

X200-4 ASSEMBLY PROCEDURE

HOUSING ASSEMBLY CENTER, SUB ASSEMBLY

THOROUGHLY CLEAN THE CENTER HOUSING.

FIRST CLUTCH

INSTALL O.D. SEAL AND I.D. SEAL INTO PISTON, THEN INSTALL IN CENTER HOUSING.

INSTALL TWENTY SIX SPRINGS AND RETAIN WITH RETAINER AND RING.

PERFORM AN AIR LEAK CHECK ON THE INSTALLED PISTON ASSEMBLY.

CARRIER SUB-ASSEMBLY, BEVEL GEAR

THOROUGHLY CLEAN CARRIER.

CONVERTER REGULATOR

INSERT THE VALVE INTO THE HOUSING WITH SPRINGS. RETAIN CHECK VALVE COVER ASSEMBLY WITH TWO 5/16 - 18 X 1 1/4 BOLTS AND TWO WASHERS. TORQUE TO 17-20 LB. FT.

NOTE: THE BEVEL GEAR CARRIER ASSEMBLY CAN BE CONSIDERED AS A MODULE CONSISTING OF DRIVE BEVEL GEAR, DRIVEN BEVEL GEAR, SCAVENGE AND INPUT PUMP ASSEMBLY, OUTPUT PUMP ASSEMBLY, PUSH-TO-START BODY ASSEMBLY, OIL TRANSFER DIAPHRAGM ASSEMBLY AND TURBINE SHAFT.

MAKE SURE THAT SEAL IS INSTALLED. MAKE SURE THAT OIL HOLE LINES UP WITH SHIMS IN HOUSING RETAINER. VERIFY THAT ALL THE BOLTS USED IN THIS INSTALLATION ARE TORQUED.

L.H. BEARING RETAINER, TWELVE 3/8 - 16 X 1 1/2 BOLTS AND TWELVE WASHERS ARE TO BE INSTALLED AND TORQUED TO 35-43 LB. FT.

R.H. RETAINER, TWELVE 3/8 - 16 X 1 1/4 BOLTS AND TWELVE WASHERS, ARE TO BE INSTALLED AND TORQUED TO 35-43 LB. FT.

INPUT BEVEL GEAR RETAINER, FIFTEEN 7/16 - 14 X 1 1/2" BOLTS AND FIFTEEN WASHERS ARE TO BE INSTALLED AND TORQUED TO 54-65 LB. FT.

INSTALL TWO HOOK SEAL RINGS ON TO THE TURBINE SHAFT. INSTALL THE TURBINE SHAFT INTO THE INPUT BEVEL GEAR AND RETAIN WITH SNAP RING.

INSTALLATION PUMP ASSEMBLY, SCAVENGE AND INPUT

AFTER ASSEMBLYING PUMP, INSTALL 5/16 - 18 X 2 1/2" MOUNTING BOLTS, AND TWO WASHERS, TORQUE TO 17-20 LB. FT.

INSTALL THE TUBE ELBOW IN THE HOUSING AND THE CONNECTOR WITH TWO PACKING. NUTS ARE TORQUED 5-7 LB. FT. NEXT INSTALL THE RVS SIGNAL TUBE FROM THE ELBOW TO THE CONNECTOR. INSTALL THE TWO CLAMPS WITH 5/16 - 18 X 4 1/4" BOLT. TORQUE TO 17-20 LB. FT.

PUSH-TO-START VALVE ASSEMBLY INSTALLATION

INSTALL THE PUSH-TO-START VALVE BODY ASSEMBLY USING NINE 5/16 - 18 X 2 1/4" BOLTS AND NINE WASHERS. TORQUE BOLTS TO 17-20 LB. FT.

OUTPUT PUMP ASSEMBLY INSTALLATION

INSTALL THE OUTPUT PUMP ASSEMBLY USING TWO 3/8 - 16 X 1 1/4" BOLTS. TORQUE BOLTS TO 36-43 LB. FT.

INSTALL SCAVENGE DISCHARGE TUBE ASSEMBLY USING; TWO 5/16 - 18 X 3" BOLTS AND TWO WASHERS. TORQUE BOLTS TO 17-20 LB. FT.

INSTALLATION DIAPHRAGM ASSEMBLY

DISPHRAGM ASSEMBLY IS INSTALLED INTO THE HOUSING USING NINE WASHERS AND NINE 3/8 - 16 X 1 1/2 BOLTS. TORQUE BOLTS TO 36-43 LB. FT.

FOR THE INPUT/SCAVENGE PUMP. COMPLETE THE INSTALLATION OF MOUNTING SCREWS WITH SEVEN 5/16 - 18 X 2 3/4" BOLTS AND SEVEN WASHERS. TORQUE TO 17-20 LB. FT.

INSTALL SEAL INTO THE GROUND SLEEVE AND THEN INSTALL THE INPUT DRIVE GEAR WITH BEARING. THIS GEAR GOES ON BEFORE INPUT HOUSING AND IS USED AS AN AID TO TORQUE THE INPUT PUMP DRIVE GEAR NUT.

INSTALL THE WOODRUFF KEY AND THE INPUT PUMP DRIVE GEAR WITH THE SELF-LOCKING NUT. TORQUE NUT TO 30 LB. FT.

HYDROSTATIC

INSTALL THE HYDROSTATIC DRIVE GEAR ON THE HYDROSTATIC SHAFT AND RETAIN WITH RING.

RECORD MANUFACTURER'S NAME AND S/N OF HYDROSTATIC.

INSTALL THE HYDROSTATIC UNIT USING SIX 3/8 - 16 X 1 1/2" BOLTS AND SIX WASHERS. SNUG THE BOLTS BUT DO NOT TIGHTEN AT THIS TIME.

NOTE: BOLTS SHOULD BE TORQUED 36-43 LB. FT. AFTER INPUT COVER IS PUT ON.

INSTALL HYDROSTATIC INPUT PUMP GEAR AND RETAIN WITH RING.

HYDROSTATIC UNIT IS TURNED TO PROVIDE CLEARANCE FOR BALANCE OF INSTALLATION.

INSTALL THE HYDROSTATIC CONTROL BODY USING THE FOUR 5/16 - 18 BOLTS THAT WERE REMOVED FOR INSTALLATION CLEARANCE AND THE TWO 7/16 - 20 SOCKET HEAD BOLTS. USE LOCKTITE GRADE 635 ON 7/16 BOLTS. TORQUE THE 5/16 BOLTS TO 13-16 LB. FT. AND THE 7/16 BOLTS TO 64-77 LB. FT.

INSTALL "V" RING SEAL ON THE CONTROL STEER SHAFT.

LEFT HAND BRAKE AND SUPPORT INSTALLATION

INSTALL BEARING CUPS FOR THE OUTPUT DRIVEN GEAR, THE RANGE OUTPUT DRIVE GEAR AND THE STEER SHAFT DRIVEN GEAR.

PRESS BEARING ON TO THE OUTPUT CARRIER SHAFT.

GREASE THE OUTPUT PUMP DRIVE GEAR TO HOLD IT ON THE CARRIER SHAFT, THEN INSTALL BOTH. BE CAREFUL TO KEEP THE OUTPUT DRIVE GEAR IN PLACE. IT CAN BE EASILY DISLODGED.

INSTALL THE GOVERNOR BODY ASSEMBLY. RETAIN WITH THREE 3/8 - 16 X 1 1/4" BOLTS AND THREE WASHERS. TORQUE TO 36-43 LB. FT.

PRESS BEARING ON TO THE L.H. STEER AND OUTPUT SUN GEAR.

PRESS BEARING ON THE L.H. STEER GEAR.

INSTALL THE L.H. STEER GEAR AND THE L.H. STEER AND OUTPUT SUN GEAR.

INSTALL SIX SPRING GUIDES INTO L.H. CLUTCH BACKING PLATE. INSTALL THE PLATE WITH THE SPRING GUIDES USING FIVE $3/8$ - 16 X 1" BOLTS AND FIVE WASHERS. OBSERVE INDEX RING FOR THE RANGE OUTPUT SHAFT CLEARANCE. TORQUE BOLTS TO 36-43 LB. FT.

INSTALL FOUR REACTION PINS AND THE BRAKE COOLANT SEAL.

INSTALL AN OUTPUT CARRIER ASSEMBLY AND THRUST WASHER INTO A BRAKE DRUM AND RETAIN WITH A RING.

INSTALL THRUST WASHER.

INSTALL THE DRUM/OUTPUT CARRIER ASSEMBLY INTO THE TRANSMISSION THEN INSTALL A THRUST WASHER.

STARTING WITH A FRICTION PLATE, ALTERNATELY INSTALL FIVE REACTION PLATES AND AN ADDITIONAL FIVE FRICTION PLATES.

INSTALL SIX SPRINGS OVER GUIDE PINS AND RETAIN WITH THE CLUTCH REACTION PLATE AND SIX RINGS.

INSTALL A STEER RING GEAR ASSEMBLY.

THE L.H. BRAKE SUPPORT ASSEMBLY CAN BE FURTHER SUB-ASSEMBLED AS FOLLOWS.

INSTALL THE BRAKE SEAL RETAINER AND THE SEAL RING ON TO THE SUPPORT AND RETAIN WITH TWO $5/16$ - 24 X $7/8$ " BOLT AND WASHER. TORQUE TO 19-23 LB. FT.

INSTALL TWO PACKING ON TO BRAKE COOLANT TUBE AND INSTALL INTO THE BRAKE SUPPORT.

INSTALL TWO PACKING ON TO BRAKE APPLY TUBE. INSTALL INTO THE SUPPORT.

INSTALL THE STATIONARY BRAKE CAM USING THREE 5/16 - 18 X 1" BOLTS AND THREE WASHERS TO RETAIN IT. TORQUE TO 17-20 LB. FT.

INSTALL I.D. SEAL AND O.D. SEAL INTO THE BRAKE APPLY CAM.

INSTALL EIGHT BALLS WITH GREASE INTO THE POCKETS OF THE STATIONARY CAM. GREASE THE SEALS AND INSTALL THE BRAKE APPLY CAM OVER THE STATIONARY CAM.

INSTALL THE L.H. BRAKE APPLY CAM SHAFT. INSTALL THE BRAKE ADJUSTING LINK AND PIN. NEXT INSTALL THE BRAKE ADJUSTING LINK WITH THE BRAKE LEAF SPRING. RETAIN LEAF SPRING WITH A 1/4 - 20 X 1/2" BOLT. TORQUE TO 9-11 LB. FT.

PUT SNAP RING ON THE CAM SHAFT FOLLOWED BY THE BRAKE STOP, THE BRAKE RETURN SPRING AND THE WASHER. RETAIN THE WASHER WITH SNAP RING.

INSTALL THE L.H. BRAKE SUPPORT AS ASSEMBLED ABOVE. USE FOURTEEN 7/16 - 14 X 1 1/4" BOLTS AND FOURTEEN WASHERS. TORQUE TO 54-65 LB. FT.

INSTALLATION OF BEVEL GEAR CARRIER ASSEMBLY

SET TRANSMISSION CENTER HOUSING ON ITS BOTTOM SO THAT THE INPUT BEVEL GEAR CARRIER ASSEMBLY CAN BE INSTALLED AFTER THE LEFT HAND BRAKE ASSEMBLY WORK HAS BEEN COMPLETED.

INSTALL THE SEAL INTO THE INPUT ADAPTER COVER ALONG WITH DRAIN PLUG SEAL AND DRAIN PLUG. TORQUE DRAIN PLUG TO 40-50 LB. FT. INSTALL INPUT ADAPTER COVER AND GASKETS USING NINE 3/8 - 16 X 1 1/2" BOLTS AND WASHERS. TORQUE BOLTS TO 36-43 LB. FT.

IN ADDITION INSTALL FIVE 3/8 - 16 X 2 3/4" BOLTS, FIVE WASHERS, TWENTY-FOUR 3/8 - 16 X 1 1/4" BOLTS AND TWENTY-FOUR WASHERS. TORQUE BOLTS TO 27-32 LB. FT.

RIGHT HAND END CENTER HOUSING GEAR TRAIN

INSTALL THE STEER IDLER GEAR. PRESS PIN IN PLACE. RETAIN IDLER GEAR WITH THRUST WASHER, RETAINER PLATE AND A 3/8 - 16 X 1" BOLT. TORQUE BOLT TO 36-43 LB. FT.

ASSEMBLE THE BRAKE CAM FOLLOWER, TO THE R.H. BRAKE APPLY CAM SHAFT, WITH SPACER, AND RETAIN WITH A SELF LOCKING NUT. INSTALL THIS SUB-ASSEMBLY WITH WASHER. NUT TORQUE IS 4-5 LB. FT. PLUS PREVAILING TORQUE.

INSTALL THE R.H. BRAKE RETURN SPRING, THE SNAP RING AND THE WASHER.

PRESS THE BEARING ON TO THE DRIVEN STEER GEAR. INSTALL TWO SNAP RINGS ON TO EACH OF TWO STEER SHAFTS.

INSTALL ONE OF THE STEER SHAFTS INTO L.H. STEER GEAR AND THEN INSTALL THE DRIVEN GEAR. INSTALL THE OTHER STEER GEAR AND THEN THE SHAFT RETAINED WITH RING.

PRESS TWO BEARINGS ON TO THE OUTPUT DRIVEN GEAR AND INSTALL THE GEAR.

PRESS TWO BEARINGS ON TO RANGE OUTPUT DRIVE GEAR. INSTALL THE RANGE OUTPUT GEAR SPACER ONTO THE RANGE OUTPUT SHAFT AND THEN INSTALL THE RANGE OUTPUT DRIVE GEAR.

RIGHT HAND END COVER AND R.H. BRAKE SUPPORT

RIGHT HAND END COVER ASSEMBLY, TWO BEARING CUPS PLUS TWO LONG DOWELS AND TWO SHORT DOWELS SHOULD BE IN THE COVER SUB-ASSEMBLY.

INSTALL BEARING INTO R.H. END COVER.

PRESS BEARING ON TO THE R.H. STEER GEAR AND INSTALL THE STEER GEAR INTO THE R.H. END HOUSING.

ASSEMBLE THE BRAKE COOLANT VALVE AS FOLLOWS: SLIP THE COOLANT CHECK VALVE, OVER THE BRAKE VALVE STEM, PLUS THE SPRING. INSTALL THE SEAL ON TO THE STEM. INSTALL STEM ASSEMBLY INTO THE R.H. END COVER, THEN INSTALL THE COOLANT VALVE AND SPRING. RETAIN BY INSTALLING THE BRAKE COOLANT VALVE BODY OVER THE COOLANT VALVE ALONG WITH THREE 5/16 - 18 X 1" BOLTS AND THREE WASHERS. TORQUE BOLTS TO 17-20 LB. FT.

INSTALL THE BRAKE APPLY VALVE BODY ASSEMBLY RETAINING IT WITH FIVE 5/16 - 18 X 1" BOLTS, AND FIVE WASHERS. TORQUE BOLTS TO 17-20 LB. FT.

PRESS THE BEARING ON TO THE R.H. OUTPUT SHAFT.

INSTALL A STEER RING GEAR ASSEMBLY

INSTALL THE OUTPUT SHAFT ASSEMBLY INTO THE R.H. END COVER ASSEMBLY AND THEN INSTALL THE OUTPUT FLANGE. RETAIN WITH A 1/2 - 20 X 3" BOLT AND LOCK WASHER. TORQUE 72-86 LB. FT.

PRESS BEARING ON TO THE R.H. STEER DRIVEN GEAR AND INSTALL INTO THE R.H. END COVER.

INSTALL SIX SPRING GUIDES, THE R.H. CLUTCH BACKING PLATE AND RETAIN WITH FOUR 3/8 - 16 X 1" BOLTS AND FOUR WASHERS. TORQUE BOLTS TO 36-43 LB. FT.

INSTALL FOUR REACTION PINS AND THE BRAKE COOLANT SEAL

PINS AND SEAL INSTALLED.

INSTALL AN OUTPUT CARRIER ASSEMBLY INTO A BRAKE DRUM AND RETAIN WITH A RING.

RING INSTALLED.

INSTALL THRUST WASHER.

INSTALLED

INSTALL THE DRUM/OUTPUT CARRIER ASSEMBLY INTO THE END COVER THEN INSTALL A THRUST WASHER.

INSTALL HYDROSTAT IDLER

STARTING WITH A FRICTION PLATE ALTERNATELY INSTALL FIVE REACTION PLATES AND AN ADDITIONAL FIVE FRICTION PLATES.

INSTALL SIX SPRINGS OVER GUIDE PINS AND RETAIN WITH THE CLUTCH REACTION PLATE AND SIX RINGS.

SUB-ASSEMBLE R.H. BRAKE SUPPORT

INSTALL BEARING CUPS INTO R.H. BRAKE SUPPORT FOR OUTPUT DRIVEN GEAR AND THE RANGE OUTPUT DRIVE GEAR.

INSTALL THE SEAL ON TO THE TUBE PROJECTION FROM THE R.H. BRAKE SUPPORT.

INSTALL THE BRAKE SEAL RETAINER AND THE SEAL RING ON TO THE SUPPORT AND RETAIN WITH TWO 5/16 - 24 X 7/8" BOLT AND WASHER. TORQUE TO 19-23 LB. FT.

INSTALL THE STATIONARY BRAKE CAM USING TWO 5/16 - 18 X 1" BOLTS AND ONE BOLT 5/16 - 18 X 2" AND THREE WASHERS TO RETAIN IT. TORQUE TO 17-20 LB. FT.

INSTALL I.D. SEAL AND O.D. SEAL INTO THE BRAKE APPLY CAM.

INSTALL EIGHT BALLS WITH GREASE INTO THE POCKETS OF THE STATIONARY CAM. GREASE THE SEALS AND INSTALL THE BRAKE APPLY CAM OVER THE STATIONARY CAM.

INSTALL SPRING PIN, ASSEMBLE THE BRAKE ADJUSTING LINK, TO THE BRAKE CAM SHAFT, THEN INSTALL THE BRAKE ADJUSTING LINK ON TO THE R.H. BRAKE APPLY CAM. RETAIN THE LINK USING THE TWO LEAF SPRING 1/4 X 20 X 1/2" BOLT. TORQUE BOLT TO 9-11 LB. FT.

NOTE: THE BRAKE ADJUSTING LINK HAS TO BE ORIENTATED SO THAT IT WILL FIT INTO A POCKET PROVIDED FOR IT IN THE BRAKE APPLY SHAFT.

ROTATING CAM ON BRAKE PACK THEN INSTALL ADJUSTING LINK. INSTALL R.H. BRAKE SPPORT ASSEMBLY ONTO ROTATING CAM.

INSTALL THE R.H. BRAKE SUPPORT ASSEMBLY ONTO R.H. END COVER. USE TWELVE 7/16 - 14 X 1 1/4" BOLTS, TWO 7/16 - 14 X 1 3/4" BOLT AND FOURTEEN WASHERS. TORQUE BOLTS TO 54-55 LB. FT.

TUBES, LUBE AND EQUALIZER VALVE

INSTALL SUMP COMMUNICATION TUBE. INSTALL SCAVENGE TUBE.

INSTALL TWO PACKING ON LUBE TUBE.

INSTALL TWO SEAL RING ON TO EQUALIZER VALVE TUBE.

INSTALL BOTH TUBES.

INSTALL SEAL ON TO THE PISTON ASSEMBLY. INSTALL THE PISTON ASSEMBLY INTO THE EQUALIZER VALVE ASSEMBLY. SLIP THE SPRING EQUALIZER OVER THE PISTON STEM AND INSTALL THE SPRING.

RETAIN THE ABOVE COMPONENTS IN THE MAIN CASE USING THE EQUALIZER COVER HOUSING WHICH IS FASTENED WITH TWO $\frac{3}{8}$ - 16 X 1 $\frac{1}{4}$ " BOLTS AND TWO WASHERS. TORQUE BOLTS TO 36-43 LB. FT.

INSTALLATION RIGHT HAND END COVER ASSEMBLY

INSTALL THE L.H. BRAKE APPLY SHAFT ASSEMBLY AND WASHER

NOTE: BEFORE R.H. END COVER GOES ON - RANGE PACK AND RANGE INPUT GEAR ETC . . . GOES ON.

RANGE SECTION

SET TRANSMISSION ON ITS RIGHT SIDE SO THAT THE RANGE SECTION COMPONENTS CAN BE INSTALLED.

NOTE: THE FIRST CLUTCH PISTON ASSEMBLY SHOULD HAVE BEEN INSTALLED BEFORE THE R.H. OUTPUT COVER WAS INSTALLED.

INSTALL ONE REACTION PLATE ADJACENT TO THE PISTON, THEN INSTALL ONE FRICTION PLATE.

INSTALL ONE REACTION PLATE.

INSTALL THE REAR INTERNAL GEAR ORIENTATING IT SO THAT THE SHORT SPLINE ENDS OF TEETH ARE CLOSE TO THE PISTON.

COMPLETE THE INSTALLATION OF THE PLATES BY INSTALLING A FRICTION PLATE ALTERNATED WITH THREE MORE REACTION PLATES AND TWO MORE FRICTION PLATES. RETAIN WITH THE FIRST CLUTCH BACKING PLATE AND SNAP RING.

REAR AND CENTER CARRIER INSTALLATION

SUB-ASSEMBLE RANGE OUTPUT SHAFT ASSEMBLY BY INSTALLING PIN. NEXT INSTALL BEARING ON TO THE SHAFT.

INSTALL THE SHAFT INTO THE REAR CARRIER ASSEMBLY WITH THE SNAP RING.

SUB-ASSEMBLE THE REAR CARRIER ASSEMBLY TO THE REAR CARRIER DRUM. RETAIN THE DRUM TO THE CARRIER WITH INTERNAL RING RETAINER.

INSTALL THE CENTER SUN GEAR ASSEMBLY ON THE RANGE OUTPUT SHAFT.

INSTALL TWO HOOK RING SEALS ON TO THE RANGE INPUT SHAFT.

INSTALL THRUST WASHER ONTO THE RANGE INPUT SHAFT.

SLIP THE REAR SUN GEAR AND CENTER RING GEAR ASSEMBLY ONTO THE RANGE INPUT SHAFT AND RETAIN WITH RING.

INSTALL SUN GEAR/SHAFT ASSEMBLY ONTO THE RANGE INPUT SHAFT.

INSTALL THE CENTER CARRIER RING ONTO SUN GEAR WITH RING AND ASSEMBLE ONTO RANGE INPUT SHAFT.

INSTALL ONE RACE, ONE BEARING AND ONE RACE INTO THE RECESS ON THE RANGE INPUT SHAFT. (GREASE TO HOLD IN PLACE)

INSTALL THE RANGE INPUT SHAFT SUB-ASSEMBLY INTO THE RING CARRIER/DRUM SUB-ASSEMBLY.

INSTALL CENTER CARRIER ASSEMBLY INTO THE RING CARRIER/DRUM SUB-ASSEMBLY.

INSTALL FRONT INTERNAL GEAR AND RETAIN WITH INTERNAL SNAP RING.

SLIP GOVERNOR DRIVEN GEAR AND SPACER ON TO THE SHAFT ASSEMBLY AND RETAIN WITH GREASE.

INSTALL THE RING CARRIER/DRUM/RANGE INPUT SHAFT ASSEMBLY INTO THE TRANSMISSION.

SECOND CLUTCH ASSEMBLY

INSTALL THE INTERNAL INCH SNAP RING INTO THE HOUSING.

SUB-ASSEMBLE THE SECOND CLUTCH BY INSTALLING THE O.D. SEAL AND THE I.D. SEAL ON THE PISTON. LUBRICATE THE SEALS AND INSTALL THE PISTON INTO THE PISTON HOUSING. NEXT INSTALL TWELVE CLUTCH RELEASE SPRINGS AND RETAIN WITH RETAINER AND FOUR SELF LOCKING RINGS.

AIR CHECK FOR SEAL LEAKS.

INSTALL THE SECOND CLUTCH PISTON SUB-ASSEMBLY IN THE HOUSING AND RETAIN WITH ONE $3/8 - 16 \times 1 \frac{1}{2}$ " BOLT AND ONE WASHER. DO NOT TIGHTEN. ENSURE THAT THE ASSEMBLY IS SEATED AGAINST THE SNAP RING.

MEASURE THE SNAP RING GROOVE CLEARANCE DIMENSION THAT EXISTS IN THE HOUSING AFTER THE PISTON SUB-ASSEMBLY IS INSTALLED. BASED ON THIS DIMENSION SELECT A SNAP RING AND INSTALL ONE THAT WILL PROVIDE A SNUG FIT. TORQUE BOLT TO 36-43 LB. FT.

INSTALL THE FRONT CARRIER ASSEMBLY, GREASE THE THRUST WASHER AND INSTALL ON THE CARRIER, THEN INSTALL BOTH IN THE HOUSING.

STARTING WITH A REACTION PLATE INSTALLED NEXT TO THE PISTON, ALTERNATELY INSTALL FOUR FRICTION PLATES AND FOUR MORE REACTION PLATES AND INSTALL SNAP RING. RETAIN THEM.

THIRD CLUTCH ASSEMBLY AND FOURTH CLUTCH

SUB-ASSEMBLE THE THIRD CLUTCH BY INSTALLING THE O.D. SEAL, AND THE I.D. SEAL ON THE PISTON. LUBRICATE THE SEALS AND INSTALL INTO THE PISTON HOUSING. NEXT INSTALL TWELVE CLUTCH RELEASE SPRINGS AND RETAIN WITH RETAINER AND FOUR SELF LOCKING RINGS. AIR CHECK FOR SEAL LEAKS, AFTER THE THIRD CLUTCH IS INSTALLED TO LIMIT PISTON TRAVEL.

INSTALL THE THIRD CLUTCH PISTON SUB-ASSEMBLY INTO THE HOUSING. ENSURE THAT THE ASSEMBLY IS SEATED AGAINST THE SNAP RING AND RETAIN WITH ONE $3/8 - 16 \times 1 \frac{1}{2}$ " BOLT AND ONE WASHER. DO NOT TIGHTEN.

MEASURE THE SNAP RING GROOVE CLEARANCE DIMENSION THAT EXISTS IN THE HOUSING, AFTER THE PISTON SUB-ASSEMBLY IS INSTALLED. BASED ON THIS DIMENSION, SELECT A SNAP RING AND INSTALL ONE THAT WILL PROVIDE A SNUG FIT. TORQUE BOLT TO 36-43 LB. FT.

SUB-ASSEMBLE THE O.D. SEAL AND THE I.D. ON THE PISTON. LUBRICATE THE SEALS AND INSTALL THE PISTON IN THE FOURTH CLUTCH HOUSING. INSTALL SIXTEEN SPRINGS ON THE CLUTCH PISTON AND RETAIN WITH RETAINER AND SNAP RING. STARTING WITH A REACTION PLATE ALTERNATELY INSTALL FIVE REACTION PLATES AND FIVE FRICTION PLATES. RETAIN WITH BACKING PLATE AND SNAP RING. AIR CHECK THIS SUB-ASSEMBLY FOR SEAL LEAKAGE AND MEASURE CLUTCH PLATE CLEARANCE.

INSTALL THE FOURTH CLUTCH SUB-ASSEMBLY AND THEN INSTALL THE THRUST WASHER.

THRUST WASHER INSTALLED

THIRD CLUTCH INSTALLATION.

INSTALL FOUR REACTION PLATES WITH THREE INTERSPACED FRICTION PLATES. INSTALL THE THIRD CLUTCH BACKING PLATE AND DOWEL PIN. RETAIN THE BACKING PLATE WITH RING.

FORWARD CLUTCH

SUB-ASSEMBLE THE O.D. SEAL AND THE I.D. SEAL INTO THE PISTON. LUBRICATE THE PISTON SEALS AND INSTALL THE PISTON INTO THE FORWARD CLUTCH HOUSING. INSTALL SIXTEEN SPRINGS INTO THE PISTON AND RETAIN WITH RETAINER AND SNAP RING. GREASE THRUST WASHER AND INSTALL IT IN SHORT HUB OF FORWARD HUB. STARTING WITH A REACTION PLATE ALTERNATELY INSTALL FIVE REACTION PLATES AND FIVE FRICTION PLATES. AIR CHECK THE FORWARD CLUTCH SUB-ASSEMBLY FOR SEAL LEAKS AND RECORD PLATE CLEARANCE.

INSTALL FORWARD CLUTCH ASSEMBLY.

PLEASE OBSERVE ORIENTATION OF THE PITOT, IT CAN BE INSTALLED BACKWARDS. TORQUE IS 9-11 LB. FT.

RANGE AND HYDROSTATIC DRIVE TRAIN

INSTALL BEVEL GEAR DRIVE SHAFT.

INSTALL TWO SNAP RINGS INTO THE HYDROSTATIC PUMP IDLER GEAR.

PRESS TWO BEARING RACES ON TO THE HUB OF THE IDLER GEAR.

INSTALL ONE BEARING INTO THE IDLER GEAR RETAINER.

INSTALL THE IDLER GEAR ASSEMBLY AND RETAIN WITH THE L.H. IDLER GEAR RETAINER. THE RETAINER IS FASTENED WITH SIX $\frac{3}{8}$ - 16 X 1" BOLTS AND SIX WASHERS. TORQUE TO 36-43 LB. FT.

SUB-ASSEMBLE THE HYDROSTATIC DRIVE GEAR TO THE RANGE INPUT DRIVE GEAR BY INSTALLING THE HYDROSTATIC DRIVE GEAR ON TO THE SPLINED HUB OF THE INPUT GEAR AND THEN PRESSING ON BEARING RACE. PRESS ON ANOTHER BEARING RACE.

INSTALL INTO HOUSING

PRESS BEARING ON TO THE RANGE INPUT GEAR.

INSTALL THE RANGE INPUT GEAR SUB-ASSEMBLY ON TO THE FORWARD CLUTCH HOUSING.

INSTALL TWO PACKING ON EACH OF TWO TRANSFER TUBES, FILTER IN TUBE AND FILTER OUT TUBE, THEN INSTALL INTO THE INPUT SCAVENGE PUMP.

INSTALL PACKING.

L.H. END COVER

INSTALL THE TUBE ASSEMBLY (HEAT & FREEZE METHOD) INTO THE L.H. END COVER ASSEMBLY AND RETAIN WITH THREE $\frac{5}{16}$ - 18 X $\frac{3}{4}$ " BOLTS. TORQUE TO 17-20 LB. FT.

INSTALL TWO HOOK RING SEALS ON TO THE TUBE ASSEMBLY ALONG WITH A SEAL RING.

PRESS THE BEARING ON TO THE L.H. OUTPUT SHAFT.

INSTALL TWO HOOK SEALS ON TO THE OUTPUT SHAFT.

INSTALL THE OUTPUT SHAFT ASSEMBLY INTO THE L.H. END COVER ASSEMBLY AND THEN INSTALL THE OUTPUT FLANGE. RETAIN WITH A $\frac{1}{2}$ - 10 X 3" BOLT AND LOCK WASHER. (BOLT IS TORQUED AND WASHER SET AFTER TRANSMISSION DRAG TORQUE IS MEASURED PER 19.4.0)

IN ORDER TO PROTECT THE OUTPUT SHAFT SEAL AND HOOK SEALS, INSTALL A BOLT IN THE OUTPUT SHAFT FLANGE TO KEEP THE SHAFT FROM DROPPING PAST THE OUTPUT SEAL WHEN THE TRANSMISSION IS ON ITS SIDE.

INSTALL FILTER INTO THE L.H. END COVER HOUSING.

INSTALL PACKING ONTO SWITCH AND THEN INSTALL SWITCH AND GASKET INTO THE HEAD ASSEMBLY.

PACKING, GASKET, SWITCH INSTALLED

TORQUE SWITCH TO 22-28 LB. FT.

INSTALL PACKING ONTO THE BY-PASS PLUG AND INSTALL THE BY-PASS PLUG AND GASKET INTO THE HEAD ASSEMBLY.

TORQUE PLUG 50 22-28 LB. FT.

INSTALL THE FILTER HEAD ASSEMBLY INTO THE L.H. END COVER USING THREE $\frac{3}{8}$ - 16 X 1 $\frac{1}{4}$ " BOLTS AND THREE WASHERS. TORQUE BOLTS TO 27-32 LB. FT.

PITOT TUBES

INSTALL PACKINGS ON TO TWO PITOT TUBES. INSTALL THE TWO TUBES INTO THE TRANSMISSION.

INSTALL THE L.H. COVER GASKET ON THE END COVER ASSEMBLY.

USING TWO $\frac{3}{8}$ - 16 X 3" GUIDE PINS, INSTALL THE L.H. END COVER ASSEMBLY. RETAIN THE COVER ASSEMBLY WITH TWENTY-SEVEN $\frac{3}{8}$ - 16 X 1 $\frac{1}{4}$ " BOLTS AND TWENTY-SEVEN WASHERS. TORQUE BOLTS TO 27-32 LB. FT.

INSTALL THE R.H. END COVER ASSEMBLY AND GASKET INTO THE TRANSMISSION. RETAIN WITH TWENTY-SIX $\frac{3}{8}$ - 16 X 1 $\frac{1}{4}$ " BOLTS, ONE $\frac{3}{8}$ - 16 X 3 $\frac{1}{2}$ " BOLT, TWO $\frac{3}{8}$ - 16 X $\frac{1}{2}$ " BOLTS AND TWENTY-NINE WASHERS. TORQUE BOLTS TO 27-32 LB. FT.

CONVERTER

THE TRANSMISSION IS SET ON ITS BOTTOM AND LAID BACK AT AN ANGLE FOR EASE OF INSTALLATION OF THE CONVERTER SECTION.

INSTALL TWO GUIDE BOLTS AND THEN INSTALL ONE GASKET.

INSTALL CONVERTER PUMP ASSEMBLY, RETAINER, EIGHT 5/16 - 24 X 1 1/4" BOLTS, FOUR LOCKING STRIPS. TORQUE BOLTS TO 19-23 LB FT. AND BEND LOCKING TABS.

INSTALL SPACER AND SNAP RING.

SUB-ASSEMBLE THE STATOR UNIT.

INSTALL RACE, BEARING ASSEMBLY AND WASHER INTO THE STATOR. RETAIN WITH SNAP RING.

INSTALL WASHER AND CAM, OBSERVING CORRECT ORIENTATION (IT CAN BE INSTALLED BACKWARDS).

COMPLETE SUB-ASSEMBLY OF STATOR BY INSTALLING TWELVE ROLLERS AND TWELVE SPRINGS.

INSTALL WASHERS AND SNAP RING.

INSTALL SNAP RING ON TO THE TURBINE SHAFT.

INSTALL STATOR SUB-ASSEMBLY.

INSTALL TURBINE ASSEMBLY AND RETAIN WITH SNAP RING.

INSTALL SEAL ON THE PUMP.

INSTALL LOCK-UP CLUTCH HOUSING PLATE. OBSERVE INDEXING MARKS FOR PROPER BALANCE (ARROW HEAD AND AN "H"). INSTALL THE LOCK-UP CLUTCH PLATE. INSTALL SEAL INTO THE LOCK-UP CLUTCH BACKING PLATE.

SUB-ASSEMBLE THE LOCK-UP PISTON, SEAL, RETAINER, RING AND COVER ASSEMBLY.

INSTALL THE COVER ASSEMBLY ON TO THE PUMP USING TWENTY-FOUR NUTS. TORQUE NUTS TO 19-23 LB. FT.

CONTROLS

INSTALL THE GOVERNOR PRESSURE SCREEN INTO THE TOP OF THE CENTER HOUSING.

INSTALL THE TRANSFER PLATE GASKET AND THE OIL TRANSFER PLATE ASSEMBLY. USE BOLTS AS FOLLOWS: THREE $\frac{1}{4}$ - 20 X 1" BOLTS, ONE $\frac{5}{16}$ - 18 X 1 $\frac{1}{4}$ " BOLTS AND TWO $\frac{5}{16}$ - 18 1 $\frac{1}{4}$ " BOLTS.

NOTE: SEPERATOR PLATE GOES ON TRANSFER PLATE BEFORE SOME OF THESE BOLTS GO IN.

TORQUE $\frac{5}{16}$ - 18" BOLTS TO 17-20 LB. FT.

TORQUE $\frac{1}{4}$ - 20" BOLTS TO 9-11 LB. FT.

INSTALL HARNESS ASSEMBLY WITH GASKET AND USING FOUR SCRES.
TORQUE 23-16 IN.

INSTALL THE CONTROL VALVE ASSEMBLY USING FIVE $\frac{5}{16}$ - 18 X 3 $\frac{1}{4}$ " BOLTS, EIGHT $\frac{5}{16}$ - 18 X 2 $\frac{3}{4}$ " BOLTS, PLUS FOUR $\frac{5}{16}$ - 18 X 3" BOLTS AND SEVENTEEN WASHERS. BE SURE TO CONNECT THE HARNESS GROUND WIRE UNDER BOLT. TORQUE SEVENTEEN BOLTS TO 13-16 LB. FT.

INSTALL THE LOCK-UP CONTROL VALVE ASSEMBLY. USE BOLTS AS FOLLOWS: TWO $\frac{5}{16}$ - 18 X 2 $\frac{1}{4}$ ", WITH TWO WASHERS, ONE $\frac{5}{16}$ - 18 X 3" WITH THREE WASHERS, THREE $\frac{5}{16}$ - 18 X 2 $\frac{3}{4}$ " BOLTS WITH THREE WASHERS. TORQUE THE BOLTS MARKED TO 13-16 LB. FT.

INSTALL THE PRIORITY VALVE ASSEMBLY USING TWO $\frac{1}{4}$ - 20 X 1 $\frac{3}{4}$ " BOLTS, ONE $\frac{1}{4}$ - 20 X 1 $\frac{3}{4}$ " BOLT AND THREE WASHERS. TORQUE THREE BOLTS TO 9-11 LB. FT.

INSTALL THE REGULATOR (G2 MOD.) ASSEMBLY. USE BOLTS AS FOLLOWS: TWO $\frac{1}{4}$ - 20 X 2 $\frac{1}{4}$ " AND TWO WASHERS, TWO $\frac{1}{4}$ - 20 X 1 $\frac{3}{4}$ " AND TWO WASHERS. TORQUE THE FOUR BOLTS TO 13-16 LB. FT.

SUB-ASSEMBLE THE VALVE CONTROL COVER BY INSTALLING THE PUSH-TO-START ROD AND ITS SPRING INTO THE COVER THEN RETAIN THE ROD BY INSTALLING THE ROD END AND ITS SPRING PIN. NEXT INSTALL SEAL FOLLOWED BY THE EXTENSION PUSH ROD. RETAIN THE EXTENSION PUSH ROD IN PLACE WITH ANOTHER PIN.

HOOK UP ALL SOLENOIDS AND INSTALL THE VALVE CONTROL COVER ASSEMBLY AND GASKET. RETAIN THE COVER WITH TWENTY-SIX 5/16 - 18 X 2" BOLTS AND TWENTY-SIX WASHERS. TORQUE BOLTS TO 13-15 LB. FT.

INSTALL THE VACUUM MOD SEAL INTO THE COVER ASSEMBLY. INSTALL THE VACUUM MOD RETAINER BRACKET USING A 5/16 - 18 X 3/4" BOLT.

INSTALL THE STEER ACCESS PLUG AND GASKET. TORQUE PLUG 50-60 LB. FT.

INSTALL THE BREATHER.

BREATHER INSTALLED.

LIFTING BRACKETS

USING TWO 3/8 - 16 X 1 1/2" BOLTS AND TWO WASHERS, INSTALL THE L.H. LIFTING BRACKET. TORQUE BOLTS TO 27-32 LB. FT.

INSTALL THE R.H. LIFTING BRACKET USING TWO 3/8 - 16 X 1 1/2" BOLTS AND TWO WASHERS. TORQUE TO 27-32 LB. FT.

INSTALL TWO BRAKE SHAFT INDICATORS AND RETAIN EACH INDICATOR WITH A SNAP RING. INSTALL ONE EACH SNAP RING IN OUTBOARD GROOVE.

ADJUST BRAKES.

INSTALL BRAKE COVER AND GASKET USING SIX 5/16 - 18 X 1" BOLTS AND SIX WASHERS. TORQUE TO 13-15 LB. FT.

INSTALL GOVERNOR. INSTALL BRAKE COVER AND GASKET USING FOUR 5/16 - 18 X 1" BOLTS AND FOUR WASHERS. TORQUE TO 13-15 LB. FT.

MEASURE OUTPUT SHAFT TORQUE. IT SHOULD NOT EXCEED 20 LB. FT. PER SIDE. RECORD THE TORQUE.

LB. FT.

L.H.

LB. FT.

TORQUE BOTH OUTPUT FLANGE BOLTS TO 71-83 LB. FT.

WITH TORQUE WRENCH AND APPROPRIATE ADAPATION, APPLY STEER SHAFT TO DETERMINE TORQUE AT 22.5 ROTATION - RIGHT AND LEFT. 50 IN. LBS. MAX.