 4 HOLES M12 ON PCD 170 AROUND TRUNION BORE.

REFER SECM2M2, SH 4/7: FINISH BORE D70H7. DRILL & TAP 4 HOLES M14X1.5 AND 1 PIN HOLE D7 INSTEAD OF D8H7 (TO BE MADE FINALLY AT ASSEMBLY).

REFER SECQQ, SH 4/7: FINISH MILL THE FACE TO MAINTAIN 525+145MM. FINISH BORE D168H7. DRILL 3 HOLES D22. DRILL, CBR & TAP 4 HOLES M14MB AS PER SEC RR.

REFER VIEWH, SH 4/7: DRILL & TAP 2 HOLES M8, DRILL & TAP 3 HOLES 20MB AS PER SEC Z1Z1, DRILL & TAP 1 HOLE D16MB AS PER SEC E2E2.

Time : 80 hours

### Operation -6

FIX THE JOB ON ANGULAR PLATE FIXTURE R7463-0004 & SET ON MACHINE TABLE.  
MOUNT RIGHT ANGLE NC HEAD ON RAM.

REF SECAA SH 2/7, VIEW Y,Z AND SEC CC SH 3/7:  
FINISH MACHINE RADIUS R1294, R1299, R1303+/-0.5, R1310, R1315+/-0.5 & R1329 ON PROJECTED LEGS AND CARRIAGE BASE AS PER NC PROGRAM.

SH 3/7, VIEW Y,Z & W: MARK THE CENTRES OF ALL HOLES D13,D17 & D12H7 BY FITTING ARC GUIDES ON LEGS WITH THE HELP OF C CLAMPS (MADE FINALLY AT ASSLY).

VIEW Y: DRILL, CBR TWO INCLINED HOLES D13/BACK CBR D30 SEC E'E'. DRILL 1 HOLE D12H7/CBR D17.

VIEW Z: DRILL 1 INCLINED HOLE D13, 1 INCLINED HOLE D12H7 / CBR D17 SECG'G'.

VIEW W: DRILL 2 HOLES D13.

SECBB: DRILL 2 HOLES M22X1.5 OUT OF 3 HOLES.

REFER SEC CC SH 3/7: DRILL 2 HOLES D13

REFER SECBB, SEC 3/7: DRILL 1 HOLE D30H11 AND 3 HOLES M6 ON PCD 42 AROUND IT.

Time : 70 hours