

Engineering Report

M A24-600T/1

Masters with obsolete parts included

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Detail	Quantity	Engineer/Reference	Drawing ID	Rev
M A24-600T/1 - A24-600T - ENGINE, TURBO A600 RI600T	1.00			No Pri
--10 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1				
Type:			0.0 % Scra	
End Qty:	1.00	Start Qty:	1.00	
Resource ID:	EA-LEVEL-01	Setup:	0.0 Hrs	Fixed Scrap: 0.00
		Run:	5.0000 MIN/P	Min Move:
Service ID:		Transit:	0.0 Days	Capacity Min:
PREP ASSEMBLY BENCH...				
----A24-2500T SHORT BLOCK ASSY, A600 TURBO				
	1.00			
Qty Per:	1.0000	Unit of Measure		
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
--250 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1				
Type:			0.0 % Scra	
End Qty:	1.00	Start Qty:	1.00	
Resource ID:	EA-LEVEL-01	Setup:	0.0 Hrs	Fixed Scrap: 0.00
		Run:	20.0000 MIN/P	Min Move:
Service ID:		Transit:	0.0 Days	Capacity Min:
INSTALL ELBOWS TO WATERJACKETS.				
ACETONE CLEAN CONTACT SURFACES ON WATERJACKETS AND ELBOWS. INSTALL ELBOWS TO WATERJACKETS. SET THE ELBOW DIRECTION PER DESIGN SPECIFICATIONS. REFERENCE PRINT OR ILLUSTRATIONS. USE SILICONE ON ALL CONTACT SURFACES. USE TEFLON TAPE ON BUSHING AND PLUG THREADS.				
----A24-3010 WATERJACKET/ SLEEVE ASSY, 90/162/A600				
	2.00			
Qty Per:	2.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-3030 WATERJACKET ELBOW 162F/A600				
	3.00			
Qty Per:	3.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-3040 WATERJACKET ELBOW 1/4 TAP - 162F/A60				
	1.00			
Qty Per:	1.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	

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----A24-3005 WATERJACKET ELBOW GASKET 4.00
Qty Per: 4.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

----E00-2443 BOLT 1/4-20 X 5/8 SHCS 16.00
Qty Per: 16.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

----A24-3050 PLUG 1/8 NPT STEEL 1.00
Qty Per: 1.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

----A24-3060 BUSHING 1/4 NPT TO 1/8 BRASS 1.00
Qty Per: 1.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

--260 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1 **Type:** 0.0 % Scra
End Qty: 1.00 **Start Qty:** 1.00
Resource ID: EA-LEVEL-01 **Setup:** 0.0 Hrs **Fixed Scrap:** 0.00
Run: 20.0000 MIN/P **Min Move:**
Service ID: **Transit:** 0.0 Days **Capacity Min:**
INSTALL PISTONS AND RINGS TO WATERJACKETS. (REV D JACKETS)

SET TOP PISTON RING GAP TO .018-.020 AND DEBURR. SET 2ND
PISTON RING GAP TO .018-.020 AND DEBURR.

INSTALL SPIROLOCS TO INBOARD SIDES OF PIN BORES. THERE ARE
TWO (2) SPIROLOCS ON EACH SIDE OF PIN.

INSTALL PISTON RINGS. REFER TO ASSEMBLY DOCUMENT #002
FORM FOR FINAL RING POSITIONING.

POSITION WATERJACKETS AND PISTONS SIDE-BY-SIDE AS
ILLUSTRATED IN ASSEMBLY MANUAL.

SET PISTON/RING INSTALLATION TOOL # _____ OVER THE
CRANKCASE-SIDE OF CYLINDER SLEEVE #1. LUBRICATE RINGS,
PISTON AND TOOL.

STUFF PISTON AND RINGS THROUGH AND INTO CYLINDER SLEEVE.
POSITION PISTON SO THAT PIN BORE IS EXPOSED FOR
CONNECTING RODS. REPEAT PROCESS FOR REMAINING
CYLINDERS.

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ACETONE CLEAN BASE OF WATERJACKETS.

----A24-1702 PISTON JE TURBO - W/PIN, SPIRAL LOCKS 4.00

Qty Per: 4.0000 **Unit of Measure****Fixed Qty:** 0.00 **Qty Per Basis:** Starting Qty

----A24-6020 PISTON RING SET TURBO 1.00

Qty Per: 1.0000 **Unit of Measure****Fixed Qty:** 0.00 **Qty Per Basis:** Starting Qty

FOR AN 8 CYCLINDER ENGINE - 8 PER PACKAGE (2 SETS OF 4)

FROM TOTAL SEAL - PACKAGE PRICE \$117.34

--270 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1 **Type:** 0.0 % Scra**End Qty:** 1.00 **Start Qty:** 1.00**Resource ID:** EA-LEVEL-01 **Setup:** 0.0 Hrs **Fixed Scrap:** 0.00**Run:** 20.0000 MIN/P **Min Move:****Service ID:** **Transit:** 0.0 Days **Capacity Min:**

INSTALL WATERJACKETS AND MAIN STUDS. (REV D JACKETS)

ACETONE CLEAN DECK OF SHORT BLOCK. INSTALL STUDS AND
BASE GASKET. BASE GASKET EMBOSMENT SHOULD FACE UP/OUT.POSITION CRANKSHAFT SO CONNECTING RODS 1-2 GET EQUAL AND
MAXIUM EXTENSION OUT OF CRANKCASE. POSITION 1-2 SIDE
WATERJACKET AND PISTONS OVER CONNECTING RODS. INSTALL
PINS AND SPIROLOCS.USING CARE TO NOT PULL PISTONS ON 1-2 SIDE, POSITION
CRANKSHAFT SO CONNECTING RODS 3-4 GET EQUAL AND MAXIUM
EXTENSION OUT OF CRANKCASE. POSITION 3-4 SIDE WATERJACKET
AND PISTONS OVER CONNECTING RODS. INSTALL PINS AND
SPIROLOCS.ALIGN WATERJACKETS AND MAIN STUDS TOGETHER AND TAP
WATERJACKETS FLUSH WITH CRANKCASE USING A DEAD-BLOW.
INSTALL WASHERS AND NUTS. USE DOUBLE-NUT TO KEEP EQUAL
NUMBER OF THREADS EXPOSED AT ENDS OF MAIN STUDS WHILE
TIGHTENING AND TORQING NUTS. USUALLY 3-4 THREADS.TORQUE MAIN STUD NUTS TO 20 FT-LBS. TORQUE SEQUENCE IS
TWO CENTER STUDS FIRST FOLLOWED BY CROSS-PATTERN TORQUE
TO CORNERS. RE-TORQUE NUTS TO 40 FT-LBS.

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USE TORQUE PLATE AT 35 FT-LBS TO MEASURE T.I.R AND RECORD RESULTS ON ASSEMBLY FORM.

RECORD DECK HEIGHT ON ASSEMBLY FORM.

----A24-2004 MAIN STUD 6.00
Qty Per: 6.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

----E00-3901 NUT 7/16 X 20 METAL LOCK 12 POINT 12.00
Qty Per: 12.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

----E00-4702 WASHER 7/16 REGULAR AN960-716 12.00
Qty Per: 12.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

----A24-3015 BASE GASKET, SINGLE LAYER STEEL 2.00 A24-3015 A
Qty Per: 2.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

--290 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1 **Type:** 0.0 % Scra
End Qty: 1.00 **Start Qty:** 1.00
Resource ID: EA-LEVEL-01 **Setup:** 0.0 Hrs **Fixed Scrap:** 0.00
Run: 15.0000 MIN/P **Min Move:**
Service ID: **Transit:** 0.0 Days **Capacity Min:**
INSTALL STARTER MOUNT ASSEMBLY AND CRANK SENSORS.

1. INSTALL CRANK SENSORS AND SENSOR RETAINERS - USE BLUE LOCTITE ON BOLTS.

2. ACETONE CLEAN CONTACT SURFACES ON STARTER MOUNT AND CRANKCASE.

3. USE SILICONE SEALER ON CONTACT SURFACES AND BOLT THREADS AND INSTALL STARTER MOUNT.

4. LOOSELY SNUG BOLTS THEN TAP STARTER MOUNT CLOCKWISE WITH DEADBLOW HAMMER.

5. TORQUE SOCKET BOLTS TO 15 FT-LBS USING CROSS-PATTERN

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TORQUE SEQUENCE.

6. MARK BOLTS WITH YELLOW PAINT PEN TO INDICATE BOLTS ARE TORQUED.

7. REINSTALL FLANGE WITH TIMING WHEEL ENSURING CRANKSHAFT KEY AND FLANGE - USE ANTI-SEIZE LUBRICANT ON SHAFT CONTACT AREAS.

8. USE BLUE LOCTITE ON CRANK NUT AND TORQUE TO 200 FOOT POUNDS.

9. MARK NUT WITH YELLOW PAINT PEN TO INDICATE BOLTS ARE TORQUED.

----	A24-2110 STARTER MOUNT ASSY, A600	1.00		
	Qty Per:	1.0000	Unit of Measure	EA
	Fixed Qty:	0.00	Qty Per Basis:	Starting Qty

----	E00-2511 BOLT 5/16-18 X 1 SHCS	8.00		
	Qty Per:	8.0000	Unit of Measure	EA
	Fixed Qty:	0.00	Qty Per Basis:	Starting Qty

----	E00-4501 WASHER 5/16 REGULAR AN960-516	8.00		
	Qty Per:	8.0000	Unit of Measure	EA
	Fixed Qty:	0.00	Qty Per Basis:	Starting Qty

----	A24-5412 SENSOR, CRANKSHAFT POSITION, A600	2.00		
	Qty Per:	2.0000	Unit of Measure	EA
	Fixed Qty:	0.00	Qty Per Basis:	Starting Qty

----	A24-5550 CRANK SENSOR RETAINER, A600	2.00		
	Qty Per:	2.0000	Unit of Measure	EA
	Fixed Qty:	0.00	Qty Per Basis:	Starting Qty

----	E00-2310 BOLT #10-32 X 1/2 SOCKET HEAD	2.00		
	Qty Per:	2.0000	Unit of Measure	EA
	Fixed Qty:	0.00	Qty Per Basis:	Starting Qty

--300	EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1	Type:	0.0 %	Scra
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End Qty: 1.00 **Start Qty:** 1.00
Resource ID: EA-LEVEL-01 **Setup:** 0.0 Hrs **Fixed Scrap:** 0.00
Run: 15.0000 MIN/P **Min Move:**
Service ID: **Transit:** 0.0 Days **Capacity Min:**
INDICATE FLYWHEEL.

INSTALL FLYWHEEL ASSEMBLY TEMPORARILY TO SCRIBE AND
STAMP ON TIMING MARKS.

FIND TOP DEAD CENTER (TDC) ON CYLINDER #1. USING TEMPLATE,
SCRIBE AND STAMP "0" DEGREES TO INDICATE CLYINDER 1 TDC.
TURN FLYWHEEL 180-DEGREES.

FIND TOP DEAD CENTER (TDC) ON CYLINDER #2. USING TEMPLATE,
SCRIBE AND STAMP "180" ON FLYWHEEL TO INDICATE CYLINDER 2
TDC.

USING TEMPLATE, TURN FLYWHEEL 30 RETARDED FROM
"0"-DEGREE MARKING. SCRIBE LINE AND STAMP "30" ON FLYWHEEL.

USING A PUNCH, MARK ALIGNMENT REFERENCE POINTS ON
FLYWHEEL AND MAIN DRIVE FLANGE.

----A24-1904 OBSOLETE USE A24-8400 KIT 1.00 A24-1904 A
Qty Per: 1.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

--310 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1 **Type:** 0.0 % Scra
End Qty: 1.00 **Start Qty:** 1.00
Resource ID: EA-LEVEL-01 **Setup:** 0.0 Hrs **Fixed Scrap:** 0.00
Run: 30.0000 MIN/P **Min Move:**
Service ID: **Transit:** 0.0 Days **Capacity Min:**
INSTALL CYLINDER HEADS.

MOCK UP HEAD BOLTS AND WASHERS WITH CYLINDER HEADS.
VERIFY DEPTH OF BOLT THREADS EXTENDING THROUGH HEAD PER
DESIGN SPECIFICATION. REFERENCE PRINT AND DOCUMENTATION.
(.750 MIN -.850 MAX) ****

PERFORM CYLINDER HEAD LEAK-DOWN TEST ON FIXTURE/PLATE #
F15-0003. PRESSURIZE TO 100 PSI. PROCEED ONLY IF VALVES
SHOULD HOLD TO 100%. MAKE ADJUSTMENTS OR CORRECTIONS IF
NECESSARY.

ACETONE CLEAN CONTACT SURFACES ON CYLINDER HEADS AND

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TOPS OF WATERJACKETS INCLUDING TOPS OF CYLINDERS SLEEVES
AND COMPRESSION SEAL CHANNELS.

INSTALL STAINLESS COMPRESSION SEALS TO TOPS OF CYLINDER
SLEEVES. ENSURE THAT EACH SEAL IS SIZED CORECTLY AND SEATS
PROPERLY BEFORE PROCEEDING.

PREPARE HEAD BOLTS BY PAIRING BOLTS UP WITH WASHERS.
SLIDE WASHERS ON TO BOLTS CHAMFER SIDE TOWARD HEAD OF
BOLT. APPLY A SMALL AMOUNT OF ANTI-SEIZE LUBRICANT TO BOLT
THREADS.

ALLIGN HEAD ASSEMBLY OVER CYLINDERS 1-2. INSERT FOUR 4-5/8
INCH BOLTS WITH WASHERS AND ANTI-SEIZE THROUGH HEAD
ASSEMBLY IN TO WATERJACKET. START BOLTS BY HAND OR DRIVER
TOOL WHILE HOLDING WEIGHT OFF HEAD ASSEMBLY. START
REMAINING BOLTS BY HAND OR DRIVER TOOL KEEPING WEIGHT OFF
HEAD ASSEMBLY. VISUALLY INSPECT TO ENSURE COPRESSION
SEAL IS STILL SEATED PROPERLY. USING DRIVER TOOL, DRAW
DOWN BOLTS EVENLY.

TORQUE BOLTS FOLLOWING TIGHTENING SEQUENCE ILLISTATED
ON DOCUMENT #_____ TORQUE INCREMENTS ARE 15, 20, 25

PERFORM LEAK-DOWN TEST. RECORD RESULTS IN LOG BOOK.

----A24-4100 CYLINDER HEAD, ASSY COMPLETE	2.00			
Qty Per:	2.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-4046 STUD, 3/8 X 2 9/16	4.00		A24-4046	A
Qty Per:	4.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-4047 STUD, 3/8 X 3 5/8	4.00		A24-4047	A
Qty Per:	4.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-4048 STUD, 3/8 X 5 1/16	8.00		A24-4048	A
Qty Per:	8.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	

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----A24-4045 WASHER, 3/8 X .675 X .120	16.00			
Qty Per:	16.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-4044 NUT, FLANGED, 12 POINT, 3/8-24	16.00			
Qty Per:	16.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-4115 GASKET, HEAD, MULTI LAYER STEEL, 4" B	2.00		A24-4115	A
Qty Per:	2.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
--320 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1 Type:			0.0 % Scra	
End Qty:	1.00	Start Qty:	1.00	
Resource ID: EA-LEVEL-01		Setup:	0.0 Hrs	Fixed Scrap: 0.00
		Run:	15.0000 MIN/P	Min Move:
Service ID:		Transit:	0.0 Days	Capacity Min:
PREPAIR PUSHROD TUBES.				
INSTALL O-RINGS TO PUSHROD TUBE.				
ARRANGE PUSHROD TUBE HALVES WITH ENDS FACING UP AND INSTALL METAL SEAL RINGS. INSTALL SEAL RINGS WITH SMOOTH SIDE FACING SEAL END. INSTALL PUSHROD TUBE SEALS USING A 1/16-INCH BEAD OF SILICONE BETWEEN SEALS AND SEAL RINGS. ALLOW TO CURE OVER NIGHT BEFORE PROCEEDING.				
----A24-4250 PUSHROD TUBE ASSEMBLY - PACKAGE	8.00			
Qty Per:	8.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-4270 O-RING #15 VITON 75A (BLACK)	16.00			
Qty Per:	16.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-4204 PUSHROD TUBE SEAL	16.00			
Qty Per:	16.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	

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--330 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1 **Type:** 0.0 % Scra
End Qty: 1.00 **Start Qty:** 1.00
Resource ID: EA-LEVEL-01 **Setup:** 0.0 Hrs **Fixed Scrap:** 0.00
Run: 20.0000 MIN/P **Min Move:**
Service ID: **Transit:** 0.0 Days **Capacity Min:**
INSTALL PUSHROD TUBES.

REMOVE FLYWHEEL. ACETONE CLEAN PUSHROD PORTS ON CYLINDER HEADS AND CRANKCASE. LUBRICATE O-RINGS AND INSIDE OF RECEIVING SIDE WITH A LIGHT COAT OF PETROLIUM JELLY LUBRICANT. INSERT SPRING IN TO RECEIVING SIDE. LINE UP TUBE HALVES FOR INSTALLATION. APPLY A 3/16 INCH BEAD OF SILICONE TO TUBE SEALS. MATCH UP AND COMPRESS BOTH TUBE HALVES. INSTALL PUSHROD TUBES WORKING FROM LOWER SIDE UP ON BOTH SIDES OF ENGINE ASSEMBLY. TURN PUSHROD TUBE 1/4 TURN TO SEAT SILICONE.

REINSTALL FLYWHEEL.

--340 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1 **Type:** 0.0 % Scra
End Qty: 1.00 **Start Qty:** 1.00
Resource ID: EA-LEVEL-01 **Setup:** 0.0 Hrs **Fixed Scrap:** 0.00
Run: 20.0000 MIN/P **Min Move:**
Service ID: **Transit:** 0.0 Days **Capacity Min:**
INSTALL PUSHRODS AND ROCKER ARMS.

INSERT PUSHRODS WITH ASSEMBLY LUBE THROUGH PUSHROD TUBES.

INSPECT ENDS OF VALVE STEMS TO ENSURE THAT VALVES HAVE LASH CASPS IN PLACE. LUBRICATE REMANING PARTS WITH ASSEMBLY LUBE. INSTALL ROCKER ARMS, PIVOT BALLS AND POLYLOC ASSEMBLYS TO ROCKER ARM STEMS. TURN POLYLOC ASSEMBLYS DOWN BY HAND ENSURING THAT BALL-END ON PUSHROD SETTLES CORRECTLY IN SOCKET ON LOWER SIDE OF ROCKER ARM.

SEQUENCE FOR TIGHTING AND GAPPING FOLLOWS ROTATING FLYWHEEL UNTIL THERE IS ZERO LIFT ON VALVE/ROCKER BEING ADJUSTED. SET VALVE LASH TO .004.

UPDATE: POLISH INSIDE EDGES OF ROCKER ARM LASH-CAP OVER-HANGS. THIS PREVENTS GAULING OF LASH-CAPS.

REVISION - JAN 19, 2011:

INSTALL HARDENED WASHER UNDER 1.000" POLYLOC

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----A24-4110 PUSH ROD	8.00			
Qty Per:	8.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-4013 ROCKER ARM	8.00			
Qty Per:	8.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-4300 POLY LOCK ASSEMBLY	8.00			
Qty Per:	8.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-4014 ROCKER PIVOT BALL	8.00			
Qty Per:	8.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
--350 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1	Type:	0.0 % Scra		
End Qty:	1.00	Start Qty:	1.00	
Resource ID:	EA-LEVEL-01	Setup:	0.0 Hrs	Fixed Scrap: 0.00
		Run:	5.0000 MIN/P	Min Move:
Service ID:		Transit:	0.0 Days	Capacity Min:
INSTALL VALVE COVERS (ASSEMBLED WITH GASKETS)				
----A24-4030 VALVE COVER ASSEMBLY, WITH GASKET	2.00			
Qty Per:	2.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-4018 O-RING #202 VITON 75A / VALVE COVER	4.00			
Qty Per:	4.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-2430 BOLT 1/4-20 X 2-3/4 GRADE 8	4.00			
Qty Per:	4.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	

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----E00-4402 WASHER, MS27183-10(1/4 LARGE) 4.00
Qty Per: 4.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

--360 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1 **Type:** 0.0 % Scra
End Qty: 1.00 **Start Qty:** 1.00
Resource ID: EA-LEVEL-01 **Setup:** 0.0 Hrs **Fixed Scrap:** 0.00
Run: 20.0000 MIN/P **Min Move:**
Service ID: **Transit:** 0.0 Days **Capacity Min:**
INSTALL PLENUM AND RUNNER ASSEMBLIES.

INSTALL RUNNER ASSEMBLY TO THE 1-2 SIDE OF ENGINE ASSEMBLY. PLACE TWO INBOARD-SIDE BOLTS IN TO RUNNER FLANGE AND POSITION GASKET IN PLACE. START BOLTS IN TO CYLINDER HEAD BY HAND TO CLEAR RADIUS OF TOP RUNNER. INSTALL TWO REMAINING BOLTS. SNUG BOLTS DOWN WITH BALL-END DRIVER WHILE HOLDING WEIGHT OFF RUNNER ASSEMBLY. TORQUE BOLTS TO 18 POUNDS.

INSTALL TWO 1-7/8 INCH HOSES AND FOUR HOSE CLAMPS TO RUNNER ENDS. INSTALL INTAKE PLENUM ASSEMBLY TO OPEN HOSE ENDS. TIGHTEN CLAMS TO HOLD PLENUM INTO A TEMPORARY POSITION. INSTALL TWO 1-7/8 INCH HOSES AND FOUR HOSE CLAMPS TO OPEN ENDS OF PLENUM ASSEMBLY.

INSTALL RUNNER ASSEMBLY TO THE 3-4 SIDE OF ENGINE ASSEMBLY. PLACE TWO INBOARD-SIDE BOLTS IN TO RUNNER FLANGE AND POSITION GASKET IN PLACE. INSERT RUNNER ASSEMBLY IN TO OPEN HOSES ON PLENUM. START BOLTS IN TO CYLINDER HEAD BY HAND TO CLEAR RADIUS OF TOP RUNNER ENSURING GASKET REMAINS IN POSITION. INSTALL TWO REMAINING BOLTS. SNUG BOLTS DOWN WITH BALL-END DRIVER WHILE HOLDING WEIGHT OFF RUNNER AND PLENUM ASSEMBLIES. TORQUE BOLTS TO 18 FT-LBS IN CROSS-PATERN TIGHTENING SEQUENCE.

LOOSEN ALL HOSE CLAMPS AND POSITION PLENUM TO CENTER OF CRANKCASE. TIGHTEN HOSE CLAMPS.

----A24-5060 INTAKE PLENUM ASSY, STANDARD, A600 1.00
Qty Per: 1.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

----A24-5022 INTAKE MANIFOLD RUNNER ASSY, 1-2 SID 1.00
Qty Per: 1.0000 **Unit of Measure** EA

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----A24-5027 INTAKE MANIFOLD RUNNER ASSY, 3-4 SID	1.00			
Qty Per:	1.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-7002 GASKET, INTAKE MANIFOLD	2.00			
Qty Per:	2.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-5390 HOSE, PLENUM TO RUNNER, 1-7/8 X 2	4.00			
Qty Per:	4.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-9550 CLAMP LINED FOR 1 3/4" HOSE	8.00			
Qty Per:	8.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-2533 BOLT 5/16-18 X 7/8 SHCS YELLOW ZINC	8.00			
Qty Per:	8.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
--370 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1 Type:		0.0 % Scra		
End Qty:	1.00	Start Qty:	1.00	
Resource ID:	EA-LEVEL-01	Setup:	0.0 Hrs	Fixed Scrap: 0.00
		Run:	5.0000 MIN/P	Min Move:
Service ID:		Transit:	0.0 Days	Capacity Min:
INSTALL FUEL HOSE.				
INSTALL FUEL HOSE ASSEMBLY TO TOP OF FUEL RAILS. START FITTING BY HAND ON 1-2 SIDE FUEL RAIL. START OTHER FITTING BY HAND ON 3-4 SIDE FUEL RAIL. USING FUEL LINE TOOL (FRAGOLA #6), TIGHTEN FUEL LINE FITTINGS.				
INSTALL CUSHION CLAMP AND RELATED HARDWARE TO SECURE FUEL HOSE TO PLENUM. USE THE 3-4 SIDE HOLE ON PLENUM FLANGE.				
----A24-5500 HOSE ASSEMBLY, FUEL RAIL CROSS-OVER	1.00			
Qty Per:	1.0000	Unit of Measure	EA	

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Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-2402 BOLT (1/4-28 X 1") GRADE 8		1.00		
Qty Per:	1.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-4401 WASHER AN960-416 (1/4 REGULAR)		2.00		
Qty Per:	2.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-3402 NUT 1/4-28 FIBERLOCK AN365-428A		1.00		
Qty Per:	1.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-9112 CLAMP 3/4" CUSHION LOOP		1.00		
Qty Per:	1.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
--380 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1	Type:	0.0 % Scra		
End Qty:	1.00	Start Qty:	1.00	
Resource ID:	EA-LEVEL-01	Setup:	0.0 Hrs	Fixed Scrap: 0.00
		Run:	15.0000 MIN/P	Min Move:
Service ID:		Transit:	0.0 Days	Capacity Min:
INSTALL STARTER AND GROUND WIRES. DETAILS.				
TORQUE STARTER BOLTS TO 18 FT-LBS.				
TORQUE GROUND WIRE BOLTS TO 15 FT-LBS.				
----A24-8103 USE A24-8400 KIT		1.00		
Qty Per:	1.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-2602 BOLT AN6-11A (3/8 X 1-1/8)		1.00		
Qty Per:	1.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-2603 BOLT AN6-14A (3/8 X 1-1/2)		1.00		
Qty Per:	1.0000	Unit of Measure	EA	

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Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-4603 WASHER 3/8 INTERNAL TOOTH LOCK	5.00			
Qty Per:	5.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-8110 GROUND WIRE, 1-2 SIDE, 18-INCH	1.00			
Qty Per:	1.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-8120 GROUND WIRE, 3-4 SIDE, 16-INCH	1.00			
Qty Per:	1.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-2528 BOLT 5/16-18 X 5/8 GRADE 8	2.00			
Qty Per:	2.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-8185 PLATE STARTER ADAPTER	1.00		A24-8185	B
Qty Per:	1.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-2601 BOLT AN6-10A (3/8-24 X 1")	2.00			
Qty Per:	2.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-4503 WASHER 5/16 INTERNAL TOOTH LOCK	2.00			
Qty Per:	2.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
--390 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1 Type:	0.0 % Scra			
End Qty:	1.00	Start Qty:	1.00	
Resource ID: EA-LEVEL-01	Setup:	0.0 Hrs	Fixed Scrap:	0.00
	Run:	20.0000 MIN/P	Min Move:	
Service ID:	Transit:	0.0 Days	Capacity Min:	
INSTALL COOLING COMPONENTS.				
INSTALL #3380 HOSES, FIRE SLEEVES AND HOSE CLAMPS TO LOWER SIDES OF ENGINE ASSEMBLY. DETAILS....				

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INSTALL INLET WATER MANIFOLD #3301, HOSES #3370, #3375, HOSE CLAMPS AND CUSHION CLAMPS TO ENGINE ASSEMBLY. LOOSEN ONE INBOARD-SIDE BOLTS ON EACH OF THE WATERJACKET ELBOWS (SEE ILLISTRATION IN EAM). LOOSEN ONE CAM COVER BOLT (SEE ILLISTRATION IN EAM). DETAILS.... INSTALL OUTLET WATER MANIFOLD #3300, HOSES #3360, FIRE SLEEVES AND HOSE CLAMPS TO ENGINE ASSEMBLY. DETAILS...				
----A24-3300 OUTLET WATER MANIFOLD WELDMENT (L	1.00			
Qty Per:	1.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-3301 INLET WATER MANIFOLD WELDMENT (SM	1.00			
Qty Per:	1.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-3120 FIRESLEEVE FOR A24-3360, A24-3380	4.00			
Qty Per:	4.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-3360 HOSE, NAPA 8852	2.00			
Qty Per:	2.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-3370 HOSE, MANIFOLD TO CYL HEAD NAPA 7429	2.00			
Qty Per:	2.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----A24-3380 HOSE, CYL HEAD TO JACKET LOWER SIDE	2.00			A
Qty Per:	2.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-9520 CLAMP LINED FOR 1" HOSE	12.00			
Qty Per:	12.0000	Unit of Measure	EA	
Fixed Qty:	0.00	Qty Per Basis:	Starting Qty	
----E00-9115 CLAMP 1" CUSHION LOOP	3.00			

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Qty Per: 3.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

--400 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1 **Type:** 0.0 % Scra
End Qty: 1.00 **Start Qty:** 1.00
Resource ID: EA-LEVEL-01 **Setup:** 0.0 Hrs **Fixed Scrap:** 0.00
Run: 3.0000 HRS/P **Min Move:**
Service ID: **Transit:** 0.0 Days **Capacity Min:**
DYNO TEST ENGINE.

SET UP ENGINE FOR DYNO TEST.

CHECKLIST FOR ENGINE INSTALLATION IN TO DYNO. ENGINE
ASSEMBLY MANUAL.

ENGINE TEST

ENGINE BREAK-IN

CHECKLIST FOR ENGINE REMOVAL FROM DYNO. ENG

----E35-8000 ECU, A600 2.00
Qty Per: 2.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

----E35-8030 FADEC WIRING HARNESS, A600 1.00
Qty Per: 1.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

----E24-9750 TURBO SPARK PLUGS 8.00
Qty Per: 8.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

--410 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1 **Type:** 0.0 % Scra
End Qty: 1.00 **Start Qty:** 1.00
Resource ID: EA-LEVEL-01 **Setup:** 0.0 Hrs **Fixed Scrap:** 0.00
Run: 45.0000 MIN/P **Min Move:**
Service ID: **Transit:** 0.0 Days **Capacity Min:**
INSTALL MAIN DRIVE PULLEY.

CHECK RUN-OUT USING DIAL INDICATOR AND SPECIAL MOUNT.
MAXIMUM RUN-OUT ALLOWED IN .004"

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REMOVE BOLTS ONE AT A TIME AND RE-INSTALL USING BLUE
LOCTITE. TORQUE BOLTS TO 30 FT-LBS.

----A24-1660 MAIN DRIVE PULLEY ASSY TURBO 1.00

Qty Per: 1.0000 **Unit of Measure**
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

----E00-2624 BOLT 3/8 - 24 1 1/2 SHCS ZINC 3.00

Qty Per: 3.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

----E00-4600 WASHER AN960-616 (3/8) REGULAR 3.00

Qty Per: 3.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

--420 EA-LEVEL-01 - ENGINE ASSEMBLY LEVEL 1 **Type:** 0.0 % Scra

End Qty: 1.00 **Start Qty:** 1.00
Resource ID: EA-LEVEL-01 **Setup:** 0.0 Hrs **Fixed Scrap:** 0.00
Run: 30.0000 MIN/P **Min Move:**
Service ID: **Transit:** 0.0 Days **Capacity Min:**
ENGINE "FINAL"

----E36-8570 OIL TEMP SENSOR, ASSEMBLY, A600 1.00

Qty Per: 1.0000 **Unit of Measure** EA
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty

----E48-1100 TURBO, FACTORY KIT 1.00

Qty Per: 1.0000 **Unit of Measure**
Fixed Qty: 0.00 **Qty Per Basis:** Starting Qty